

AWARENESS OF VISUAL SAFETY MEASURES IN RURAL AREAS OF PAKISTAN

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ABSTRACT

OBJECTIVE: The objective of this study was to assess knowledge and practices of protective eyewear among people in rural areas and to highlight hurdles in accessibility of protective eyewear. This survey also aimed for to increase the awareness level of visual safety measures.

METHOD: A descriptive cross-sectional survey was done on 95 subjects of different rural districts with the help of non-probability convenient sampling method. Self-structured questionnaire was used to assess knowledge and practices of safety measures. The study included participants of both genders of different age groups. Verbal consent was taken by every respondent before interviewed.

RESULTS: Total 95 subjects were included which consisted of 54 females and 41 males. About 65.2% participants were educated. Out of total subjects, 77.9% knew the importance of eye protection, 61.1% had undergone eye examination. Rate of eye injury at workplaces was mostly 42.1% with flying objects, 13.7% with pointed objects. 40% eye injuries at home were due to eye cosmetics & oil & spices, 10.5% with sharp objects and 7.4% with acid & soda. 47.4% people used glasses, 17.9% used cloth, 11.6% used cap and 30.5% did nothing to protect them from sunlight. Parental attitude towards their children's eye health was good, 43.2% parents had checked their children's eyes. 44.2% knew the effect of lack of food on eye health. 22.15% farmers used shield, 21.15% used glasses and 35.8% did not take any measure during harvesting. Most of the participants 43.25% used Arq e Gulab as eye remedy. 56.8% subjects had facility of hospitals.

CONCLUSION: This study showed that there was sufficient knowledge about safety measures and ophthalmic services in remote areas. However, the practical level of personal protective equipment (PPE) was low. Parental attitude towards their children was also good. Due to unavailability of services, people were involved in self-medication.

KEY WORDS: Awareness, Visual safety measures, Rural areas

INTRODUCTION

Vision can be defined as the ability to see. The words mostly used for vision are sight and perspective.¹ Vision is categorized as the worthwhile of our sensory faculty and is accountable for a major portion of the data we practice. Naturally, our eyes protect themselves from harm by eyelids, eyelashes, blink reflex, tear film and iris. Despite all these natural mechanisms, eyes are at high risk of injury which is a leading cause of avoidable visual impairment.² The eye is a more susceptible to environmental pollution. Environmental elements which include particulate materials, e.g. smoke and poisonous gases,

biomaterial's and ultraviolet radiations become a cause of hazardous eye diseases.³ Ultraviolet radiations become a cause of early development of some types of cataract which can also affect the immune system and skin. Protection from harmful sunlight rays can be done by using equipment like sunglasses, caps and also clothes. Change of attitude and perspective at an early age can also avoid hazardous disorders.⁴

The prime objective of Vision 2020 was to avoid visual impairment. To reduce the burden of ocular injuries, it is necessary to highlight its distribution, causes, effects and its preventive measures.⁵

According to WHO and international agency for prevention of blindness, uncorrected refractive errors are considered as the second most important cause of visual impairment after cataract.⁶ Globally, out of 2.3 billion people, 1.8 billion get their RE corrected but 500 million remain uncorrected and resultantly blindness rate increased.⁷

The epidemiological pattern of ocular injuries in each country varies according to its economic status, facilities provided and preventive measures taken. Prevalence depends on diverse geographical location and its environment. For example, in industrialized society, eye injuries related to material are more common while in a rural community vegetative traumas related to agriculture are more common.⁸

Prevalence of ocular injuries is greater in children and young adults, increasing burden of disability adjusted life years. Around 55 million ocular injuries which are not dealt properly could increase the load on economics. A large number of ocular trauma decreases the productivity of a low and middle income countries.⁸ This burden could be minimized by usage of advanced machinery and immediate treatment.⁹ Eye injuries require a frequent follow up for a detailed examination and if it is not done timely can have an impact on working capability, lifestyle and mental health system of patients.¹⁰ Work related eye injuries were found to have a strong association with age, education and occupation.⁵ The causative factors for eye injuries are workplace, education, physical activities, domestic injuries, firework injuries, road traffic accident and fighting & assault in all age groups.⁹ Causes of eye injuries in children include activities like sport, throwing stone, hitting with stick, pieces of glass, blunt objects, metal, sharp instrument (knife), projectile, air gun/toy gun, mud ball, vegetative trauma, disposable syringe, finger/fist, cricket ball. All these are leading cause of preventable blindness in children.¹¹ Number of eye injuries in children, mainly boys can be reduced by

parental education. Eye care practitioners have to guide their parents to reduce burden of eye injuries.⁹

Most of the ocular trauma at home is due to accidents involving sharp objects while non-accidental injuries may be due to any brutality and abuse. Visual prognosis is poor in domestic ocular traumas due to late presentation at hospitals and misleading information regarding the causative factor of disease.¹² Penetrating ocular injuries/blunt traumas are an outcome of domestic violence that can result in unavoidable blindness.¹³ In some Asian regions, the immense application of home remedies for any eye ailment increases its complications leading to minor to severe visual loss.¹⁴ The people living in rural areas are mostly farmers.¹⁵ Exposure of hazardous materials like sprays and pesticides is massive in farm related activities which results in severe eye infections distorting vision. Due to lack of knowledge and money, they cannot afford protective instruments and endanger their health. With proper guidance and training programs, they can alleviate the harm.¹⁶ Awareness of preventive and safety measures used during recreational and physical activities can decrease the rate of eye related lesions. According to each activity special protective eye wears were designed to lessen the damage.¹⁷ Malnutrition in rural areas of Pakistan is much more than urban areas. A diet full of nutrients like vitamin A is essential for good vision. Lack of basic supplements in diet can cause various eye diseases with age.¹⁸

There are three main considerations, including availability, reliability and accessibility of eye care facilities, which may prove helpful in prevention of vision disability worldwide. There are also some secondary influences, such as geographical, personal and socio-economic factors, which may serve as obstacles to the use of available, accessible and affordable eye care services. Factors such as expenses, lack of knowledge, cultural values and personal factors have been described as

barriers to eye safety.¹⁹ In rural areas, most of the people are unaware of eye diseases due to poor facilities of hospitals or long distance from the hospital.²⁰ At the end of discussion, work related ocular traumas show strong association with male respondents, lack of knowledge, and lack of safety trainings, without machine guarding and eye protection. It is concluded that prevention of ocular injury and trauma is an important topic, but it is often a neglected part of the discussion. Therefore a mass awareness, trauma related education to children and their parents, factory workers, farmers is very important aspect of prevention of catastrophic effect of trauma to the eye and reduction of ocular morbidity and prevalence of blindness.⁹

MATERIALS AND METHODS

Descriptive, cross sectional survey was done for data collection. There were 96 participants of randomly selected rural areas of Pakistan who actively participated in this study. Non-probability convenient sampling technique was used for data collection. Data were collected through self-administered questionnaire by the way of interviewing. Demographic characteristics were included. It consisted of 30 questions which included some questions to evaluate their knowledge and some about their practice. Frequencies and percentages of different variables were calculated. Presentation of data was done by making tables, graphs and charts. Verbal consent was obtained from each respondent after informing them the purpose of study and their rights of participants. The research protocol was approved by the Ethical Review Board of College of Ophthalmology and Allied Vision Sciences. The study methods adhered to the tenets of the Declaration of Helsinki for the use of participants in biomedical research.

RESULTS

44.7% people used glasses, 18% used cloth for shade, 11.6% used cap and 1/3rd of the

participants used no protective gear from sunlight (fig.1). Among 95 subjects, 21 put shield in front of face, 20 use glasses, 34 take no action and 20 not needed (fig.2). A very high majority 87% use home remedies (43.2% Arq e Gulab, 40% Surma or Kajal and 15% honey) rather than using authentic medication (fig.3). This table shows good attitude of people of rural areas towards eye examination and protection (Table 1).

Table-1: People Attitude Towards Eye's Examination and Protection

Questions	Frequency (%)	Frequency (%)	Frequency (%)
	Yes	No	Not needed
An eye examination due to poor eyesight, injury or any other ailment	58 (61.1%)	23 (24.2%)	14 (14.7%)
Frequency of children eye's checkup	41 (43.2%)	36 (37.9%)	18 (18.9%)
Frequency of advice to children for eye protection	49 (51.6%)	23 (24.2%)	23 (24.25%)

Figure -1: Safety Measures Taken for Protection From Sunlight.

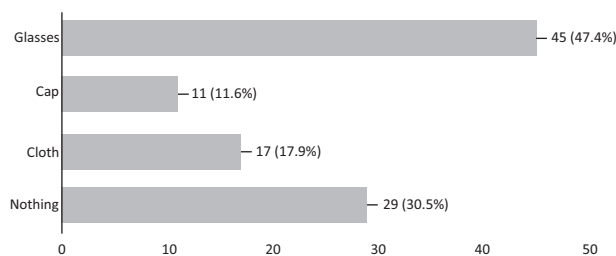


Figure -2: Protection of Eyes from Injury During Harvesting

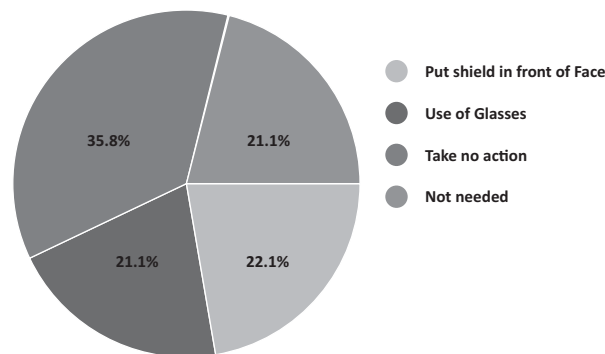
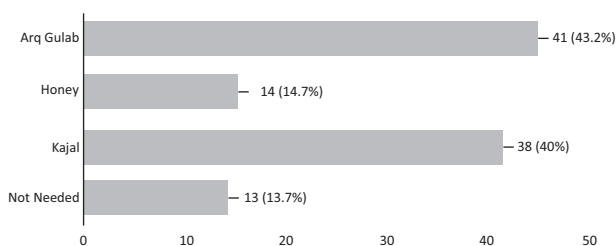


Figure -3: Usage of Home Remedies for Eye Cleansing



DISCUSSION

This survey offers a systematic review of the eye care system in rural areas and reflects primarily its opportunity to supply eye care. The benefits of this report include its inclusiveness and input from general public on issues of quality, affordability, acceptability and practices of eye care. The study included 95 participants; of whom mostly were females and most of subjects belonged to middle class families. The study participants belonged to various forms of occupation; some were farmer, field worker, housewives, teachers, daily wagers, workers, shopkeepers, welders, students, business and office worker. Most of the people participated in this study had exposure of both open and closed places at their worksites.

Attitude of participants was highly positive toward eye protection. Most of the participants had get their eye examined due to poor eyesight, injury or any other eye ailment but some of them 24.4% faced barriers in availing services despite the need of checkup due to lack of facilities and resources. Among 95 participants of this study, 65.3% of participants were literate. There was substantial correlation between the educational level and the use of ophthalmic services in this sample. This was believed that educated people were seeking ophthalmic services because they might have a better understanding of their condition and understand the consequences of not seeking attention to their eye problems. In addition, educated people mostly belong to the higher socio-economic class, and are therefore more likely

to bear the cost of ophthalmic services. This was contrary to a previous study of Ghana where there was no significant association between the use of ophthalmic services and the highest level of education.²¹

Ocular injury rate at workplace in this study was found higher with flying objects (dust particles, wood particles and fire flames from tandoor), with pointed objects, lasers and twigs of trees while others 32.6% faced no injuries. Prevalence of injury rate was most commonly seen in young adults due to their engagement in risk-taking and violent outdoor activities. Involvement of either eye in trauma was not specific in this study.

This research revealed that the some subjects of the study had clear knowledge about practices of safety measures to avoid occupational barriers involving agriculture and about 43.2% people used personal protective equipment but 35.8% did not take any action at worksites during harvesting. A research was done in Ethiopia (Hawassa) in which there was no significant usage of PPE at their workplace.²¹

When questions were asked regarding safety measures to avoid exposure of ultraviolet rays from sun. There was a degree of uncertainty in females attitudes towards UV sensitivity and negotiated the use of sun protection while male showed knowledge about some of the sunlight safety gadgets but being confused about others safety measures. These women stressed the importance of enjoying time in the sun for their good health.

In this study, most commonly used sunlight protections were glasses and others were caps and cloths ("pagri" and "safa") around head for shade. The key objective noticed behind using noticed was to lessen discomfort level from bright light which shows mindfulness of eye protection in participants. About 30.5% people did not take any measures to avoid sunlight which shows low practices of sunlight protection in remote areas. In previous Northeast survey, the frequency of using

sunglasses was relatively lower²² than this study.

Parental education toward their child's eye protection seen in this study was fairly good. They supervised their children and kept their children away mostly from sharp objects, pesticides, acid and soda to prevent them from any eye injury. They also advised their children while going to school and asked them about difficulty in reading due to poor eyesight. Frequency of children eye's checkup was 43.2% in remote areas in this study. While 57% parents did not check their children's eyes as neither required nor felt its need. In Indian subcontinent, a survey was done to assess awareness and attitude of parents toward misalignment of eyes. Authors concluded that parents with high education had more awareness than those who had relatively low educational status. So, parent's lack of knowledge resulted in lazy eye due to delayed treatment in children²³ whereas in this study parental education and treatment are not significantly correlated.

Food that was mostly used by participants included vegetables, eggs, milk, meat, pulses, fruits and fast food. In this study 53.7% subjects did not know the diet which could make vision better. On the other hand 55.8% were well aware of that food deficiency could disturb the vision. The responses collected about diet shows that there was consumption of all type food on daily basis in remote areas but there was no specific utilization.

Most of the respondents faced no problem while doing house work but percentages of eye disease with eye cosmetics, oil & spices, sharp objects and acid & soda could not be ignored. There were 20% eye disease due to mishandling of eye cosmetics, 20% with oil & spices, 10% with sharp object and 7% with acid & soda used in different house chores. Mostly eye diseases were associated with females as it related to household.

Responses were collected about awareness of eye disease showed 43.2% people knew eye diseases that are contagious and related to household filth.

On the other hand 56.8% people were unaware of the eye disease related unhygienic environment. Mostly respondents disposed their household and animal waste far away from their houses so that they could avoid contamination but 34.7% threw waste outside their houses. Waste management was strongly linked with educational status. An eye disease which was discussed in previous research in detail the trachoma which spreads due to unhygienic conditions. Its prevalence was more significant in rural areas. It can lead to severely visual impairment in advanced stage. Prevalence of trachoma can be lessened by making strategies at different levels for health promotion. For this purpose a research was done to improve interventions to optimize facial and environmental cleanliness for eradication of trachoma.²⁴

Accessibility to clean water in remote areas was sufficient according to this study. Only 14.7% people had to fetch clean water due to non-availability. Different sources of water were used of which water pump were the most common. Because of this reason incidence of infectious disease due to contamination was low.

Farming is the most common occupation in rural areas so risk factors of eye trauma were also associated with harvesting. To acknowledge practices of eye protection during harvesting, questions were asked which shows that 35.8% farmers take no measures for their safety while others used shield in form of glasses, cloth and any other type of face shield off & on to avoid danger in this study. When a survey was done in United Arab Emirates to determine eye injury rates, Palm date tree eye injuries particularly in farms were a major cause of vision loss in the UAE. And there was no use of protective goggles at time of injury.²⁵ Above mentioned both studies showed low practices of safety measures.

There was 67% use of sprays and chemicals in fields which could pollute the environment and water and became a cause of eye diseases. During

harvesting season, 32.6% suffered with eye diseases which indicate that people dealing with pesticides took no precautionary measures. Preventive measures had not been taken due to hurdles in availing personal protective equipment and lack of education. Carelessness in use of pesticides affects farmer's health and inhabitants around them which was showed in previous study the Bangladesh research. Unsafe use affects skin, eye and other important organs of body. Constant exposure could cause temporary or permanent vision loss.²⁶

In this study, use of self-medication and home remedies was in a significant amount in remote regions which act as barrier in attaining proper eye care services. There was use of Rose water (Arq e Gulab) 43.2%, kajal (eye black) or surma (Kohl) 40% and Honey 14.7% among 95 participants. People of rural areas paid no attention on harmful effects of self-utilized eye drops. In rural areas of India, previous survey showed uncontrolled use of self-medicated eye drops and home remedies which were not prescribed and expired. Utilization of all such medications enhanced the severity of disease.²⁷

In randomly selected underdeveloped regions, there was 56.8% facility of hospital whereas in most of these hospitals there was no separate eye department and eye care practitioner. Among participants 44.2% responded that eye camps were arranged there, but frequency of camp varied according to their location. This research showed that by proper health promotion programs the awareness level could be enhanced.

CONCLUSION

This study showed that the use of ophthalmic services was grossly insufficient, primarily due to inaccessible ophthalmic services in the rural districts. Consequently, some rural residents were forced to use potentially hazardous eye-care practices, such as the use of un-prescribed eye drops and home remedies. However, older adults,

females, and participants with a previous history of eye disorders have used slightly more ophthalmic services. While the knowledge seems to be fairly high, the use of PPE is low. Eye care services in rural areas were not sufficient which raises a serious public health concern.

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