Original Article

The attitude and awareness of contact lens use among medical students of King Faisal University, Al Ahsa, Saudi Arabia

Saad K. Boqursain[1], Ahmed S. Al-Hussain[1], Adeeb A. Al Mubarak[1], Dawood S. Al-Bujays[1], Manayer Al-Mustahi[2]

[1]Primary Health Care, Ministry of Health, Al Ahsaa, [2]College of Medicine, King Faisal University, Al Ahsaa, Saudi Arabia

Abstract

Background: Not many studies have investigated the knowledge outcomes among medical students with regards to contact lenses (CL). Thus, in this study, we aim to assess the attitude and awareness of CL use and the associated factors among medical students of King Faisal University (KFU), Al Ahsa, Saudi Arabia. **Methods**: This a cross-sectional study that based developed based on a designed questionnaire that was composed of 31 questions with a maximum score of 57 points. We have also conducted a linear regression model to explore the possible important factors that may affect the level of knowledge and awareness about contact lenses care. **Results:** A total of 208 participants were included in this study, with a mean age of 21.0 ± 1.9, and 56.3% (n = 117) of them being females. The total mean knowledge score in our study was 30.1 ± 7.74, which was higher in females (31.5 ± 7.09) than in male participants (28.7 ± 7.69). The results of the linear regression model showed that being female (E = -0.37; 95%CI = -0.65— -0.10; P = 0.007), using contact lenses (E = 0.56; 95%CI = 0.29 — 0.82; P < 0.001), and in the third year (E = 0.66; 95%CI = 0.19— 1.13; P = 0.007) is significantly correlated with having higher knowledge scores about using CLs. **Conclusion**: Female participants had higher total mean knowledge scores than males. We recommend that further educational campaigns should be inaugurated to raise awareness about taking care of CLs and enhancing the related practices of wearing them.

Keywords: Contact lenses, knowledge, medical, prevalence

Introduction

Studies show that refractive errors are increasingly becoming a burden on the affected patients and the corresponding healthcare systems.[1] Contact lenses (CLs) have been widely approved for the correction of refractive errors. The purpose of CLs use is usually medical, to correct an underlying error of refraction and corneal pathologies, or cosmetic. Wearing CLs has been prescribed for decades, and the rate for using them has been increasing since then.[2,3] Many benefits have been reported for CLs use in the literature. Studies indicated that the quality of life (QoL) for patients using CLs has increased, especially for younger patients. This is probably attributable to the increased flexibility of CLs and enhanced appearance than wearing glasses.[4,5]

Studies have shown that as a result of the increasing frequency of wearing CLs, many associated problems have been reported.[6] Many complications can develop following the frequent and improper wear of CLs. Endophthalmitis and keratitis are common serious complications that many CL users are not aware of. The development of such complications might lead to the development of serious adverse events which may impact the affected users' vision as a result of the poor compliance to the prescribed guidelines by the attending physicians.[7,8] Cope

Address for correspondence: Dr. Saad K. Boqursain, Primary Health Care, Ministry of Health, Al Ahsaa, Saudi Arabia.
E-mail: Saad102009@live.com

Received: 16-04-2021 **Revised:** 10-07-2021
Accepted: 12-07-2021 **Published:** 05-11-2021

Access this article online

Quick Response Code:

Website: www.jfmpc.com

DOI: 10.4103/jfmpc.jfmpc_707_21

How to cite this article: Boqursain SK, Al-Hussain AS, Al Mubarak AA, Al-Bujays DS, Al-Mustahi M. The attitude and awareness of contact lens use among medical students of King Faisal University, Al Ahsa, Saudi Arabia. J Family Med Prim Care 2021;10:3765-71.

et al.[9] reported that 99% of the US citizens that wear CLs are at risk of developing ocular infections as a result of at least one mispractice related to CLs care. Jones *et al*.[10] also reported that the continuous use of CLs has resulted in increasing the frequency of itching, burning, or tearing eyes. Besides, other complications as conjunctival hyperemia might develop which may cause discomfort and affect the care provided by wearing CLs.[11,12] Therefore, it is essential to raise awareness and knowledge about CLs' use and care to avoid such complications and attain the potential best benefits from wearing them.

To collect enough evidence about the awareness and knowledge of individuals towards CLs use and care, many epidemiological studies should be conducted in different regions. In Pakistan, the desired degree of awareness about the good care of CLs was not present in more than half of the healthcare practitioners using CLs.[13] In Saudi Arabia, Abahussin *et al*.[14] reported that the prevalence of CLs use was 70.2%, and around two-thirds of these used them for cosmetic purposes. The same study also showed that around 39% of the female students' population reported that they used CLs without the prior consultation of a healthcare practitioner. However, not many studies have investigated these outcomes among medical students. Thus, in this study, we aim to assess the attitude and awareness of CLs use and the associated factors among medical students of King Faisal University (KFU), Al Ahsa, Saudi Arabia.

Methods

Study design and population

This is a cross-sectional study that based developed based on a designed questionnaire to estimate the level of knowledge and awareness towards contact lenses use among medical students in KFU, Al Ahsa, Saudi Arabia. We also aimed to assess the variation in the level of knowledge and awareness between males and females, and explore the possible important factors that may affect the level of knowledge and awareness about contact lenses care. All of the study participants were medical students only and have agreed to take part in this study, and the institutional review board approval was obtained from the KFU. Our questionnaire was composed of two main parts and an introductory part to explain to the participants the background of the study and the aimed outcomes. The first main part included 13 questions that were mainly about the use of CLs including the duration of use, the reasons, types, and mode of wear, in addition to the baseline characteristics and demographics. The second main part consisted of 18 questions that would help evaluate the knowledge about CLs use and wear, like hand washing before using CLs, cleaning CLs, cleaning materials, knowledge about renewal, wearing practices, knowledge about overwear syndrome and associated symptoms and complications, and how to behave when noticing a CL-related symptom. The maximum score was 57 points for all the investigated questions. Regarding the coding of the obtained answers of the study participants, any question that was answered by a yes or no, the answer was coded as 1 or 0, respectively. Any question that was composed of three sections (yes, no, sometimes), the answer was coded as 2, 0, 1, respectively. Moreover, scaled questions were coded based on the number of each factor, as each one represented one score and never or no represented 0 scores. The study was approved by the Eastern region Family Medicine ethical committee at the Ministry of Health, Saudi Arabia.

Statistical analysis

We have conducted the statistical analysis using SPSS v26 (IBM Statistics, Armonk, New York), and whenever a comparison was made, A value of $P < 0.05$ was considered significant on the different occasions. We have represented the continuous variables as means and standard deviation, while ordinal variables were represented as events and percentages. Besides, we have conducted a linear regression model to explore the possible important factors that may affect the level of knowledge and awareness about contact lenses care. The results were finally represented as estimates and their 95% confidence intervals (CI).

Results

A total of 208 participants were included in this study, with a mean age of 21.0 ± 1.9, and 56.3% (n = 117) of them being females. The prevalence of CL use was 47.1% (n = 98), which was significantly higher in females than males (59.0% Vs. 31.9%, $P < 0.001$, respectively). Other baseline demographics and baseline characteristics are represented in Table 1. Current users accounted for 69.7% (n = 69), with no significant difference between male (71.4%) and female participants (69.0%) (P = 0.814). Most male participants tend to daily use CLs (79.3%) which is significantly more than half of the females (43.7%) (P = 0.004). Moreover, most male participants used CLs daily (82.1%) while most females used them occasionally (65.7%) ($P < 0.001$). Other characteristics of CLs use among males and females can be seen in Table 2. Among the reported problems with wearing CLs, eye redness was the commonest (Total = 76%, female = 79.5%, male = 71.4%), followed by eye itching (Total = 62.0%, female = 64.1%, male = 59.3%), and dryness (Total = 57.7%, female = 62.4%, male = 51.6%) [Figure 1]. Wearing CLs during sleep (Total = 76.0%, female = 82.1%, male = 68.1%), swimming (Total = 52.9%, female = 58.1%, male = 46.2%), and without handwashing (Total = 48.1%, female = 56.4%, male = 37.4%), or sharing them with others (Total = 61.1%, female = 70.1%, male = 49.5%) were the most common reasons for developing these problems [Figure 2].

The total mean knowledge score in our study was 30.1 ± 7.74, which was higher in females (31.5 ± 7.09) than in male participants (28.7 ± 7.69) [Figure 3]. Furthermore, participants in the third year had a higher total mean knowledge score than other participants [Figure 4]. Most of the study population washed their hand before using CLs (Total = 86.1%, female = 90.6%, male = 80.2%, P = 0.032). Knowledge about CLs renewal every 3 months was significantly more frequently seen in females than males (Total = 54.3%, female = 60.7%, male = 46.2%, P = 0.037). Besides, most participants do not rub their CLs (Total = 68.8%, female = 62.4%, male = 76.9%, P = 0.025). Other assessed

Table 1: Sociodemographic characteristics of the participants

Variables		Are you a contact lens user?						*P*
		No		Yes		Total		
		Count	%	Count	%	Count	%	
Age (years); mean±SD		21.1±1.8		20.9±2.0		21.0±1.9		0.228
Gender	Female	48	43.6	69	70.4	117	56.3	<0.001*
	Male	62	56.4	29	29.6	91	43.8	
Nationality	Saudi	110	-	98	-	208	-	-
City	Al Ahsa	93	84.5	85	86.7	178	85.6	0.802
	Dammam	8	7.3	6	6.1	14	6.7	
	Jubail	2	1.8	3	3.1	5	2.4	
	Jubail& Al Ahsa	2	1.8	0	0.0	2	1.0	
	Khobar	5	4.5	4	4.1	9	4.3	
Year of Medical College	Fifth year	18	16.4	9	9.2	27	13.0	0.190
	First year	15	13.6	20	20.4	35	16.8	
	Fourth year	23	20.9	22	22.4	45	21.6	
	Second year	30	27.3	20	20.4	50	24.0	
	Sixth year	11	10.0	7	7.1	18	8.7	
	Third year	13	11.8	20	20.4	33	15.9	

SD: standard deviation; *Statistically significant

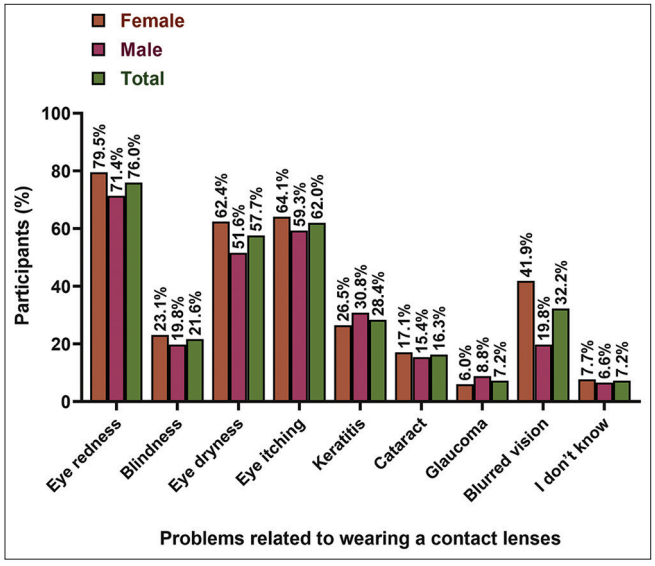

Figure 1: Problems related to wearing contact lenses

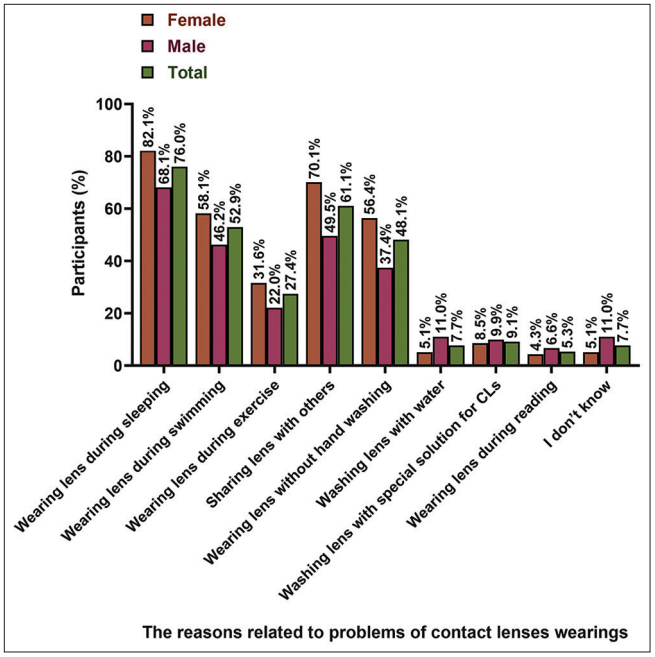

Figure 2: The reasons related to problems of contact lenses wearing

knowledge parameters can be seen in Table 3. The results of the linear regression model showed that only being female (*E* = -0.37; 95%CI= -0.65— -0.10; *P* = 0.007), using contact lenses (*E* = 0.56; 95%CI = 0.29— 0.82; *P* < 0.001), and in the third year (*E* = 0.66; 95%CI = 0.19— 1.13; *P* = 0.007) is significantly correlated with having higher knowledge scores about using CLs [Table 4].

Discussion

In this study, we hoped to shed more light on the attitude and awareness among medical students of King Faisal University, Al Ahsa, Saudi Arabia. We hope that our findings would be used to imply beneficial approaches that would enhance the practice of CLs among medical students. The prevalence of CLs use in our medical population was 47.1%. This rate is similar to the 40.5% reported by Ibrahim *et al.*[9] for medical students in Jeddah. On the other hand, Bamahfouz *et al.*[15] reported that the rate is 50.1%. On a global level, the prevalence of CLs among medical students is variable, and studies showed that it ranges between 17.1-27.4%.[16,17] Our findings also showed that the mean total knowledge score was 30.1 ± 7.74. We also found that the prevalence of CL use was significantly more common among female medical students. This is consistent with the previous results by Ibrahim *et al.*,[9] and Bamahfouz *et al.*[15] that was conducted on medical students from Jeddah, and Mekkah, respectively. Female students had also significant high total mean knowledge scores. This is probably attributable to the high prevalence

Table 2: Characteristics of contact lens usage among males and females

Variables		Gender						*P*
		Female		Male		Total		
		Count	%	Count	%	Count	%	
Are you a contact lens user?	No	48	41.0	62	68.1	110	52.9	<0.001*
	Yes	69	59.0	29	31.9	98	47.1	
Contact lens user	Current user	49	69.0	20	71.4	69	69.7	0.814
	Past user	22	31.0	8	28.6	30	30.3	
Duration of contact lens wear of current user	<6 months	23	32.4	12	41.4	35	35.0	0.116
	>5 years	4	5.6	2	6.9	6	6.0	
	1 to 5 years	29	40.8	5	17.2	34	34.0	
	6 months to 1 year	15	21.1	10	34.5	25	25.0	
Type of contact lenses use	Rigid gas permeable	2	2.9	1	3.4	3	3.0	1.000
	Soft contact lenses	68	97.1	28	96.6	96	97.0	
Mode of wear	Daily wear	31	43.7	23	79.3	54	54.0	0.004*
	Disposable	15	21.1	1	3.4	16	16.0	
	Extended wear	25	35.2	5	17.2	30	30.0	
Use contact lenses	Daily	24	34.3	23	82.1	47	48.0	<0.001*
	Occasionally	46	65.7	5	17.9	51	52.0	
Hours per day wearing contact lenses	<8 hours	33	45.8	14	48.3	47	46.5	0.472
	>12 hours	7	9.7	5	17.2	12	11.9	
	8-12 hours	32	44.4	10	34.5	42	41.6	
Reasons of using contact lenses	Convenience	6	8.3	3	10.3	9	8.9	0.245
	Cosmetic	31	43.1	7	24.1	38	37.6	
	Others	1	1.4	0	0.0	1	1.0	
	Refractive	34	47.2	19	65.5	53	52.5	

*Statistically significant

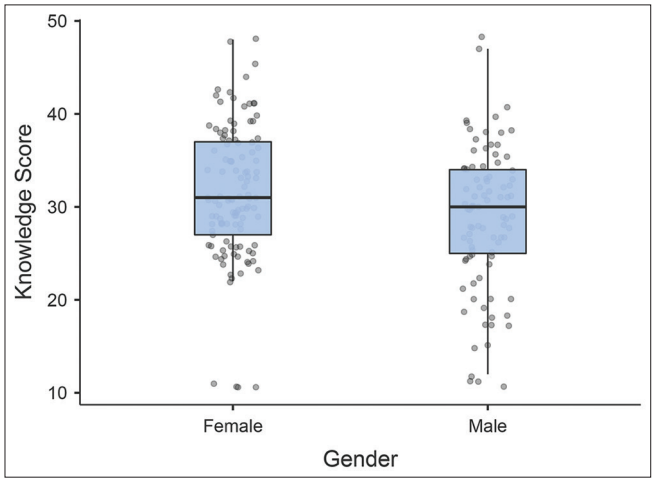

Figure 3: Gender differences in the assessed knowledge scores

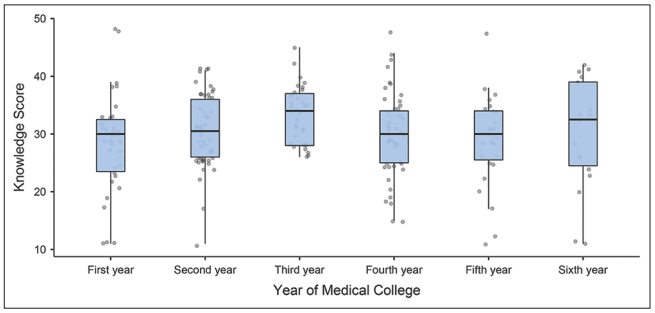

Figure 4: Year of medical college differences in knowledge scores

of CLs among them, which subjects them to obtain more information about the use and care of CLs.

Previous studies have demonstrated that many factors are associated with developing complications related to CLs use. Bamahfouz *et al.*[15] reported that prolonged and daily use, in addition to sleeping, taking showers, or swimming with CLs was significantly associated with the development of complications. In our study, we found that the daily use of CLs and the daily mode of CLs were more significantly higher in male than female participants. However, we did not find any significant differences between males and females regarding hours per day wearing of CLs, and most of them used CLs for a maximum of hours less than 12 per day. Moreover, washing hands before wearing CLs, poor cleaning of CLs, and poor rubbing techniques applications are significant factors that might increase the risk of developing complications.[18] In this study, most of the participants washed hands before wearing CLs, while around two-thirds of them did not use rubbing techniques, and both factors were significantly in favor of our female participants. This indicates the low knowledge practices among the Saudi population and necessitates the need for implying further preventive plans to increase the level of awareness. A previous study by Thakur *et al.*[19] reported that around half of the study participants that used CLs had detectable bacterial contaminations in their lens care solutions and/or CLs, however, none of these participants developed symptoms.

Table 3: Comparison of contact lenses knowledge among males and females

Variables		Gender						*P*
		Female		Male		Total		
		Count	%	Count	%	Count	%	
Hand washing before using CLs	No	11	9.4	18	19.8	29	13.9	0.032*
	Yes	106	90.6	73	80.2	179	86.1	
Remove CLs:	After one week	2	1.7	5	5.5	7	3.4	0.300
	After overnight	19	16.2	14	15.4	33	15.9	
	After two weeks	0	0.0	1	1.1	1	0.5	
	Before going to sleep	96	82.1	71	78.0	167	80.3	
CLs cleaning:	Before or after wear	92	78.6	62	68.1	154	74.0	0.178
	Never	3	2.6	4	4.4	7	3.4	
	Once a month	5	4.3	2	2.2	7	3.4	
	Weekly	17	14.5	23	25.3	40	19.2	
CLs case cleaning	Never	11	9.6	6	6.8	17	8.4	0.092
	Off and on	13	11.3	8	9.1	21	10.3	
	Once a month	6	5.2	2	2.3	8	3.9	
	Once a week	18	15.7	28	31.8	46	22.7	
	One after each use	67	58.3	44	50.0	111	54.7	
Cleaning material:	Both	16	13.7	19	20.9	35	16.8	0.375
	Lens solution	91	77.8	64	70.3	155	74.5	
	Tap water	10	8.5	8	8.8	18	8.7	
Knowledge about CLs renewal every 3 months	No	46	39.3	49	53.8	95	45.7	0.037*
	Yes	71	60.7	42	46.2	113	54.3	
Enzyme cleaner use	Everyday	42	35.9	41	45.1	83	39.9	0.680
	Never	24	20.5	13	14.3	37	17.8	
	Off and on	17	14.5	12	13.2	29	13.9	
	Once a month	15	12.8	11	12.1	26	12.5	
	Once a week	19	16.2	14	15.4	33	15.9	
Do you remove your lenses before swimming?	Always I remove my lens before swimming	66	56.4	41	45.1	107	51.4	0.138
	I remove my lens if I will swim in a swimming pool	23	19.7	17	18.7	40	19.2	
	I swim without removing my lens	28	23.9	33	36.3	61	29.3	
Do you share your lenses with others?	No	95	81.2	77	84.6	172	82.7	0.140
	Sometimes	5	4.3	0	0.0	5	2.4	
	Yes	17	14.5	14	15.4	31	14.9	
Do you wear your lenses beyond the expiry date?	No	75	64.1	68	74.7	143	68.8	0.258
	Sometimes	12	10.3	7	7.7	19	9.1	
	Yes	30	25.6	16	17.6	46	22.1	
Do you rinse your lenses by rubbing them with your fingers before soaking them in lenses case?	No	73	62.4	70	76.9	143	68.8	0.025*
	Sometimes	12	10.3	2	2.2	14	6.7	
	Yes	32	27.4	19	20.9	51	24.5	
Do you change the solution present in the lenses case after each use?	I always change it after each use	62	53.0	37	40.7	99	47.6	0.093
	I change it only if it seems dirty	23	19.7	16	17.6	39	18.8	
	I change it only if it was very little	6	5.1	12	13.2	18	8.7	
	I don't change it after each use	26	22.2	26	28.6	52	25.0	
If you use the special solution for the CLs, do you use it beyond the expiry date?	I don't use the special solution for contact lenses	5	4.3	4	4.4	9	4.3	0.050
	No	83	70.9	62	68.1	145	69.7	
	Sometimes	4	3.4	12	13.2	16	7.7	
	Yes	25	21.4	13	14.3	38	18.3	
Knowledge about over wear syndrome:	No	85	72.6	73	80.2	158	76.0	0.205
	Yes	32	27.4	18	19.8	50	24.0	
Knowledge about side effect of Kajal use:	No	93	79.5	67	73.6	160	76.9	0.320
	Yes	24	20.5	24	26.4	48	23.1	
What you will do in case if you have been exposed to one of the eye problems due to wearing a contact lenses?	Going to eye physician	44	37.6	43	47.3	87	41.8	0.004*
	I don't do anything	5	4.3	13	14.3	18	8.7	
	Removing CLs from eye immediately	68	58.1	35	38.5	103	49.5	

CLs: contact Lenses; *Statistically significant

We have also conducted a linear regression model to identify the factors that can predict having high knowledge scores of CLs use. Our results showed that being a female using CLs significantly correlates with having high knowledge scores.

Table 4: Linear regression for predictors of knowledge score among the participants

Predictor	Standardized Estimate	95% confidence Interval		*P*
		Lower	Upper	
Age	-0.01	-0.14	0.13	0.941
Gender				
Female		Reference		
Male	-0.37	-0.65	-0.10	0.007*
City				
Khobar		Reference		
Al Ahsa	-0.63	-1.29	0.04	0.064
Dammam	-0.16	-0.99	0.67	0.705
Jubail	-0.29	-1.37	0.80	0.604
Jubail& Ahsa	0.89	-0.63	2.41	0.248
Year of Medical College				
First year	Reference			
Fifth year	0.05	-0.45	0.55	0.85
Fourth year	0.20	-0.24	0.64	0.377
Second year	0.28	-0.15	0.71	0.203
Sixth year	0.23	-0.34	0.80	0.427
Third year	0.66	0.19	1.13	0.007*
Are you a contact lens user				
No	Reference			
Yes	0.56	0.29	0.82	<0.001*

*Statistically significant

This is logical as individuals that frequently seek to wear CLs acquire more knowledge about CLs to achieve better cosmetic or medical outcomes. Moreover, we found that being a third-year medical student also significantly correlates with having high knowledge scores other than older and younger participants. Although we do not have a proper explanation for this correlation, except for the possible differences in demographics among these participants, previous studies have demonstrated the importance of education on obtaining better knowledge scores.[20,21] On the other hand, Alobaidan *et al.*[21] reported that neither gender nor the level of education significantly correlates with having high knowledge scores of CLs use in their Saudi general population, however, younger ages less than 25 years old did. Moreover, a previous registry-based study reported that male participants were better users of CLs than females in terms of fewer symptoms. However, the authors justified this by reporting that female participants tend to promptly report the symptoms and frequently report to their healthcare professionals. Moreover, the same study showed that higher CL-related hygienic practices were seen more frequently among females.[22] This indicates that female individuals have more knowledge about CLs care and use than males. Contact lenses have been a part of some individual's daily lives. The use of CLs in a hygienic way is essential to prevent unwanted infections. This is the first study to assess the knowledge and practice of CLs in Al Ahsa, Saudi Arabia. More studies are necessary to study a larger group of residents.

Some factors might have limited the findings of this study. These include the survey-based design of the study, and the limited sample size, which necessitates the need to conduct further investigations with proper sampling and study design.

Conclusion

Our findings demonstrate the high prevalence of CLs use among our medical students' population and the low knowledge scores among them. Female participants had higher total mean knowledge scores than males, and they significantly used more disposable and extended-wear CLs than males. We also found that the female gender, using CLs, and being in the third year significantly correlate with having higher knowledge scores. We recommend that further educational campaigns should be inaugurated to raise awareness about taking care of CLs and warn against the possible associated complications.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Abokyi S, Manuh G, Otchere H, Ilechie A. Knowledge, usage and barriers associated with contact lens wear in Ghana. Cont Lens Anterior Eye 2017;40:329-34.
2. Lee SY, Kim YH, Johnson D, Mondino BJ, Weissman BA. Contact lens complications in an urgent-care population: The University of California, Los Angeles, contact lens study. Eye Contact Lens 2012;38:49-52.
3. Unnikrishnan B, Hussain S. Pattern of use of contact lens among college students: A cross-sectional study in coastal Karnataka. Indian J Ophthalmol 2009;57:467-9.
4. Konne NM, Collier SA, Spangler J, Cope JR. Healthy contact lens behaviors communicated by eye care providers and recalled by patients-United States, 2018. MMWR Morb Mortal Wkly Rep 2019;68:693-7.
5. Zeried FM, Alnehmi DA, Osuagwu UL. A survey on knowledge and attitude of Saudi female students toward refractive correction. Clin Exp Optom 2020;103:184-91.
6. Bhandari M, Hung PR. Habits of contact lens wearers toward lens care in Malaysia. Med J Malaysia 2012;67:274-7.
7. Alipour F, Khaheshi S, Soleimanzadeh M, Heidarzadeh S, Heydarzadeh S. Contact lens-related complications: A review. J Ophthalmic Vis Res 2017;12:193-204.
8. Sapkota K, Lira M, Martin R, Bhattarai S. Ocular complications of soft contact lens wearers in a tertiary eye care centre of Nepal. Cont Lens Anterior Eye 2013;36:113-7.
9. Ibrahim NK, Seraj H, Khan R, Baabdullah M, Reda L. Prevalence, habits and outcomes of using contact lenses among medical students. Pak J Med Sci 2018;34:1429-34.
10. Jones LA, Walline JJ, Gaume A, Rah MJ, Manny RE, Berntsen DA, *et al.* Purchase of contact lenses and contact-lenses-related symptoms following the contact lenses in pediatrics (CLIP) Study. Cont Lens Anterior Eye 2009;32:157-63.
11. Abdelkader A. Cosmetic soft contact lens associated ulcerative keratitis in southern Saudi Arabia. Middle East

Afr J Ophthalmol 2014;21:232-5.

12. Young G, Young AG, Lakkis C. Review of complications associated with contact lenses from unregulated sources of supply. Eye Contact Lens 2014;40:58-64.
13. Khan MH, Mubeen SM, Chaudhry TA, Khan SA. Contact lens use and its compliance for care among healthcare workers in Pakistan. Indian J Ophthalmol 2013;61:334-7.
14. Abahussin M, AlAnazi M, Ogbuehi KC, Osuagwu UL. Prevalence, use and sale of contact lenses in Saudi Arabia: Survey on university women and non-ophthalmic stores. Cont Lens Anterior Eye 2014;37:185-90.
15. Bamahfouz AY, Nafady-Hego H, Jouhargy S, Qadir MA, Qutub WN, Bahubaishi KM, *et al.* Awareness of contact lens care among college students in Saudi Arabia. Int J Scient Study. 2016 Apr 1;4 (1):90-6.
16. Zhu Q, Yang B, Deng N, Li Y, Wang T, Qi H, *et al.* The use of contact lenses among university students in Chengdu: Knowledge and practice of contact lens wearers. Cont Lens Anterior Eye 2018;41:229-33.
17. Tajunisah I, Ophth M, Reddy SC, Phuah SJ. Knowledge and practice of contact lens wear and care among medical students of University of Malaya. Med J Malaysia 2008;63:207-10.
18. Ismail LA, Rampal L, Rahman HA, Omar N, Midi H, Ariffin AE. Risk factors Associated with contact lens related microbial keratitis. Malays J Med Health Sci 2016;12:3-10.
19. Thakur DV, Gaikwad UN. Microbial contamination of soft contact lenses and accessories in asymptomatic contact lens users. Indian J Med Res 2014;140:307-9.
20. Alzahrani O, Alshehri FA, Alali AO, Alzahrani OH, Alzahrani ZA, AlZahrani A, *et al.* Contact lens practices and knowledge of complications and its association with refractive error in Saudi Arabia. Cureus 2021;13:e12786.
21. Alobaidan OS, Alkhalifah MK, AlSayegh AA, Alhumaid FA, Ashammery AS, Alghamdi K, *et al.* Knowledge and practice regarding contact lens among Saudi urban contact lens users. Saudi J Ophthalmol 2018;32:93-6.
22. Chalmers R, Hickson-Curran S, Keay L, Gleason W, Albright R. Gender differences in habitual contact lens wear and care patterns from a large contact lens registry. Contact Lens and Anterior Eye 2013;36:e7.