

Assessing knowledge and practice about eye injuries first aid, with awareness about the importance of early management among general population in Asser Region, 2020

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ABSTRACT

Background: Eye injury is a leading cause of monocular blindness and is second only to cataract as the commonest cause of visual impairment. Injury is the commonest reason for eye-related emergency department visits. **Aim:** To assess population awareness regarding eye injuries first aids in Aseer region, Saudi Arabia. **Methodology:** A descriptive cross-sectional approach was used targeting all accessible population in Aseer region, Southern of Saudi Arabia. Data were collected from participants using electronic pre-structured questionnaire. The tool will cover participants' socio-demographic data, participants' history of eye injury, awareness and practice regarding different types of eye injuries first aids. **Results:** The survey included 1213 participants who completed the questionnaire. Participants' ages ranged from 18 to 60 years old with mean age of 22.3 ± 11.9 years old. About 69% of the participants reported for having constant eye pain, 68.3% reported in case of Foreign Body (FB) in the eye, 66.9% reported for torn eye lid. Regarding signs of scratch eye, 64.2% reported for feel FB inside, 58% reported for eye pain and 55.2% reported for blurred vision. Exact of 25.7% of participants reported that they should blink several times in case of getting eye scratch, whereas 77.8% reported that they should rub the eye to try to remove any foreign object, 36.3% preferred to use the soothing eye drop. **Conclusions** In conclusion, the study revealed that public awareness regarding eye injury first aid in Aseer region was poor especially for chemical injuries. Physician role should be augmented and health education campaigns are advised.

Keywords: Actions, awareness, emergencies, eye injury, first aids, ocular injuries, population

Background

Eye injury is the main cause of monocular blindness in the United States and after cataract as the most reported cause of visual impairment.^[1] Injury is the most common cause for ophthalmic emergency department (ED) visits.^[2] Most eye injuries

are preventable with the appropriate use of protective eyewear. Physical or chemical injuries of the eye are mostly serious danger which affects vision if not adequately treated within a reasonable time period.^[3,4] Ocular (eye) injuries can be presented by redness and pain of the affected eyes.^[5] Generally, tiny metallic projectiles may cause neither symptom. Tiny metallic projectiles should be considered when a patient tells about metal on metal contact, such as with hammering a metal surface.^[6] Corneal foreign body is one

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of the most reported avoidable occupational hazards.^[7] Intraocular foreign bodies usually is painless due to the lack of nerve endings in the vitreous humour and retina that can transmit pain sensations.^[8] Determining the precise location of intraocular foreign bodies is crucial for the management of patients with open-globe injury.^[9]

As such, general or ED doctors should refer cases involving the posterior segment of the eye or intraocular foreign bodies to an ophthalmologist.

Nearly, about 7% of eye injuries are managed in hospital EDs.^[10] Additionally, more than 60% of chemical injuries occur in workplace accidents, 30% occur at home and 10% are the result of an accident.^[11] Particularly, visual rehabilitation after an advanced eye injury occurs in less than 15% of the affected individuals. Men are threefold more likely to experience injuries than women; furthermore, individuals aged 16–45 years are most likely to be affected.^[11]

One moment a person can have perfectly normal eyes and the then he may be blind or at least had visual impairment.^[12] Therefore, population should be aware of situations that could lead to injury. Eye injuries may be trivial or serious. All safety measures should be known to avoid injury complications. The role of health education is to promote awareness amongst the public about how to protect their eyes and what to do in the case of injury. The current study aimed to assess knowledge and practice regarding eye injuries first aid and awareness about the importance of early management among general population in Asser Region, Southern Saudi Arabia.

Methodology

A descriptive cross-sectional approach was used targeting all population in Aseer region. The research ethical approval was obtained in the Research Ethics Committee at King Khalid University (HAPO-06-B-001) approval no. ECM#2020-0908 on 08/07/2020. The study was conducted during the period from June 20 to September 2020. Persons with smartphone and can access internet were included. All those below the age of 18 years and those who were not permanently living in Aseer region (or for at least 1 year) were excluded. Data were collected using structured questionnaire which developed by the researchers after literature review of relevant articles and expert’s consultation. The questionnaire data included person’s socio-demographic data, such as age, gender, education and history of eye injury. Participants’ awareness regarding eye injury and first aids was assessed covering all types of eye injury (scratch, puncture and chemical injuries) besides first aids for each type. A panel of five experts reviewed the questionnaire independently for content validity and all suggested modifications were added. The questionnaire was uploaded online using social media platforms by the researchers and their relatives and friends to be filled with all population in Aseer region. All those who received the electronic questionnaire during the study period and fulfilling the inclusion criteria were invited to participate through filling the questionnaire.

Data analysis

After data were extracted, it was revised, coded and fed to statistical software IBM SPSS version 22 (SPSS, Inc. Chicago, IL). All statistical analysis was done using two-tailed tests. *P* value less than 0.05 was considered to be statistically significant. For awareness items, each correct answer was given one-point score and total sum of the discrete scores of the different items was calculated. A patient with score less than 60% (18 points) of the maximum score was considered to have poor awareness, whereas good awareness was considered if he had score of 60% (19 points or more) of the maximum or more. Descriptive analysis based on frequency and percent distribution was done for all variables including demographic data, awareness items and participants source of information. Crosstabulation was used to assess distribution of awareness according to participants’ personal data and source of information. Relations were tested using Pearson’s Chi-square test.

Results

The survey included 1213 participants who completed the questionnaire. Participants’ ages ranged from 18 to 60 years old with mean age of 22.3 ± 11.9 years old. The majority of the participants were females (85.7%) and 48.8% were single, whereas 48.4% were married. Regarding educational level, 33.1% were university students and 41.1% had bachelor’s degree or post graduate degrees. About monthly income, 57% of the participants had average monthly income (5000–15000 SR). Exact of 190 (15.7%) participants had previous history of eye injury [Table 1].

Table 1: Personal data of survey participants, Aseer region, Saudi Arabia

Personal data	No	%
Gender		
Male	174	14.3%
Female	1039	85.7%
Age in years		
<20 years	190	15.7%
21-30	458	37.8%
31-40	275	22.7%
41-50	243	20.0%
51-60	47	3.9%
Marital status		
Single	592	48.8%
Married	587	48.4%
Divorced/widow	34	2.8%
Educational level		
Secondary/below	146	12.0%
University student	402	33.1%
Diploma	167	13.8%
Bachelor/postgraduate	498	41.1%
Monthly income		
<5000 SR	172	14.2%
5000-15000 SR	691	57.0%
>150000 SR	350	28.9%
History of eye injury		
Yes	190	15.7%
No	1023	84.3%

Tables 2a and 2b illustrates eye injury first aid awareness among survey participants. As for cases makes persons should go to ER, 69% of the participants reported for having constant eye pain, 68.3% reported in case of FB in the eye, 66.9% reported for torn eye lid and 65.9% reported for having visual problems. Regarding signs of scratch eye, 64.2% reported for feel FB

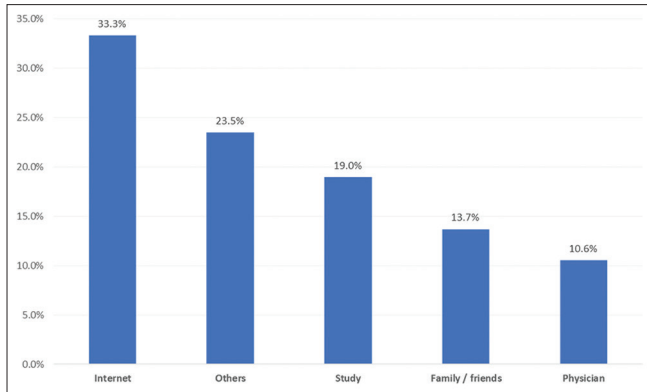


Figure 1: Source of information regarding eye injury first aid among general population, Aseer region, Saudi Arabia

inside, 58% reported for eye pain and 55.2% reported for blurred vision. Considering Action to do with injured eye, 39.6% reported for washing eye with clean water and 29.5% reported for close eyes. Exact of 25.7% of participants reported that they should blink several times in case of getting eye scratch, whereas 77.8% reported that they should rub the eye to try to remove any foreign object, 36.3% preferred to use the soothing eye drop. As for actions in cases of a bruise blow to the eye, 72.7% reported that they should gently apply cold compresses and 19.1% reported for applying warm compresses. Applying a clean protective cover on your eye until you can see a doctor was reported by 87% of the participants and 53.7% refused remove stuck items to eye in case of eye perforation. Exact of 37.3% of the partisans reported for doing nothing in case of eye cut or perforation occurs. Chemical injury complications were reported by 86.9% of the participants and 47.1% preferred going to physician or hospitals in case of chemical eye injury occurs. Exact of 60.8% of the participants agreed on that alkaline injuries are more dangerous than acidic and 28.9% reported they should remove particles in the eye in case of chemical injury. Also, 12.4% reported for wash with alkaline

Table 2a: Eye injury first aid awareness among survey participants, Aseer region, Saudi Arabia

Eye injury first aid awareness items	No	%	
Signs and symptoms make go to ER	Constant eye pain	837	69.0%
	Visual problem	799	65.9%
	Torn eyelid	811	66.9%
	Asymmetry of eye movements	733	60.4%
	Changes in the shape of the pupil	604	49.8%
	Blood in the eye	726	59.9%
	FB in the eye	828	68.3%
	Mild eye pain	173	14.3%
	Will not go to ER	44	3.6%
	Signs of scratch eye	Do not know	162
Eye pain		703	58.0%
Blurred vision		669	55.2%
Periorbital darkness		176	14.5%
Photosensitivity		399	32.9%
Feel of FB inside		779	64.2%
Action to do with injured eye		Nothing	87
	Go to hospital/physician	33	2.7%
	Use anti-inflammatory eye drops	203	16.7%
	Close my eyes	358	29.5%
	Rinse my eye with saline or clean water	480	39.6%
	Clean my eyes with cotton and water	52	4.3%
	When you get a scratch in the eye, do you have to blink several times?	Yes	312
No		373	30.8%
Do not know		528	43.5%
When you get a scratch in the eye, should you rub the eye to try to remove any foreign object?	Yes	139	11.5%
	No	944	77.8%
	Do not know	130	10.7%
When you get a scratch in the eye, you can use your contact lenses	Yes	36	3.0%
	No	1093	90.1%
	Do not know	84	6.9%
When you have a scratch in the eye, in case of scratched Eye, you can use redness-relieving eye drops	Yes	444	36.6%
	No	455	37.5%
	Do not know	314	25.9%

FB: Foreign body

Table 2b: Eye injury first aid awareness among survey participants, Aseer region, Saudi Arabia

Eye injury first aid awareness items, continued		No	%
What should you do if you have a bruise blow to the eye?	Go to hospital/physician	51	4.2%
	Compress eye to stop bleeding	48	4.0%
	Gently apply cold compresses	882	72.7%
	Gently apply warm compresses	232	19.1%
In cases of cuts or perforation, apply a clean protective cover on your eye until you are able to see a doctor?	Yes	1055	87.0%
	No	41	3.4%
	Do not know	117	9.6%
When an eye cut or puncture occurs, remove anything stuck in the eye?	Yes	310	25.6%
	No	651	53.7%
	Do not know	252	20.8%
When an eye cut or perforation occurs, which of the following is true?	Nothing to do	453	37.3%
	Avoid rinsing the eyes with water	200	16.5%
	Squeeze the protective covering of the eye	110	9.1%
	Take aspirin or anti-inflammatory drugs	77	6.3%
	None is correct	373	30.8%
Chemical injury can cause ocular complications?	Yes	1054	86.9%
	No	24	2.0%
	Do not know	135	11.1%
What's the first thing you should do when a chemical eye injury occurs?	Go to hospital/physician	571	47.1%
	Use eye drops	18	1.5%
	Cover the eyes	25	2.1%
	Wash eyes with little water	39	3.2%
	Wash eyes with much water	560	46.2%
	Do not know	20	1.6%
Alkaline injuries are more dangerous than acidic?	Yes	737	60.8%
	No	120	9.9%
	Do not know	356	29.3%
Locate and remove particles in the eye in case of chemical injury?	Yes	350	28.9%
	No	398	32.8%
	Do not know	465	38.3%
When injured with acidic material, wash with alkaline solution?	Yes	150	12.4%
	No	491	40.5%
	Do not know	572	47.2%
When injured with alkaline material, wash with acid solution?	Yes	110	9.1%
	No	480	39.6%
	Do not know	623	51.4%

solution when injured with acidic material, wash with alkaline solution and 9.1% told when injured with alkaline material, wash with acid solution.

Table 3 shows distribution of participants' awareness regarding eye injury first aid by their personal data. Exact of 35.6% of participants aged 31–40 years had good awareness level compared to 9.5% of young age group with statistical significance ($P = 0.001$). Also, 43.2% of those who had higher educational level (bachelor/postgraduate) had good awareness level compared to 4.8% of those with secondary level of education ($P = 0.001$). History of having eye injury was significantly associated with higher awareness level regarding first aids. (46.3% vs. 26.4%, respectively; $P = .001$). As for source of information, good awareness level was detected among 57.8% of those who got their information from study, 51.6% of those who got from physicians compared to 13.3% of those who reported families and friends as source of information ($P = .001$). In Figure 1, as source of information

regarding eye injury first aid among general population, through internet accounted 33.3%, Others (23.5%), 19% of those who got their information from study, 13.7 from physicians and 13.7% of those who reported from families and friends.

Discussion

The current study aimed to assess public awareness regarding eye injury first aid and importance of early management. The most common eye injuries are work related and mostly due to physical or chemical factors.^[5,13] First aid awareness can play significant role in minimizing the serious complications of eye injuries which may end with complete blindness.^[14]

The current study revealed that nearly two thirds of the study participants correctly reported signs and symptoms of eye injuries that necessitates ER visit. As for actions to do with injured eyes, nearly one third of the participants reported fir rinse eyes with saline and cold water, whereas others reported different actions

Table 3: Distribution of participants awareness regarding eye injury first aid by their personal data

Personal data	Awareness level				P
	Poor		Good		
	No	%	No	%	
Gender					0.120
Male	114	65.5%	60	34.5%	
Female	741	71.3%	298	28.7%	
Age in years					0.001*
<20 years	172	90.5%	18	9.5%	
21-30	312	68.1%	146	31.9%	
31-40	177	64.4%	98	35.6%	
41-50	159	65.4%	84	34.6%	
51-60	35	74.5%	12	25.5%	
Educational level					0.001*
Secondary/below	139	95.2%	7	4.8%	
University student	329	81.8%	73	18.2%	
Diploma	104	62.3%	63	37.7%	
Bachelor/postgraduate	283	56.8%	215	43.2%	
History of eye injury					0.001*
Yes	102	53.7%	88	46.3%	
No	753	73.6%	270	26.4%	
Source of information					0.001*
Internet	288	71.3%	116	28.7%	
Physician	62	48.4%	66	51.6%	
Study	97	42.2%	133	57.8%	
Family/friends	144	86.7%	22	13.3%	
Others	264	92.6%	21	7.4%	

P: Person χ^2 test. *P<0.05 (significant)

including closing eyes and using anti-inflammatory eye drops. Going to ER or physician was not a common option among participants which is a negative finding needs assessment and interpretation. Regarding actions if had scratch eye, participants reported good awareness for avoiding eye rubbing and wearing their contact lenses but also only one fourth of them reported for doing more blinks and one third reported for avoid using redness relieving drops which makes their awareness level regarding scratch eye first aid on moderate level. Blow eye exposure first aid reported by study partisans which is applying cold compresses was very good (three quarters of the participants). Considering cut or penetrating eye injuries, the majority of participants reported for covering eye in case of cuts or puncture in the eye. Nearly, half of them advised for avoiding removing anything stuck in the penetrated eye but very few percent told know about avoiding rinsing the eyes with water. As for chemical eye injuries, more than three quarters of the participants know that this type of injuries is dangerous. Washing eyes with much water and going to hospital were the most reported actions reported by the participants (nearly half of them) which are good. Also, nearly two out of each three know about the seriousness of alkaline eye injuries but only less than the third know that they should locate and remove particles in the eye in case of chemical injury. Less than half of the participants know about not using the antagonist chemical to wash eyes (acidic in case of alkaline injury and alkaline in case of acidic injury). In total, the study revealed that only 29.5% of the study participants had good awareness level regarding eye injury first aid. This can

be explained by that the main source of information reported among the participants was internet and other different sources. This can mislead the reader if not specialized or was taught by experts. The physician role in providing first aid information was less than expected and should be improved.

Regarding factors associated with good awareness level, the current study showed that good awareness level regarding eye injury first aid was among middle- and old-aged participants who had good experience and may be exposed for different types of eye injuries. Also, highly educated persons had good awareness level and his is explained by that nearly 20% of the participants gained their information from study and more than half of them had good awareness. Also, those who had their information from physicians recorded high level of awareness.

Conclusions and Recommendations

The current study revealed that public awareness regarding eye injury first aids was not satisfactory especially for the most dangerous types (chemical injuries). Also, the concept of going to hospital or physician in case of eye injury is not dominant among participants which may be due to reported physician's poor role in providing information regarding first aids. Public awareness regarding first aids including eye injuries 6 emergencies should be improved through period health education campaigns, paying more effort by health care workers for explain the main actions can be committed in case of injured eye and incorporating first aids in study courses.

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Conflicts of interest

There are no conflicts of interest.

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