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**AN INVESTIGATION INTO EYE EMERGENCIES AMONG THE PATIENTS  
REFERRED TO CLINICS AROUND TEHRAN DURING 2013-2014**

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**Abstract**

Eye emergencies include scratches, cuts, and objects in the eye, burns, chemical exposure, and blunt injuries to the eye. Since eye is a very sensitive organ, which may be easily damaged, lack of required consideration under such conditions can result in loss of vision of individuals. The present research is a prospective research which aims to examine records of the patients referred to 12 clinics around Tehran (geographical areas: north, south, east, west, center and south) concerning the complaint about the eye cases. The periods of time during 2013-2014 have been considered for examining the mentioned records. In the present research, age group 19-35 and 35-50 years old has been witnessed with the highest number of clients who referred to the clinics, respectively. Allergy eye, eyelid and eye burns and trauma were the most cause of visits people to clinics in Tehran due to an eye complaint.

Keywords: Emergency eye, eye allergy, eyelid burns, eye burns, trauma

**Introduction**

Eye emergencies include scratches, cuts, and objects in the eye, burns, chemical exposure, and blunt injuries to the eye. Certain eye infections and other medical conditions, such as blood clots or glaucoma, may also need prompt medical care. Since eye is a very sensitive organ, which may be easily damaged, lack of required consideration under such conditions can result in loss of vision of individuals (1,2). The common cases in eye emergencies include: 1- black eye when something hits your eye or the area surrounding it, under which the tissue around eye transforms to black,

white and blue color and gradually transforms to purple, green and yellow color. Certain fractures of the skull can cause bruising around the eyes, even without direct trauma to the eye (3). Chemical including alkali burns, acid burns, and irritants burn to the cornea (1, 2). Eye problems have been witnessed among 1% to 6% of those who referred to emergencies around the world (3, 6). Over 65 thousands injuries and eye diseases due to job are recorded per year in America (7). A study has shown that over 85% of these patients are at the age group under 30 years old, at which the person is at the climax of activity and creativity in all his life(8). Strategy of prevention from eye injuries seems difficult, because most of eye injuries occur all of a sudden, but most of ophthalmologists put emphasis on prevention from hazardous events. Indeed, 46% of the pooling among ophthalmologists has shown that they believe in key role of education system in prevention from eye injuries (9). Emergencies provide any required and available services for their clients in a traditional way, even for the patients who have not complained about their pain. This can affect general function of emergencies to consider the real cases of emergency (10). Due to shortage of the studies associated to eye emergencies and their distribution and frequency in Iran and world as well as crowded hospital emergencies for the clients with eye problems, a decision was made to examine frequency and cause of eye emergencies in clinics around Tehran.

## **Materials and methods**

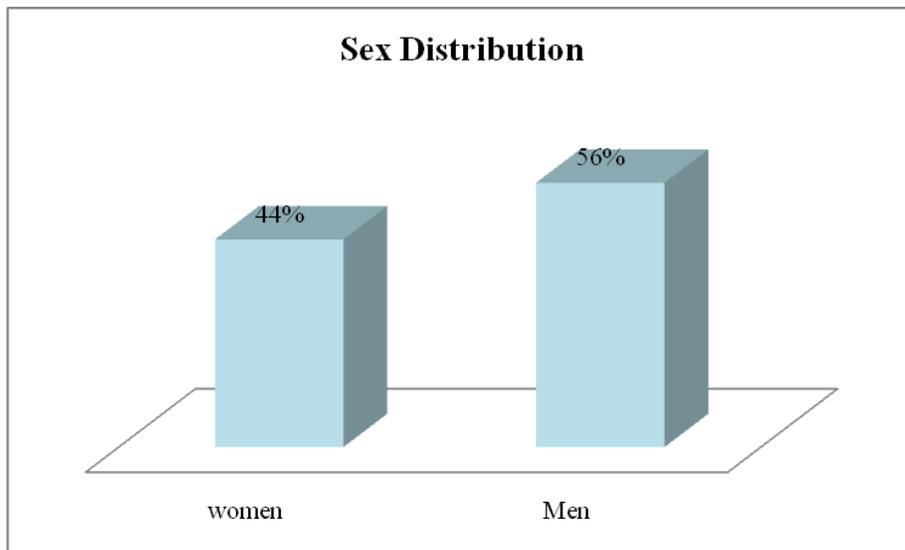
The present research is a prospective research which aims to examine records of the patients referred to 12 clinics around Tehran (geographical areas: north, south, east, west, center and south) concerning the complaint about the eye cases. The periods of time during 2013-2014 have been considered for examining the mentioned records. With regard to the data from the aforementioned sources, the cases were divided into 7 groups: hit, intraocular burn, eyelid burn, abundant tears, chemical exposure, objects in the eye, cuts. These variables have been examined and classified based on age and gender of individuals. Ultimately, a significant relationship was examined via software SPSS at significance level ( $p < 0.05$ ).

## **Results**

### **Statistical population and sample group**

In this research, records of 12 clinics from 5 geographical areas (north, east, west, center and south) of Tehran were examined to examine the eye emergency cases during 2013-2014. There have been 345 eye emergency cases in these 12

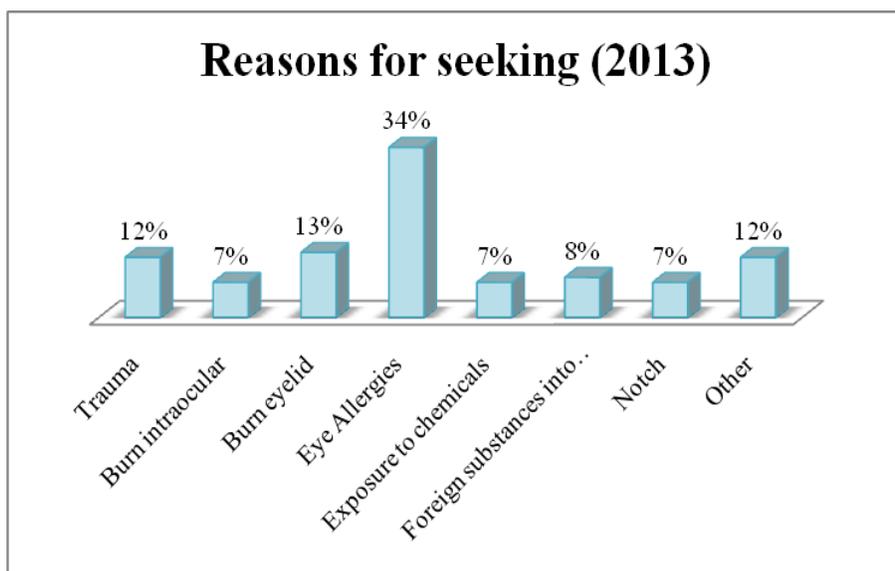
clinics during 2013 and there have been 285 eye emergency cases in these 12 clinics during 2014. Among the entire examined cases (n=630), there were 280 females and 350 males (diagram 1).



**Diagram-1: Gender of the clients who referred to clinics.**

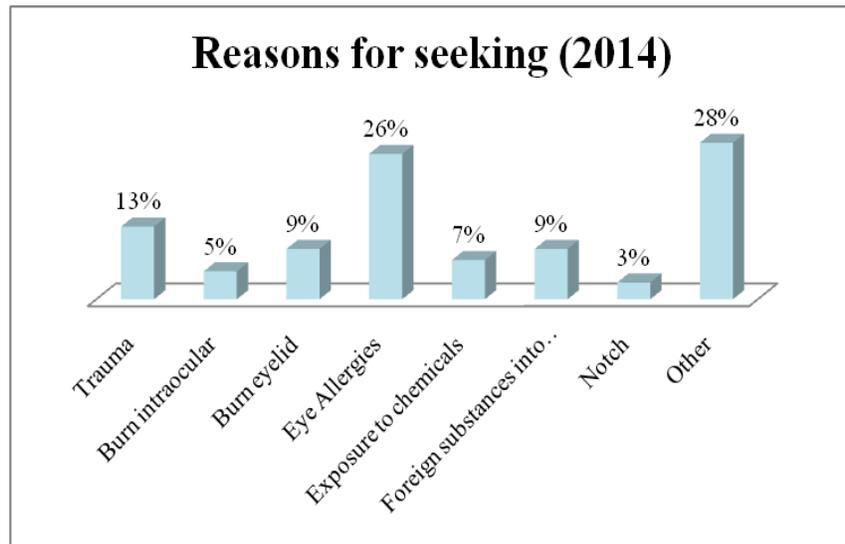
**Frequency distribution of cases with eye and vision problems referred to clinics**

In the present research, 8 cases with eye problems entitled hit, intraocular burn, eyelid burn, abundant tears, chemical exposure, objects in the eye, cuts were examined. During 2013, the most important reason for the referral of individuals to clinics has been eye allergy, abundant tears and eye redness (n=118). The next common cases in turn include eyelid burn (n=46), hit (n=38), chemical exposure (n=29), objects in the eye (n=25), intraocular burn (n=16), cuts (n=8)(diagram 2).



**Diagram-2: The reasons for seeking the clinic during 2013.**

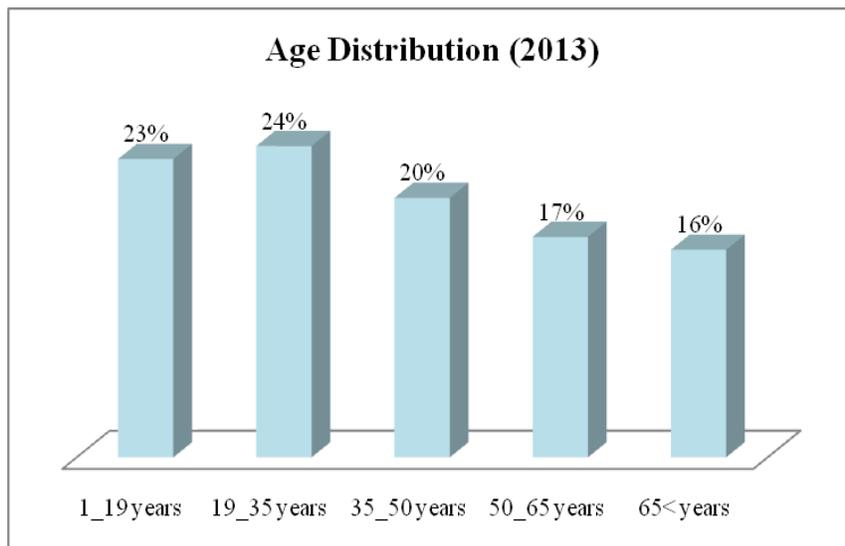
During 2014, the most important reason for the referral of individuals to clinics has been eye allergy, abundant tears and eye redness (n=115). The next common cases in turn include eyelid burn (n=26), hit (n=36), cuts (n=26), objects in the eye (n=25), intraocular burn (n=24) and chemical exposure (n=19), (diagram 3).



**Diagram-3: The reasons for seeking the clinic during 2014.**

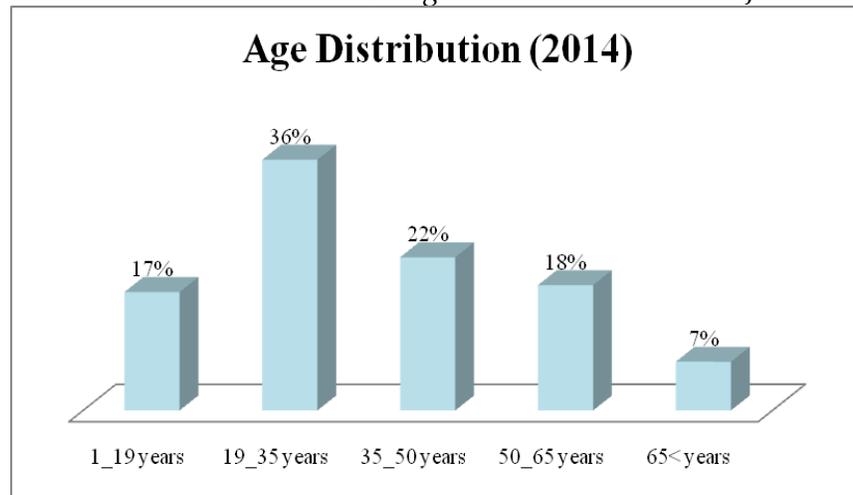
### Frequency of different age groups in referral to clinics with eye problems

During 2013, age group (19-35 years old) most likely referred to the clinics throughout Tehran due to different eye problems (n=81). Other age groups in turn include: 1-19, 35-50, 50-65 and above 65 years old.



**Diagram-4: Age distribution of the individuals referred to clinics during 2013.**

During 2014, age group (19-35 years old) most likely referred to the clinics throughout Tehran due to different eye problems (n=89). Other age groups in turn include: 1-19, 35-50, 50-65 and above 65 years old.



**Diagram-5: Age distribution of the individuals referred to clinics during 2014.**

### Seasonal distribution of eye injuries

At the beginning of this study, an attempt was not made to examine seasonal distribution and environmental factors on eye injuries, but we obtained interesting evidences after studying records. During two years under study, eye allergy and eye redness have been found as the most common reasons for the individuals who referred to clinics complaining about eye problem. During 2013, 118 individuals referred to clinics due to their eye problems; during 2014, 73 individuals referred to clinics due to their eye problems. With taking accuracy in the date at which the individuals referred to clinics, it was specified that about two third of referrals have taken place at the times with the most pollutions and at the days prevailed with temperature inversion. The age group 19-35 years old (n=30) during 2013 and 19-35 years old (n=42) most likely involved with this problem. Eyelid burn has been the next common case. Per two years, almost the entire referrals have been due to eyelid burn. The age groups 1-19 years old during 2013 and 19-35 years old during 2014 have been most likely exposed to this injury. Further, according to the investigations, it was specified that chemical exposure and objects in the eye due to the job accidents have been the most reason for referral to clinics. Per two years, the age groups 35-50 and 50-65 have been witnessed as those who most likely referred to clinics due to accidents at work.

### Discussion

In the present research, 630 cases with eye problems at 12 clinics around Tehran have been examined during 2013-2014. 44% of individuals are females and 565 individuals are males. In examining the reason for individuals' referral to clinics, accidents at work were specified as the reason for greater men than women for referral to clinics, because during 2014

two events in two factories caused referral by numerous individuals to two clinics in south of Tehran. Playfulness of children with fireworks has been an other reason for referral of greater men to clinics that boys are more likely than girls exposed to injuries.

In the study by Podbielski et al. (2009), it was specified that boys three times more than girls are subjected to eye injuries which occur in games. In this study most of injuries had been occurred for children at home, argued that spending more time at home and lack of having sufficient skills to use different instruments and devices is the reason for it which has resulted in eye injuries. Yet, in this study, most of the injuries which had occurred among the individuals at the age group 1-19 years old have been due to improper use of firework devices. In the study by Podbielski et al.(2009), most of injuries which have occurred for children have been due to playing with fireworks(44%) and sports activities(14%)(11). Concerning how to keep up with healing eye emergency cases in children, it must say that most of the actions were considered to maintain vision of children in this study and a high percent of cases required for next follow-ups. These results have been consistent with results of research by Podbielski et al who claimed that this high percent required for next follow-ups indicates high sensitivity of eye problems, under which it is preferred in emergency to use an eye specialist for final decisions. Eye injuries are serious among children because blindness and vision loss due to hit can severely affect their quality of life in future (12, 13).

In Tehran, most of eye injuries among children have been due to playing with explosive devices. According to the investigations, almost all the eyelid and eye burn cases have occurred during 2013 and 2014. Iran's celebration at the end of March with use of explosive devices among adolescents has caused an increase in the accidents. The aforementioned injury has been so hazardous results in loss of vision. Since examination of the final status of clients has not been intended in the present research, the number of improved cases or the cases resulted in loss of vision was no examined.

In the present research, age group 19-35 and 35-50 years old has been witnessed with the highest number of clients who referred to the clinics, respectively. The reason for most of eye problems at these two age groups lies on involvement of this age group at the environments out of their home. In this study, air pollution at cold months of the year has been the reason for referral of clients with eye allergy to the clinics. As mentioned, these two age groups have forced to come out of their homes at the days with the highest rate of pollutions left with complications. In Iran, under severe air pollution, primary schools, kindergartens and even higher education grades such as schools have been closed, suggesting to the

elderly not to come out of their home in such occasions. Yet, two age groups 19-35 and 35-50 years old are forced out to go to their work place and university under adverse conditions. Allergies followed by trauma or hit have been the most common eye problems. Most of cases with eye trauma due to car or motorcycle accidents had been recorded per these two years. Trauma has been mentioned as one of the common causes for mortality and can display complications so fast and emerge a short while after accident, considered as the patient's secondary complaint (14). Hit due to permanent vision loss has more potential than the factors such as unsuitable use of cosmetics, considered as the major loss of vision around the world, however, there are little information on its epidemiology and final conclusion in developing countries (15).

Khattak et al introduced trauma as the common agent for vision. Ratio of loss of vision has been 0.8% in Nepal of which 7.9% of monocular blindness has been trauma or hit (16). According to the study by Jana et al (2014), most of individuals with trauma consisted of males (17). The study by AL-Rajahi et al indicated that 77% of the cases with trauma occurred in males (18). In our study, ratio of males and females with trauma has been the same (Respectively 45%, 55%).

Chemical exposure is a less likely eye problem, which this is due to lack of access to numerous documents in this context. Yet, a study by Ramakrishnan et al indicated that most of eye chemical injuries occur among the individuals at age group 19-30 years old. These results are in line with the results obtained in the present research about the age groups with exposure to chemicals (15). In this study, most of eye injuries with chemicals have occurred at accidents at work at the age groups 19-35 and 35-50 years old.

## **Conclusion**

To sum up, with regard to the frequency and percent of the clients with eye problems referred to clinics throughout Tehran, it was specified that allergy and burn are the most common cases that can be reduced through a proper management. Air pollution and carelessness in use of explosive devices have been mentioned as two important factors in referral of individuals to clinics due to eye problems. Further epidemiological studies with the ethological approach of eye emergency injuries for proper management of cases in emergencies and preventive actions at more extensive levels on an extended statistical population are suggested, that can be also considered as the aim of future studies.

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