

# Awareness of Contact Lens Care among Medical Students

Hijab Ijaz, Rida Ijaz, Naeem Rustam

*Pak J Ophthalmol 2017, Vol. 33, No. 2*

See end of article for authors affiliations

**Purpose:** To determine the awareness of contact lens care among medical students.

**Study Design:** Cross sectional study.

**Place and Duration of Study:** Fatima Memorial Hospital College of Medicine and Dentistry, Lahore over a period of four months since 1<sup>st</sup> August 2012 to 30<sup>th</sup> November 2012.

**Materials and Method:** Data was collected through a self-design questionnaire from 100 medical students of Fatima Memorial Hospital College of Medicine and Dentistry, Lahore. Questionnaires were distributed among those who used contact lenses presently or in the past. Questions were asked about contact lens hygiene and complications related contact lens usage. Gender, visual acuity and contact lens fitting etc. were independent variables. Students related to other professions and those who had eye problems but did not use contact lenses were excluded.

**Results:** In this study there were total 100 medical students whose ages ranging between 18-23 years and majority of them were females 96% (96); most of the students occasionally 57% (57) used contact lenses; awareness about contact lens solution was found in 96% (96) of students. However students have little awareness regarding contact lens case cleaning and use of enzymatic cleaner 68% (68) did never used enzymatic cleaner. The complications occurred in 69% (69) students with the use of contact lens.

**Conclusion:** Majority of the medical students were aware about the most of the

Correspondence to:

Hijab Ijaz

Department: Department of Optometry and Orthoptics, Fatima Memorial Hospital College of Medicine & Dentistry, Lahore.

**E-mail:** hijabijaz@hotmail.com

cleaning and hygienic steps of contact lens care but majority of them were unaware about contact lens case cleaning and use of enzymatic cleaner therefore they faced eye problems.

**Keywords:** Awareness, contact lens, care, medical students.

Contact lenses are thin optical corrective lenses worn on the eye, resting on the surface of the cornea. Contact lenses are becoming popular in young generation specially students of school and colleges<sup>1</sup>.

Care and maintenance of contact lens is one of the most important aspects. It can influence the outcomes of contact lens wearers and contentment with their lenses<sup>2</sup>. Non-compliance is a major issue in contact lens wearers and it is seen in various aspects of contact lens wear and care<sup>3,4</sup>. It has been estimated that approximately 140 million people were using contact lenses worldwide in 2005<sup>5</sup>. Use of contact lenses is increasing day by day yet people are not fully aware about various merits and demerits of contact lenses<sup>1</sup>.

Ignorance of contact lens care leads to a serious ocular health problems for example dry eyes, giant papillary conjunctivitis, corneal edema, corneal ulcer, keratitis, corneal warpage and neovascularization.<sup>1</sup> Ocular health education especially knowledge in the correct and careful practice regarding contact lens wear can prevent complication resulting from wearer's inappropriate behavior<sup>6</sup>. The wearer's attitude and knowledge relating to contact lens care including cleaning, disinfection, protein removal, keeping of solutions for a longer period, hygiene of hands and lens cases, a period of wear exceeding the recommended one, and the lack of regular eye assessment, have been proposed as the main causes of complications<sup>7</sup>. Medical students having studied the basic physiology and anatomy of the eye are expected to have better knowledge about contact lens care compared to students studying other subjects. This study was undertaken to determine the awareness of contact lens care among medical students.

## MATERIALS AND METHODS

This was a cross sectional descriptive study. The study was conducted in 4 months since 1<sup>st</sup> August 2012 to 30<sup>th</sup> November 2012. Helsinki (2008) principles were followed to conduct the study. After taking ethical approval from the institution data was collected and it

was only for research purpose. After taking consent data was collected through a self-design questionnaire at Fatima Memorial Hospital College of Medicine and Dentistry, Lahore from 100 medical students of those who used contact lenses currently or ever had tried in the past. Questions were asked about contact lens duration, type, hygiene and complication related contact lens usage. Gender, visual acuity and contact lens fitting etc. are independent variables. Students related to other professions and those who had eye problems but did not use contact lenses were excluded. After collection of data it was entered and analyzed by using SPSS 19.

## RESULTS

In this study data was collected from 100 patients in which 96 (96%) were females and 4 (4%) were males. Currently 69 (69%) were using contact lens and 31

(31%) had tried them in the past. Eight students (25.8%) stopped using contact lens because it was difficult to wear, 9 (29%) discontinued as they were fed up to wear contact lens because it needs proper care and they cannot maintain appropriate care, and 14 (45.2%) terminated their use due to its complications they faced. The patients who wore Rigid Gas Permeable lens (RGP) or soft contact lenses presently or in the past were 2 (2%) and 98 (98%) respectively.

According to the mode of wear 2 (2%) were using disposable lenses, 67(67%) wore their lenses daily and 31 (31%) were extended wearers. Six (8.7%) were using contact lens for less than 6 months, 20 (29%) for 6 months to 1 year, 17 (24.6%) were using from 1 to 5 years and 26 (37.7%) were for more than 5 years. 43 (43%) daily wore their contact lenses and 57 (57%) used them occasionally.

On average 56 (56%) were wearing less than 8 hours per day while 44 (44%) used them for more than 8 hours per day. 42 (42%) students were using contact lens for their refractive error, 31 (31%) for cosmetic problems, 22 (22%) for convenience while 5 (5%) were using lenses for other reasons. 91 (91%) removed contact lens before going to sleep, 4 (4%) removed after overnight, 3 (3%) after one week, 2 (2%) were removing after fortnight.

Frequency of hand washing (p-value=0.668) was 89% before handling contact lens. Only a small number of students 2 (2%) never cleaned their lenses others cleaned them either before or after wear, weekly or monthly (p-value=0.305). Mostly students 96 (96%) were using contact lens solution as cleaning material (p-value=0.207). When question was asked about contact lens case cleaning only 7 (7%) student never cleaned them while only few 4 (4%) students knew about enzymatic cleaning once a week (p-value=0.223) as shown in table.

**Table:** Contact Lens Use.

	Male	Female		
<b>Gender</b>	4 (4%)	96 (96%)		
	<b>Current user</b>	<b>Past User</b>		
<b>Contact Lens Wear</b>	69 (69%)	31 (31%)		
	<b>&lt;6 months</b>	<b>6 months to 1 year</b>	<b>1 to 5 year</b>	<b>&gt;5 year</b>
<b>Duration of contact lens wear of current user</b>	6 (8.7%)	20 (29%)	17 (24.6%)	26 (37.7%)
	<b>Rigid gas permeable</b>	<b>Soft contact lenses</b>		
<b>Type of contact lenses use</b>	2 (2%)	98 (98%)		
	<b>Daily wear</b>	<b>Extended wear</b>	<b>Disposable</b>	
<b>Mode of wear</b>	67 (67%)	31 (31%)	2 (2%)	
	<b>Daily</b>	<b>Occasionally</b>		
<b>Use contact lenses</b>	43 (43%)	57 (57%)		
	<b>&lt;8hours</b>	<b>8-12hours</b>	<b>&gt;12 hours</b>	
<b>Hours per day wearing contact lenses</b>	56 (56%)	33 (33%)	11 (11%)	
	<b>Refractive</b>	<b>Cosmetic</b>	<b>Convenience</b>	<b>Others</b>

<b>Reason of using contact lens</b>	42 (42%)	31 (31%)	22 (22%)	5 (5%)
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**Table:** Knowledge about contact lens hygiene.

	Yes	No		
<b>Hand washing before using contact lens</b>	89 (89%)	11 (11%)		
	<b>Before going to sleep</b>	<b>After overnight</b>	<b>After one week</b>	<b>After fortnight</b>
<b>Remove contact lenses</b>	91 (91%)	4 (4%)	3 (3%)	2 (2%)
	<b>Before or after wear</b>	<b>Weekly</b>	<b>Once a month</b>	<b>Never</b>
<b>Contact lens cleaning</b>	69 (69%)	20 (20%)	9 (9%)	2 (2%)
	<b>Once a week</b>	<b>Once a month</b>	<b>Off &amp; on</b>	<b>Never</b>
<b>Contact lens case cleaning</b>	37 (37%)	19 (19%)	37 (37%)	7 (7%)
	<b>Lens solution</b>	<b>Tap Water</b>		
<b>Cleaning material</b>	96 (96%)	4 (4%)		
	<b>Yes</b>	<b>No</b>		
<b>Knowledge about renewal of contact lens every 3 months</b>	52 (52%)	48 (48%)		
	<b>Once a week</b>	<b>Once a month</b>	<b>Off &amp; on</b>	<b>Never</b>
<b>Enzyme cleaner use</b>	4 (4%)	13 (13%)	15 (15%)	68 (68%)

The patients who were using contact lenses 69% of them may had problems with its use while 31 (31%) students had no problem with contact lens usage.

## DISCUSSION

It is very important that the medical students have knowledge about contact lens wear, hygiene, care and complications. Many people prefer contact lenses over glasses for cosmetic reasons. Broadly contact lens are classified in hard and soft lenses.<sup>8</sup> Soft contact lenses are usually more comfortable to wear, but they also tear more easily than hard contact lenses.

In the present study 96% of the students used contact lenses were females. Among them 69.8% (67) females were using contact lenses currently whilst 30.2% (29) had tried them in the past. 97.9% (94) females were soft contact lens users. The study conducted in Malaya, Karachi and Brazil, females were most frequent users of contact lens respectively (87.6%, 92.6%, 69.2%). They were using them for

refractive error or cosmetically<sup>4,7,9</sup>. Most of the medical students in our study using contact lens for more than 5 years were 37.7%. Among these 18 students (41.9%) were having more problems with contact lenses which are consistent with results that found in both previous researches<sup>4,7</sup>.

In our study 56 medical students (56%) wore contact lenses for less than 8 hours and among them 56.7% experienced problems with contact lenses. However the study conducted in India found that 88.6% students had problems related to contact lens with P value 0.043 and concluded that hours per daily wear related to use of contact lenses<sup>10</sup>.

Contact lenses are used to treat refractive error, keratoconus, anisometropia, nystagmus, unilateral aphakia and also use for cosmetic and therapeutic purposes<sup>11</sup>. In our study most of the students 42% were using contact lens for refractive purpose and 31% for cosmetic purposes while in study held in Karachi

contact lenses were used for refractive errors in 67.23% patients and for cosmetic purposes in 43.8% patients in the study of Malaya<sup>4,7</sup>.

The purpose of lens care system is to maintain comfort, provide good vision, maintain eye health, and maintain lens hydration and parameter stability.<sup>12</sup> Care for contact lenses is dependent on the type of contact lenses and solution recommended by your eye care professional<sup>13</sup>. In particular, including a "rub and rinse" step in the lens cleaning process, minimizing contact with water while wearing contact lenses and replacing the lens case frequently can help reduce the risk of infection<sup>14</sup>. Contact lenses must also be safely stored in solution until they are next worn<sup>15</sup>.

Nine percent (9) students did not remove their lenses before going to sleep and among them 10.5% (7) faced problems. However 13.20% and 13.50% students did not remove their lenses before going to sleep in the

studies of Malaya and Karachi respectively<sup>4,7</sup>.

In our study hand washing is not related with contact lens problems. 89% (89) of medical students wash their hands before handling of contact lenses while students who did not wash their hands was slightly higher 11% (11) from another study in Karachi in which 7.7% did not wash their hands<sup>4</sup>.

98% (98) of students claimed that they cleaned their lenses amongst them before/ after wear 69% (69), weekly 20% (20) and monthly 9% (9). However remaining 2% (2) did not clean them ever. Among 98% who cleaned their lenses 70.4% (69) experienced an eye problems related to contact lens. On the other hand Muneer et al reported that 94.2% of students cleaned their lenses while 5.8% did not and 84.3% of students cleaned their lenses reported by Tajunishah et al<sup>4,7</sup>.

Contact lens solution are used to clean, disinfect and rinse the lens. Multipurpose solution most commonly use now a days.<sup>16</sup> In this study 96% (96) students claimed that they were using contact lens solution as cleaning material and 4% (4) using tap water. Whereas in the study of Giri, P.A., Chavan, W.M., Phalke et al. 79.31% used lens solution and 20.69% did not<sup>1</sup>.

Contact lenses can adversely affect most of the anterior ocular structures.<sup>17</sup> Patient using contact lenses often suffer from red eye, itching, and scratchiness.<sup>18</sup> 69% (69) of medical students in our study reported that they were suffered from an eye problems associated with contact lens wear in which red eyes 18% (18) and discomfort 15% (15) with contact lenses were most prevalent; While in previous studies redness and irritation were found to be the most frequent complaint<sup>4,7</sup>.

Adverse effects due to contact lens wear can be acute or chronic in nature and can span the range from a mere annoyance to a disabling condition that results in permanent ocular damage or loss of the eye<sup>19</sup>. In our study 45% of student's claimed that contact lens is not harmful which is slightly different from study by Muneer et al in which 58.1% patients said that it is not dangerous for use<sup>4</sup>.

Patient education is of paramount importance and has been the gold standard for decades. Recent findings however, suggest that recommendations amongst eye care practitioners are highly variable necessitating more effective practitioner educational programs to eliminate this ambiguity<sup>20</sup>.

## CONCLUSION

This study shows that medical students have significant knowledge about how to use contact lens but majority of them lack proper awareness regarding enzymatic cleaning and contact lens case cleaning which can led to serious eye problems. Therefore, the knowledge and practice about contact lens care should be increased by appropriate counseling.

### Author's Affiliation

Dr. Hijab Ijaz

Department: Department of Optometry and Orthoptics, Fatima Memorial Hospital College of Medicine and Dentistry, Lahore.

Dr. Rida Ijaz

Department: Department of Optometry and Orthoptics, Fatima Memorial Hospital College of Medicine and Dentistry, Lahore.

Dr. Naeem Rustam

Department: Department of Optometry and Orthoptics, Fatima Memorial Hospital College of Medicine and Dentistry, Lahore.

### Role of Authors

Dr. Hijab Ijaz

Study design, data collection, data analysis, manuscript drafting.

Dr. Rida Ijaz

Data collection, manuscript drafting

Dr. Naeem Rustam

Manuscript drafting, Revision data analysis

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