

Knowledge, Attitude and Practices Regarding Common Eye Disease in Bangladesh: a study of Cumilla Zone

Md. Farhad Hossain¹, Dulal Chandra Nandi² and Md. Nazmul Ahsan³

1. Department of Statistics, Comilla University, Cumilla, Bangladesh;

2. Department of Statistics, Comilla University, Cumilla, Bangladesh;

3. Graduate student, Department of Statistics, Comilla University, Cumilla, Bangladesh

Corresponding Author: Md. Farhad Hossain

Department of Statistics, Comilla University, Cumilla, Bangladesh;

Abstract: Eye condition has emerged as potential threats to the status of sight in many low and middle income and industrialized country population. The common eye condition is red eye, Blurred vision, Trachoma, Diabetic Retinopathy, Glaucoma and Cataract etc. In Bangladesh Red eye, Cataract and Blurred vision are major eye condition to look at due to lack of proper education and awareness. Data were collected from “Alekharchor Eye Care Hospital, Cumilla. This study has selected 100 patients as sample of study purposively. The study was conducted to find out if factors like age, gender, education, region, family status, occupation, marital status, family history, knowledge about eye care services, knowledge on common eye disease, do for current eye problem, awareness of risk factors, allergies, diabetics, high blood pressure and vitamin A deficiency to contribute the influence of eye disease. That means if these predictor variables can be changed than it may possible to control the severity of eye disease.

Keywords: Eye, Disease, Blurred vision, Red eye, Cataract.

Date of Submission: 15-04-2020

Date of Acceptance: 30-04-2020

I. INTRODUCTION

Currently, eye diseases are considered as one of the major contributors of nonfatal disabling conditions in both high and low income countries (Mathers & Loncar, 2006). The global burden of eye diseases was estimated to be 61.4 million DALYs, accounted for 4.0% of total DALYs (Ono, Murakami, & Hiratsuka, 2010). Major contributors to the global burden of eye diseases are refractive errors (27.7 million DALYs), cataract (17.7 million DALYs), macular degeneration (9.3 million DALYs), glaucoma (4.7 million DALYs), trachoma (1.3 million DALYs), and vitamin A deficiency (0.6 million DALY) (Ono, Murakami, & Hiratsuka, 2010). In addition, WHO estimated that globally 285 million people are visually impaired of whom 39 million are blind (Morone, Cuenca, Kocur, & Banatvala, 2012). The two main causes of visual impairment in the world are uncorrected refractive errors (42.0%) and cataract (33.0%) (Resnikoff, Pascolini, Etya’Ale, Kocur, Pararajasegaram, & Pokharel, 2004). It is estimated that the South Asian region comprises a third of the world’s 45 million blind and the highest number of DALYs caused by eye diseases (Pizzarello, Abiose, Ffytche, Duerksen Thulasiraj, & Taylor, 2004). According to the National Blindness and Low Vision Survey of Bangladesh, 1.53% of adults, whose age is at least 30 years, are blind and 21.6% have low vision (presenting visual acuity of less than 6/12 in either one or both eyes) (Dineen, Bourne, Ali, Huq, & Johnson, 2003). Cataract (73.4%) and refractive errors (18.9%) were found to be the main causes of visual impairment in Bangladesh (Bourne, Dineen, Ali, Huq, & Johnson, 2004). Data from several studies suggest that insufficient food, substandard housing, and limited access to healthcare, education, water, and sanitation makes poor people more vulnerable to different diseases (Cattell, 2001;WHO, 2001). Bangladesh Urban Health Survey (2013) reported that slum dwellers suffer from a poorer mental and physical health status than the rest of the population. Therefore, it is imperative to ensure comprehensive eye care services at low or no cost for this vulnerable group of people. In Bangladesh, few researches have been carried out on visual impairment and blindness, however, there is a paucity of investigations focusing on the prevalence and risk factors of common eye diseases among low- income population n of Bangladesh. This paper unveiled the community based prevalence and associated risk factors of eye diseases among slum dwellers of Dhaka city. The findings of this study will provide strong insight to the policy makers and public health professionals about magnitude of different eye diseases, which, in turn will help them to design community- based programs to address the eye care needs of vulnerable slum population

Globally, 191 million people were estimated to have moderate and severe vision impairment (MSVI), with 32.4 million including 60% women being blind. Although the age-standardized prevalence of blindness in older adults of those aged? 50 years in South Asia was lower than that of the highest in Sub-Saharan Africa (4.4% vs. 6.0%), the prevalence of MSVI was the highest in South Asia (23.6%) compared to the second highest in Oceania (18.9%). The major causes of visual impairment are uncorrected refractive errors (43%) followed by cataracts (33%). Other causes of visual impairment include glaucoma, diabetic retinopathy (DR) and age-related macular degeneration (AMD). It is plausible that the epidemiology of reversible vision loss in Bangladesh is related to an increasing trend in non-communicable diseases particularly diabetes, and other trends in life style-related factors including modification of diet, sedentary life style, and smoking. A nation-wide population based study of adults 30 years of age in Bangladesh reported 22.6% with low vision and 22.1% with myopia. A growing body of evidence from Knowledge, Attitudes and Practice (KAP) studies have supported the need for greater awareness of prevention, diagnosis, risk factor control and disease management. It is imperative to reduce the burden of these diseases through the implementation of public health policy by identifying the risk factors of visual impairments. A major factor hindering public health strategies is a lack of awareness of eye conditions which has been shown to be associated with poorer outcomes in terms of prevention, eye care use, and treatment. There are a few studies conducted in Bangladesh that report the prevalence and risk factors of visual impairment, but all were conducted more than a decade ago. However, no study has reported awareness, attitudes and practice regarding common eye diseases, their risk factors or management in a general population either in a rural or in an urban city. One exception was in 2011, where Muhitetal conducted a KAP survey of parents in rural districts of Bangladesh in relation to blindness among children. They reported that approximately 75% of the parents knew that vitamin-A deficiency was the leading cause of blindness, more than one quarter believed that eye infection was an important cause of childhood blindness and half of the parents believed that childhood cataracts were untreatable. This has important implications for planning health care services. In this study, we report awareness, attitudes, and practices regarding common eye diseases, their risk factors and the variation according to socio-demographic factors in a rural district in Bangladesh? The study will inform the need for increasing health literacy regarding common eye diseases in the rural areas in Bangladesh.

1.1 Significance of the study

At the present moment, most of people are suffering from eye disease. . The severity of these disease increases the blindness which affect social and economic life of a country. There are some factors which are directly and indirectly related with eye disease. It may be able to Control these disease if necessary information about these factors is known by people (DR. Taylor et al .2008). I earnestly did this to learn, know and concern about the present condition of people with eye disease. Besides, my cherishes become higher while I attain support from my supervisor with his intellectual thoughts sharing and providing me essential information .This will learn to find the influential factors which plays vital role in occurring eye disease among people. The severity position of people also will represent in the study. Then the association between the disease status and different influential factors will be estimated. Finally, the odds ratio will estimate the risk rate of the people with region, age, gender , occupation etc which will learn to find the risk of people by different factors and health condition.

1.2 Objectives of the study

The main objective is to evaluate the knowledge, attitude and practices regarding common eye disease in Cumilla zone. The specific objectives are-

- i. To carry out descriptive analysis in order to view overall condition of people suffering from eye disease.
- ii. To find out association between the factors and disease status.
- iii. Test the significance of different factors associated with having disease status.

1.3 Justification of the study

Eye disease is an important cause of blindness globally. Many of the causes are either prevented or treatable with early diagnose and treatment. However delays in detection of eye disease can often lead to debilitating outcomes. Many reports showed that blindness prevalence was found to be greater with increased age. Blindness was also found to be more prevalent among women, illiterate subjects, and in economically disadvantaged people. However, previous studies, which have focused primarily on univariate analysis or descriptive (Eye disease: the neglected health condition among urban slum population of Dhaka, Bangladesh). In this study, we seek to determine different types of factors which are associated with eye disease and also identify the patient's knowledge, attitude and practices on common eye disease.

II. LITERATURE REVIEW

Data analysis is performed in three parts. The first part is univariate analysis. Univariate analysis is included descriptive statistics of the quantitative variables, frequency analysis and graphical presentation of qualitative variables. The second part is based on bivariate analysis such as cross tabs and chi-square test for association among the qualitative variables. Third part is the logistic regression analysis. When the dependent variable is categorical and there are two or more independent variables, logistic regression model is used. Logistic regression does not require linear relationship between dependent and independent variables. It is a nonlinear log transformation to the predicted odds ratio.

A number of factors have been postulated to cause eye disease. The most common factors are smoking, alcohol, diet and ageing. Smoking is thought to affect eye health through oxidative stress. Antioxidants help maintain lens transparency, so smoking may interfere with the protection from antioxidant nutrients (Kelly et al 2005). Oxidative stress in the RPE may contribute to macular degeneration (Bailey et al 2004). Alcohol is a difficult risk factor to isolate because it is often associated with smoking and can inhibit the absorption of nutrients. Alcohol may work directly on the proteins in the lens itself and indirectly by affecting absorption of nutrients important to the lens (Hiratsuka et al 2001). Good nutrition is thought to promote eye health, but it is unclear whether there are associations between eye diseases and certain dietary factors such as: o fatty acids - found in the retina, these are essential for eye development and may protect against the growth of abnormal blood vessels; changes in the composition of fatty acids in the membrane of the lens may cause cataracts o lutein and zeaxanthin, and carotenoids - these are found in the lens and the pigment of the retina and also in green leafy vegetables, which have antioxidant properties and which may protect against cataract and macular degeneration nutritional supplements (e.g. riboflavin, thiamin, vitamin C, vitamin E, vitamin A, zinc); for example, vitamin A is required in the production of rhodopsin, the visual pigment used to see in low light levels. As discussed above, many structures in the eye change as we age, and this can result in eye disorders and diseases. Near work such as reading, watching TV or looking at a computer screen has been associated with the development of myopia. Both visible and ultraviolet light may damage the eye. In particular, the cornea is a good absorber of ultraviolet (UV) light and if it is damaged this can lead to cataracts. In addition to diabetic retinopathy (discussed above), diabetes is also thought to be a risk factor for other eye diseases such as cataract (AIHW 2005). The eye may be adversely affected by problems with blood sugar levels, micro-vascular damage and associated conditions such as poor nutrition and obesity. Eye diseases are widespread around the globe.

According to the World Health Organization, the most important three eye diseases or conditions that are a potential threat to the global population are diabetic retinopathy, glaucoma, and age-related macular degeneration. One more vital reason for visual harm is refractive errors. Some of the important reasons for vision loss or low vision are age, healthcare, gender, genetic problems and the prevalence of family history.

III. RESEARCH METHODOLOGY

3.1 Study participants

The study population was Bangladeshi patient with Eye problem. Convenience sampling is choosing as a tool of data collection for this study. This study has selected 100 patients as sample of study purposively.

3.2 Data Source

After preliminary audit and review of literature, a questionnaire had been developed, most of which had been drawn from former similar studies and modified by the authors themselves. The study questionnaire was translated beneath Bangla and then translated abaft to English by different individuals to assess validity. This study was planned to show the Prevalence, knowledge and awareness regarding common Eye diseases among population of Cumilla, Bangladesh. In this study we have collected data from Cumilla district, Bangladesh over period from 15th February to 25th February, 2020. Data were collected from “Alekharchor Eye Care Hospital,Cumilla”. The purpose of this study was to find out knowledge, attitude and practices regarding common Eye diseases among people at Cumilla Zone, Bangladesh.

3.3 Statistical analysis

Statistical analysis was steered out using the (SPSS, Version 25.0). Percentage mean and standard deviation were enumerated wherever applicable. Chi-square test, binary logistic regression with (95% CI) was used to explore the bivariate associations between different factors that are influence to common eye disease.

IV. FINDING AND DISCUSSION

4.1 Distribution of disease

According to the study, about 65.68% male and 34.32% female are suffering from eye disease who are belong to 20-70 years old. Mainly 60-70 years age people are suffering more from eye disease. Most of the patients those are living in rural areas are suffering from eye disease that is 70.1% due to lack of knowledge of

eye care, proper treatment, social activities and so on. 35.8% middle class people are suffering from eye disease whose income level is 10000-20000 and also 76.1% married people are suffering most. The severity of eye disease is increasing when people are not aware of risk factor of eye disease and they are not conscious about it. People do not like to go to his/her doctor if they have a slight problem and most of the time they know information by their relatives. Most of the eye disease patients are suffering from allergies and vitamin A deficiency shown in table 1.

Table 1: Distribution of others disease

Variable	Characteristics	Frequency (%)
Allergies	No	32.81
	Yes	67.19
Diabetics	No	75
	Yes	25
High BP	No	73.44
	Yes	26.56
Vitamin A deficiency	No	45.31
	Yes	54.69

4.2 Types of Suffer from Eye Disease and Patients awareness about eye care

Total number of sample 100, among the participants is 67% patients suffer from eye diseases, these are red eye 19%, blurred vision 30%, glaucoma 5%, trachoma 8%, vision loss 15%, cataract 10%, age related macular degeneration 3% shown in figure 1.

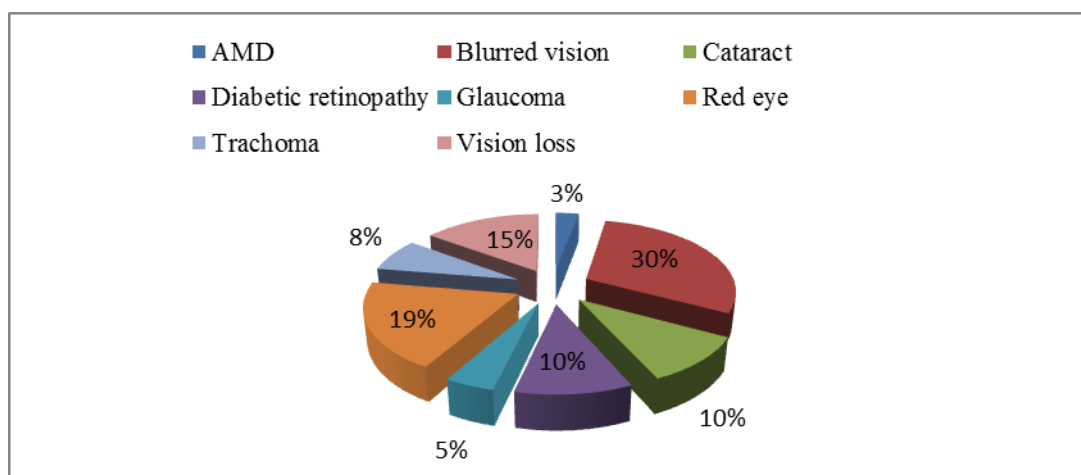


Figure 1: Type of suffer from eye disease

Among 28 patients 19 are checked eyes when they face problem, 6 are checked eyes once in a year and 3 are checked eyes 2 or 3 times in a year and the rest 72% are not checked eyes. 63% patients checked their eyes by ophthalmologist and most of the patients prefer hospital for eye care service. Among 45 patients 49% are use spectacles for clear vision, 24% for eye protection, 20% for reading and 7% for fashion. Most of them patients are not aware about eye care services shown in table 2.

Table 2: Patients awareness about eye care

Variable	Characteristics	Frequency (%)
Perception for current eye problem	Go to eye care providers	37
	Home remedy	27
	Nothing	36
Eye checking	No	72
	Yes	28
Use spectacles	No	55
	Yes	45
Knowledge about eye care	No	65.0
	Yes	35.0
Information sources	Books	2.0
	Internet	16.0

	Mass media	14.0
	Physicians	14.0
	Relatives/Family	54.0
Awareness of risk factor	No	54.0
	Yes	46.0

4.3 Knowledge on Common Eye Disease

During the study it was observed that 74.55% of the responded that they were known about definition of red eye whereas this amount was 85.46% blurred vision, 43.63% trachoma, 38.19% glaucoma, 29.10% diabetic retinopathy 83.64% cataract. The knowledge about vision loss and disease can be preventable were also reasonable for the mentioned diseases except trachoma disease where only 38.18% respondents knew that it may cause vision loss and 32.7% respondent knew that it may can be prevented. While observing cataract, it was found that there was proportion of participants who knew about definition (83.64%), vision loss (74.55%) knowledge of cataract shown in figure 2.

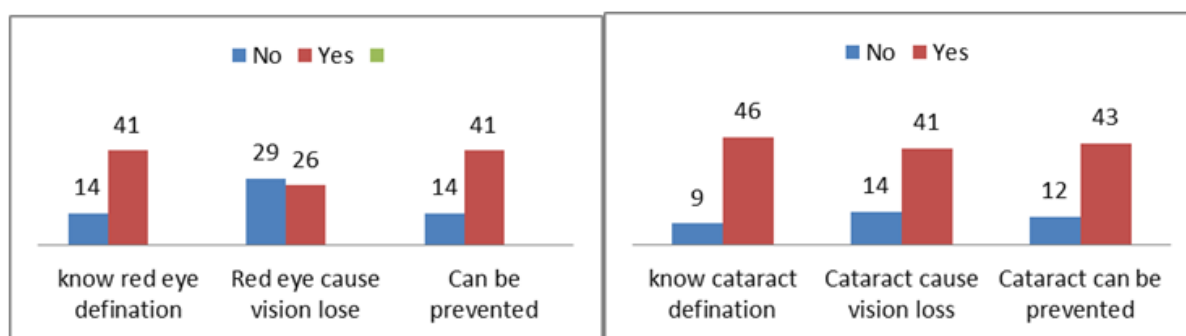


Figure 2: Knowledge on Common Eye Disease

4.4 Test of independence

In this study, to test the association we consider the null hypothesis as there is no association between two different variables. To make decision, we use p-value. If p-value < 0.05 then we reject the null hypothesis otherwise we accept the null hypothesis. Hypothesis is given below:

$$H_0 : \text{There is no association between two variables}$$

Table 3: Chi-square test of independence

Characteristics	Pearson Chi-square	DF	P-value
Region	4.332	1	.035
Marital status	14.992	1	.000
Family history	5.594	1	.016
Age	26.067	4	.000
Knowledge about eye care service	6.787	1	.007

Since the chi-square value is significant at 5% level of significance (since p-value < 0.05). So, we may reject the null hypothesis and conclude that there is a significant association between “Disease status” and all other variables include in table 3.

V. CONCLUSION AND RECOMMENDATION

This study provides that eye disease depends on education, region, family history, age, knowledge about eye care service, diabetics, high blood pressure. This study also provides families that have eye problem are more likely to have next generation eye problems. This has significant effect on eye disease. Based on all the facts, it can be concluded that knowledge and awareness about Cataract, Glaucoma, Red Eye, Trachoma, Glaucoma, Blurred Vision and Diabetic Retinopathy are not at good state at all. People are not aware of risk factor of eye disease and they know information by relatives most of the time. Most of the people do not like to go to his/her doctor if he/she has a slight problem. Even in the young generation, the knowledge is lacking and not up to the level as it is supposed to be. However due to the minimal exposure in the education system, they don't get as much information as they were supposed to be. Consequently, they will suffer from different complications.

At this point, the only way to remedy is to promote health awareness programs and much other awareness related things. Eye campaign is necessary for healthy eyes and adulterated foods should be avoided, eating more and more vegetables. In this stage government take some policy to prevented eye disease and also take free eye care services. It is however need to mention that this research was conducted on randomly chosen general people from “Alekharchor eye care hospital” and in a very small scale so it doesn’t reflect the whole idea. Therefore, it is suggested that if a conclusive result about the awareness of eye diseases is desired, further large scale researches should be conducted.

ACKNOWLEDGEMENT

I sincerely thank the Almighty Allah who has given me the strength, enablement, wisdom, knowledge and required understanding to complete this studt. Next, I wish to express my unreserved gratitude to my colleague **Dr. DulalChandra Nandi**, Associate Professor, Department of Statistics and one of my graduate student **Md. Nazmul Ahsan**, Department of Statistics, for their support, encouragement, for the valuable time they invested in this study and for collecting data, helpful inputs and feedback throughout the research work.

REFERENCES

- [1]. Mathers CD, Loncar D.(2006). Projections of global mortality and burden of disease from 2002 to 2030. PLoS Med, 3(11):e442. <https://doi.org/10.1371/journal.pmed.0030442>.
- [2]. Ono K, Hiratsuka Y, Murakami A.(2010). Global inequality in eye health: countrylevel analysis from the global burden of disease study. Am J Public Health, 100(9):1784–8. <https://doi.org/10.2105/AJPH.2009.187930>.
- [3]. Morone P, Cuena EC, Kocur I, Banatvala N.(2012). Investing in eye health: securing the support of decision-makers. Geneva: World Health Organization;; <http://www.who.int/iris/handle/10665/258521>
- [4]. Resnikoff S, Pascolini D, Etya'Ale D, Kocur I, Pararajasegaram R, Pokharel GP, et al.(2004). Global data on visual impairment in the year 2002. Bull World Health Organ., 82(11):844–5.
- [5]. Pizzarello L, Abiose A, Ffytche T, Duerksen R, Thulasiraj R, Taylor H, et al.(2004). VISION 2020: the right to sight: a global initiative to eliminate avoidable blindness. Arch Ophthalmol., 122(4):615–20.
- [6]. Dineen BP, Bourne RRA, Ali SM, Huq DMN, Johnson GJ.(2003). Prevalence and causes of blindness and visual impairment in Bangladeshi adults: results of the National Blindness and low vision survey of Bangladesh. Br J Ophthalmol., 87(7):820–8.
- [7]. Bourne RRA, Dineen BP, Ali SM, Huq DMN, Johnson GJ.(2004). Prevalence of refractive error in Bangladeshi adults: results of the National Blindness and low vision survey of Bangladesh. Ophthalmology., 111(6):1150–60.
- [8]. Cattell V.(2001). Poor people, poor places, and poor health: the mediating role of social networks and social capital. Soc Sci Med., 52(10):1501–16.
- [9]. World Health Organization. Dying for change: poor people's experience of health and ill-health. Geneva: World Health Organization; 2001 <http://documents.worldbank.org/curated/en/123521468332446432/pdf/331250ENGLISH0Dying0for0change.pdf>
- [10]. National Institute of Population Research and Training, International Centre for Diarrhoeal Disease Research B. MEASURE Evaluation. In: Bangladesh urban health survey 2013 final report; 2015. <https://www.measureevaluation>.

Md. Farhad Hossain,etal. “Knowledge, Attitude and Practices Regarding Common Eye Disease in Bangladesh: a study of Cumilla Zone.” *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 25(4), 2020, pp. 50-55.