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Clinical Practice Article

Awareness of Contact Lens Related Ocular Complications among Opticians of Lahore

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ABSTRACT

Purpose: To determine the awareness regarding contact lens related ocular complications among opticians of Lahore and to find out the relationship between the awareness and their educational qualification.

Study Design: Cross sectional survey.

Place and duration of Study: University of Lahore from April 2020 – December 2020.

Methods: This survey included opticians of different areas of Lahore, Pakistan. Two hundred and eleven opticians responded to a pre-tested, structured close ended questionnaire. Data comprised of demographics and contact lens selling experience. Information regarding awareness about contact lens related complications was also sought. The data were analyzed using SPSS 25.0.

Results: A total of 211 opticians participated in the survey. All subjects were males. Fifty four (25.6%) subjects were from the age group of 15 to 30 years, 122 (57.8%) were from the age group of 31 to 45 and 35 (16.6%) were from the age group of 46 to 60 years. Only 4.7% had contact lens dispensing diploma. Thirty seven percent patients had contact lens selling experience of 2 to 10 years. Similar percentage had more than 10 years of experience. Ten percent had less than one year of experience. Only 54 participants out of 211 had knowledge about dry eye, 9 knew about Acanthamoeba keratitis and Bacterial keratitis and only 2 were aware of corneal opacity.

Conclusion: Majority of the opticians of Lahore are unaware of the contact lenses related complications. Sale of cosmetic lenses for fashion purpose should be discouraged and banned if not prescribed by optometrist/ ophthalmologist.

Key Words: Opticians, Contact lenses, Bacterial Keratitis.

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INTRODUCTION

Eighty percent worldwide blindness is avoidable.[1] Uncorrected refractive errors are among the major causes. According to one estimate, 153 million people are blind due to uncorrected refractive error.[2] More than 125 million population around the globe use contact lenses in which 33 million of contact lenses users are from united states and females are on the top of this list.[3] Refractive errors and fashion purpose are the top indications for soft contact lens use.

Contact lens associated common ocular complications include dry eyes, giant papillary conjunctivitis, neovascularization, corneal ulceration, abrasion, edema and keratitis.[4] Percentage of

Acanthamoeba, fungal and bacterial keratitis due to contact lenses are 93%, 25% and 33.7% respectively.[5,6,7]

In developed countries the opticians are qualified in their field to dispense glasses or contact lenses but unfortunately in middle income countries like Pakistan they are only working on the basis of experience and many are selling contact lenses without proper prescription by an Optometrist or Ophthalmologist. There is also lack of regularization of ophthalmic products which is another cause of ocular complications.

All these and many other factors lead to corneal conjunctival infections.[8]Overnight use of soft contact lenses increases the chance of developing microbial keratitis and its annual incidence is 20 per 10,000.[9] Some other contributing factors for contact lens associated microbial keratitis are purchasing contact lenses from internet, bad hygienic practice of contact lens case and unusual replacement of contact lens case. Cosmetic contact lenses are main contributing factors toward microbial keratitis because mostly these lenses not advised by eye care practitioner or contact lens practitioner and users specially new wearers are unaware of its care and maintenance. Majority of the people who use contact lenses have very poor contact lens knowledge regarding how to handle contact lenses properly, their most probable complications & appropriate care. The complications linked with contact lens use can be prevented by spreading awareness among users.

With all the contact lens related complication in mind and the educational status of our opticians, this study was conducted to find out the awareness of contact lens related problems in the opticians of Lahore.

METHODS

It was a cross sectional survey which included opticians of different areas of Lahore, Pakistan. The study was conducted from April 2020 – December 2020. Two hundred and eleven participants responded the questionnaire. It was a non-probability convenient sampling technique. The age of the participants ranged from 15 to 60 years. We used a pre-tested, structured close ended questionnaire (Cronbach's alpha value .892)to collect data. Data comprised of demographics such as age and sex, general qualification and contact lens related qualification from any registered medical college, years of contact lens selling experience and some questions related to the use of contact lens. It also included information regarding awareness about contact lens related ocular complications like dry eyes, conjunctivitis, keratitis, abrasion, hypoxia and corneal opacity. The data were collected after the approval from IRB of University of Lahore. An informed consent of the study participants was taken who were assured of privacy and confidentiality.

The data were analyzed using SPSS 25.0. Simple descriptive statistics (frequencies and percentages) were computed for demographics and contact lens related general questions. Chi square was applied to compare their level of knowledge with their qualification. $P \leq 0.05$ was taken as significant.

RESULTS

A total of 211 opticians were questioned regarding contact lens related ocular complications. All subjects 211 (100%) were males. Fifty four (25.6%) subjects were from the age group of 15 to 30 years, 122 (57.8%) were from the age group of 31 to 45 and 35 (16.6%) were from the age group of 46 to 60 years. Only 4.7% had contact lens dispensing diploma. Thirty seven percent patients had contact lens selling experience of 2 to 10 years. Similarly similar percentage had more than 10 years of experience. Ten percent had less than one year of experience. Only 54 participants out of 211 had knowledge about dry eye, 9 knew about Acanthamoeba keratitis and Bacterial keratitis and only 2 were aware of corneal opacity. Details are shown in Table 1.

DISCUSSION

In this study, 54 (25.6%) individuals were aware of dry eye being linked with contact lens use while according to a study conducted in 2015 among medical students at king Abdul Aziz University showed that 181 (71.3%) subjects had knowledge regarding contact lens induced dry eye.[10] However, same study revealed that 81 (31.9%) students were aware of corneal ulcers but our study shows that only 9 (4.3%) subjects had knowledge regarding corneal ulcers being caused by use of tap water for cleaning contact lenses. This significant difference in awareness could be due to the fact that the medical students have more knowledge regarding such complications. This endorse the idea that contact lenses must not be dispensed by the un-qualified individuals.

Table 1: *Knowledge of ocular complications and qualification of the participants.*

Ocular Complications		Qualification of the Participants						
		Primary Count	Middle Count	Matric Count	Intermediate Count	Graduation Count	Post graduation Count	Total Count
Knowledge of Corneal Ulcer	Yes	0	0	0	6	3	0	9
	No	15	19	59	72	28	9	202
Knowledge of Fungal Keratitis	Yes	0	0	0	6	3	0	9
	No	15	19	59	72	28	9	202
Knowledge of Papillary Conjunctivitis	Yes	0	0	0	6	3	0	9
	No	15	19	59	72	28	9	202
Knowledge of Acanthamoeba Keratitis	Yes	0	0	0	6	3	0	9
	No	15	19	59	72	28	9	202
Knowledge of Corneal Abrasion	Yes	0	0	0	6	3	0	9
	No	15	19	59	72	28	9	202
Knowledge of Bacterial Keratitis	Yes	0	0	0	6	3	0	9
	No	15	19	59	72	28	9	202
Contact Lens Related Corneal Opacity	Yes	4	3	15	17	12	2	53
	No	11	16	44	61	19	7	158
Knowledge Of Corneal Neovascularization	Yes	0	0	0	6	3	0	9
	No	15	19	59	72	28	9	202
Knowledge of Dry Eye	Yes	3	6	14	20	6	5	54
	No	12	13	45	58	25	4	157

In this study, 158 (74.9%) individuals were familiar with contact lens associated eye infections due to the use of tap water. These results can be compared with a study conducted in 2017, in which ninety percent (90%) individuals were aware of the dangers of using tap water for contact lens cleaning.[11] Another study conducted in 2016, showed that 3.7% individuals were using tap water for cleaning contact lenses.[12] Furthermore, according to another study which was done in 2018 in Rawalpindi showed that nearly nineteen percent (19%) participants were using tap water in order to clean their contact lenses.[13]

All of the individuals in our study were aware of importance of hand washing before insertion and removal of contact lenses. This was in contrast to another study from Baluchistan which demonstrated that around 45.8% were adherent to hand washing before handling contact lenses.[14] In another study percentage of people not cleaning their lenses was 60%.[12] This is due to either poor communication of eye care practitioners or because of patient's incompliance.

In this study, 150 (71.1%) individuals said that ocular examination is must before using contact lenses. These results can be compared with a study carried out in 2013 to evaluate awareness of contact lens indications and maintenance among medical students which indicated that 90 percent students knew significance of ocular checkup prior to contact lens use.[14] Eye care practitioners play an important role in diagnosing and managing complications of contact lens use.[15]

The data shows lack of regularization of optical product's sale by government. Only qualified opticians should be allowed to carry out this business. There are laws but their implementation is a big question mark. To counter this, there should be wide-spread awareness related to this topic through print, electronic and social media. Sale of cosmetic lenses for fashion purpose should be discouraged or even banned especially if not prescribed by optometrist/ ophthalmologist.

Ethical Approval

The study was approved by the Institutional review board/Ethical review board **(IRB-UOL-FAHS-754-11/2020).**

Conflict of Interest

Authors declared no conflict of interest.

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Authors' Designation and Contribution

Ahmed Sohail; Lecturer: *Concepts, Literature Search, Statistical Analysis, Manuscript Preparation.*

Zain-ul-Abideen; Optometrist: *Design, Manuscript Preparation.*

Fatima Zahid; Lecturer: *Data Acquisition, Data Analysis, Manuscript Editing.*

Wahid Baksh; Optometrist: *Concepts, Literature Search, Manuscript Review.*