

Original Article

Knowledge and practice regarding contact lens among Saudi urban contact lens users



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Abstract

Purpose: To assess the level and determinants of knowledge and practice regarding contact lens (CL) and its accessories among adult Saudi CL users.

Methods: This survey was conducted in 2015 for Saudi contact lens users visiting a Mall in Riyadh, Saudi Arabia. The questions were related to knowledge about contact lenses, correct CL and accessories usage. We inquired indication, initial prescription, CL use, complications experienced and their management. The knowledge and practice responses were correlated to their determinants.

Results: In this survey, 510 contact lens users participated. The level of knowledge was of excellent grade among 279 [54.7% (95% Confidence Interval 50.4–59)] CL users. The practice was of excellent grade in 210 [41.4% (95% CI 37.1–45.7)] CL users. Variation in knowledge was not associated to gender ($P = 0.1$), education ($P = 0.4$), type of work ($P = 0.3$), funding for CL ($P = 0.1$). Occasional users and those not having prescribed CL had significantly poor knowledge ($P < 0.001$). The excellent level of practice was associated to younger CL users ($P = 0.004$). While it was not associated to gender ($P = 0.8$), type of CL ($P = 0.9$), funding for CL ($P = 0.2$), education ($P = 0.7$) and occupation ($P = 0.1$).

Conclusions: The knowledge and practice among CL users was less than desired. Those using contact lens for cosmetic purpose and procuring them without prescription need special focus for health promotion so that their CL related practice improve and eye complications are reduced.

Keywords: Contact lens, Knowledge and practice, Abuse of contact lens, Survey

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Introduction

Contact lenses (CL) are widely used for cosmetic purpose, in addition to correction of refractive error.^{1,2} They are dispensed by qualified contact lens practitioners and are sold

as 'over the counter product' in many countries. Serious eye complications like keratitis and endophthalmitis, are often not explained to CL users at the time of dispensing. Minor complications like conjunctival hyperaemia and papillae formation causes discomfort and may need attention by

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caregiver during periodic follow-ups. Many contact lens wearers face sight-threatening eye complications because of not taking proper care or poor compliances with the advices given by the eye care professionals.^{3,4}

The knowledge about CL, its accessories and eye care among contact lens users therefore is very crucial. Even among health staff using CL, the level of knowledge and compliance to good practice was less than desired.⁵ A study of Saudi female university students, 70% of interviewed students were using CL and two third of them were using them for cosmetic purpose. As many as 39% of them were using it without consulting eye care professionals.⁶

To the best of our knowledge, the practice among adult Saudi CL users including males has not been evaluated. Therefore, we surveyed adult Saudi population. We used a questionnaire as survey tool to assess level of knowledge about care of CL and their accessories, type of CL usage practice among them and untoward events taking place due to abuse of contact lens in Riyadh, Saudi Arabia.

Material and methods

This survey was approved by the ethical and research committee of our institute. Informed verbal consent was obtained from each participant. Adult Saudi population of Riyadh city and using contact lenses coming to the eye health promotion campaign that was held in Granada Mall, Riyadh, Saudi Arabia during the period from 29 th to 31 st of January 2015, were our study population.

We assumed based on annual supply of CL by international brand CL companies that there could be as many as 50,000 adult contact lens wearers could be in the study area. The strict protocol for hygiene is followed among 75% of them.⁶ For a survey with 95% confidence interval, 5% acceptable error margin and design effect factor of 2, we need at least 441 participants. To compensate for not completing the entire survey, we increased the sample by 15%. Thus final sample size for the present study was 507. We used STAT calculator of Open-EPI software for calculating the sample of a cross sectional study.⁷

A pretested data collection form included demographics, questions related to knowledge about CL and its accessories and practice of CL usage. The demography included age-group, gender, education level and type of work for CL wearers. The inquiry also included source of purchase of CL, indication for CL usage, source of information regarding CL, frequency and type of CL usage.

There were six questions related to knowledge about CL and allied products. There were 10 questions related to practice regarding hygiene, CL and accessories care, need for seeking urgent and routine eye care for discomfort or acute eye complications they experienced. The correctness of response was determined by comparing to the reply of two experienced contact lens practitioners (Gold standard). If the reply of participant matched to the expert's response, one point was given. If it did not match '0' score was given. For knowledge related questions, there was maximum 14 score. If score of each participant was more than 10, we considered it to be excellent grade of knowledge. For practice related responses, the maximum score was 10 and the minimum score was 0. If the overall score of participant was seven

or more, we considered the level of practice as of 'excellent' grade.

The survey data was compiled in spreadsheet of Microsoft XL[®]. The outcome variable of excellent grade of knowledge and excellent grade of practice was compared with different epidemiological and CL related variables. For qualitative variables, we calculated frequencies and percentage proportions. The outcome variables were also presented as percentage with its 95% confidence interval. For Quantitative variable, we first plotted distribution curve and if it was normal, we calculated mean and standard deviation. To compare outcome variable in two independent variables we used 2×2 tables and calculated Odds ratio and two sided *P* value. For more than 2 variables, we calculated chi-square value, degree of freedom and two sided *P* values. The *P* value of <0.05 was considered as significant.

Results

We surveyed 510 adult CL users. Their demographic profile suggested that more than half of the CL users were of less than 25 years of age. Male constituted less than 10% of total CL users. Nearly two-third of participants had college education. Most of the CL users were spending their own money for CL related products.

The information about the contact lenses being used by participants is given in Table 1. Six out of ten use them for cosmetic purpose. As many as one fifth had stopped using CL. Daily wear soft lenses were the main type of CL used by participants. Only one fourth of CL users received information regarding CL from eye care professionals.

The level of knowledge was of excellent grade among 279 [54.7% (95% Confidence Interval 50.4–59)]. The knowledge about CL was self-perceived in 312 (61.2%) of participants. 40% of the participants were overestimating their level of knowledge regarding CL. The knowledge regarding possible complications due to abuse of contact lenses was very poor in 26.2% of CL users. Nearly 45% of CL users were not knowing contraindications of CL usage.

Table 1. Information about contact lens used by Saudi participants.

		Number	Percentage
Indication for contact lens use	Medical	137	26.9
	Cosmetic	297	58.3
	Medical + cosmetic	76	14.8
Type of CL usage	All time	91	17.8
	Part time	324	63.5
	Not using now	85	16.7
Type of lens using	Soft	440	86.3
	Semisoft	29	5.7
	Hard	21	4.1
	Don't know	20	3.9
Source of cl information	Doctor	63	12.4
	Optometrist	68	13.3
	Vendor	130	25.5
	Friends	26	5.1
	Family member	31	6.1
	Internet	108	21.2
	Brochure	64	12.5
	Self	11	2.2
	Other	9	1.8

Table 2. Practice pattern among contact lens users.

Practice related issues		Number	Percentage
Procure CL through prescription	Yes	154	30.2
	No	356	69.8
Learn art of using CL	Yes	268	52.5
	Partly	149	29.2
	No	93	18.2
Discard and change CL	One use	70	13.7
	Weekly	40	7.8
	Monthly	270	52.9
	6–12 months	22	4.3
	Irregularly	108	21.2
Hand hygiene for CL use	Good	372	72.9
	Bad	130	25.5
	Missing	8	1.6
CL container hygiene	Good	320	62.7
	Bad	182	35.7
	Missing	8	1.6
Had complications	Yes	337	66.1
	No	164	32.1
	Missing	9	1.8

The practice was of excellent grade in 210 of 507 [41.4% (95% CI 37.1–45.7)] CL users. The response to different sub-component of CL practice is given in Table 2. Two third of CL users had procured CL without prescription. Only half of participants were confident about their skills of using CL. One in five CL users were irregular in changing their CL. Hand hygiene was good in three fourth of participants. Only one third did not have any side effects or complications for which they had to take assistance of eye care professional.

We associated level of Knowledge to different determinants. (Table 3). Variation in level of knowledge was not associated to gender ($P = 0.1$), education ($P = 0.4$), type of work ($P = 0.3$), funding for CL ($P = 0.1$). Part time users had significantly poor knowledge of CL ($P < 0.001$).

We associated level of practice to different variables (Table 3). The excellent level of practice was not associated to gender ($P = 0.8$), type of CL ($P = 0.9$), funding for CL ($P = 0.2$), Education ($P = 0.7$) and Occupation ($P = 0.1$). However, level of CL practice was significantly associated to younger age-group ($P = 0.007$).

We compared our study results to other published research articles on the same topic (Table 4).^{2,4,6,8,9–11}

Discussion

This unique and opportunistic survey represents awareness and practices of CL usage among adult urban Saudi population. The level of knowledge about CL and its accessories was excellent in 54% and good practices of CL use were among 41% of the participants. Only 30% of CL users had procured CL with a prescription. Nearly two-third had consulted eye care professionals either for the management of side effects and complications. Knowledge and practice were significantly better among prescribed CL users compared to ‘across the counter’ CL buyers.

High level of hygiene noted in another study focusing on Saudi women CL users of one university was in contrast to the findings of the present study.⁶ However concern for uncontrolled dispensing of CL without prescription at beauty salons, and Pharmacies in Saudi Arabia was also noted by Abahussin et al.⁶ Limited instructions and guidance to the CL users through such vendors could be responsible for poor level of knowledge and practices among Saudi population. There seems to be an urgent need of intervention by decision makers regarding CL dispensing by authorised persons and provide them with package of health promotion for standard use and care of CL in Saudi Arabia.

Poor hygienic practices especially hand washing before handling the CL, replacement of cleaning and storage of soft lenses and periodic cleaning of containers is a matter of serious concern. Sight-threatening disaster in such CL users could happen. The large number of CL users visiting eye care professionals for management of complication indicates that they could have faced sight-threatening situation. More than 10% of participants discontinuing CL usage in our study also points about serious eye complications due to contact lens. There are some contrasting findings suggestive of not to be so pessimistic. In a study, Thakur et al.¹² had noted that more than half of the CL users had microbial contamination both in lenses and lens care solutions but none of them were symptomatic.

We noted a strong association of better level of knowledge and acceptable practice in young adults compared to those older than 25 years of age. Perhaps younger one being more e-health literate could have wider scope of accessing knowledge and preferred practice norms for CL use and thus less risk of complications.¹³

Table 3. Factors associated to knowledge and CL Practice pattern.

Variables		Knowledge			Practice		
		Excellent	Poor	Validation	Excellent	Poor	Validation
Gender	Male	17	23	$P = 0.1$	16	24	$P = 0.9$
	Female	262	207		194	276	
Age-group (Years)	≤25	164	114	$P = 0.04$	123	87	$P = 0.1$
	26 & more	115	116		155	145	
Education	School	78	72	$P = 0.4$	64	86	$P = 0.6$
	College	201	157		145	214	
Occupation	Employed	217	168	$P = 0.2$	34	60	$P = 0.2$
	Other	46	48		165	221	
Funding for CL	Self	238	40	$P = 0.1$	169	25	$P = 0.6$
	Other	182	45		251	43	
Type of lens	Soft	242	198	$P = 0.7$	183	183	$P = 0.001$
	Other	35	32		257	26	
Prescription for CL	Yes	101	178	$P = 0.001$	91	119	$P < 0.001$
	No	53	177		63	237	

Table 4. Comparison of contact lens related attitude and practice of our study to those published in literature.

Author	Year	Country	Sample	Age	Outcomes	Reference
Wu Y	2010	Australia	210	33.8 ± 12	Poor hand hygiene, inadequate lens care, forgetfulness for aftercare are the common in lens wearers	2
Khan MH	2009–10	Pakistan	500	All ages	Noncompliance with the CL protocol was common among health workers in Pakistan	4
Abahussin M	2013	Saudi Arabia	1466	16–31	High prevalence of CL use by female. Good awareness with regard to general lens care	6
Sulley A	2016	UK	524	8–79	The retention rate for neophyte CL 74%	8
Stapleton F	2012	Australia	90 microbial keratitis in CL users	–	There were 90 eligible moderate and severe cases related to daily wear of CLs reported during the study period	9
Smith AF	2010	United States	35 M Daily CL users	–	32,031 nonsevere and 17,248 severe CL-CIEs	10
Lim CH	2016	Singapore	712	–	Poor care system usage causes corneal complications in CL users	11

Although gender of CL user was not associated to the level of knowledge and practice of CL usage in our study, one should note that 92% of the CL users in our study as well as 77% were female in a study in Pakistan.⁴ Imparting knowledge and demonstrate preferred CL usage should be gender specific in Saudi Arabia for better practices.¹⁴

Nearly two third of participants were using CL sparingly and mainly for cosmetic purposes. Similar portions of females used CL for cosmetic purpose in another study among Saudi university students.⁶ Presence of CL results in inflammatory changes in corneal tissue.¹⁵ Hence, having CL for a shorter time by many CL users in the present study explains sight-threatening complications.

There are few limitations in the present survey. The CL users in the present study had coincidentally visited the mall where such survey was going on. Those participating in this survey do not represent entire CL users of Saudi Arabia. Hence, our study outcome should be extrapolated with caution.

The knowledge and practice among contact lens users was less than desired. Those using contact lens for cosmetic purpose and procuring them without prescription need special focus for health promotion so that their CL related practice improve and eye complications are reduced.

Conflict of interest

The authors declared that there is no conflict of interest.

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