CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.2671785

Available online at: http://www.iajps.com *Research Article*

CONTACT LENSES: PERCEPTION, KNOWLEDGE AND PRACTICE AMONG FEMALE STUDENTS IN HAFR AL-BATIN UNIVERSITY

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Article Received: March 2019 **Accepted:** April 2019 **Published:** May 2019

Abstract:

Background: *The use of contact Lenses (CL) is becoming more popular among young people especially the females. However, if CL are not handled properly, they may be associated with vision threatening complications like the microbial keratitis. Proper knowledge about CL is important for minimizing the CL related complications.*

Objective: *To assess the perception and knowledge of CL among female undergraduates in Hafr Al-Batin city.*

Methods: *This questionnaire based survey was conducted on 335 undergraduate female students from four colleges of Hafr Al-Batin University. Sixteen students who failed to provide completely filled questionnaire were excluded from this study.*

Results: *In this study 273 (81.5%) participants reported that they were using currently and/or had used CL before either for correcting the refractive error (RE) or for cosmetic purposes. Soft type and monthly disposable CL were the most commonly used. Sufficient knowledge about CL was demonstrated by 71.7% of the participants. Personal history of RE and educational institution had significant influence on the level of CL knowledge. While 65.4% reported that CL give more natural appearance, 70.4% believed that CL require extra care. Red eye was the commonest complication reported by CL users (39.6%). Most of participants (58.3%) preferred to remove the CL whenever complications occurred without consultation of a medical practitioner. Only about 40% of the participants had an idea about the CL over wear syndrome. Healthcare personnel were the most common sources of knowledge about CL (in 35% participants).*

Conclusion: *Although the overall knowledge about the contact lenses among undergraduates from Hafr Al-Batin city is satisfactory, there is still a need for improving the awareness about the complications of CL and their prevention and treatment.*

Key words: *Awareness, contact lens, complications, Hafr Al-Batin city, refractive error.*

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*Please cite this article in press Farhan Khashim Alswailmi ., **Contact Lenses: Perception, Knowledge And Practice Among Female Students In Hafr Al-Batin University.,** Indo Am. J. P. Sci, 2019; 06(05).*

INTRODUCTION:

Contact lenses (CL) are not only used to correct the refractive errors (RE), but can also be useful to achieve cosmetic and other therapeutic purposes. [1,2] Contact lenses offer advantages over spectacles like more natural appearance of the wearer and better peripheral vision. They do not fog up and can be better for sportsmen. [3] Contact lenses are better than spectacles in many conditions such as keratoconus [4], irregular corneas [5], aphakia [6] and high anisometropia. [7]

In view of the advantages that CL offer over conventional methods like spectacles the use of CL is becoming more popular among young people especially the females. There are more than 125 million contact lens wearers found around the globe in which 33 million of contact lens users are present in United States. [8]

However, the CL need extra care and may be associated with undesired complications like dry eye, red eye and giant papillary conjunctivitis. However, the serious vision threatening complications that CL can cause are the microbial keratitis. [9-11] Most of the CL related problems may be associated with poor hygiene, poor compliance to the instructions of use, improper handling, inadequate knowledge about proper care of CL, environment and age of the wearers. [12]

Awareness about contact lens is highly critical for proper perception and healthy practice among CL users. No much data are published about the awareness among Saudi population regarding contact lenses' benefits and hazards. Hence, the purpose of the current study was to study the perception and knowledge about CL among female undergraduates in Hafr Al-Batin city through a structured questionnaire. Female groups were targeted as they are more frequently using CL for correction of RE as well as for cosmetic purposes.

MATERIALS AND METHODS:

Study design:

The current descriptive cross sectional, questionnaire based study included a randomly selected sample of female students from Hafr Al-Batin University.

Methods:

The predesigned questionnaire contained four parts. The first part covered the demographic data including age, college name, academic year and family and personal history of RE. The second part included 10 questions regarding the perception of the participants about CL. While the third part was composed of ten true and false questions to evaluate the participants' knowledge regarding CL. Finally, the fourth part was structured in ten question about the personal experience among CL users about CL. The questionnaire was validated by the staff members of Nursing and Community Practice Department of Hafr Al-Batin University. Personal discussion prior to the collection of the data was commenced with every participant to make sure that they understand all the medical terms used in the questionnaire.

Data Analysis:

The demographic and perception data were collected and analyzed as numbers and percentages of every answer among the participants. For knowledge part, correct answers were scored as one while the wrong answers were scored as zero. The participant who had overall scores equal to five or more was considered as having a sufficient knowledge, while as a person with scores below five was considered as having insufficient knowledge. The influence of the different variables on the overall knowledge score was analyzed by using chi-square test. Significance was considered with P-value less than 0.05.

RESULTS:

After informed consents, 335 female students from Hafr Al-Batin University were enrolled in the current study. Their ages ranged from 18-30 years with mean age 22.5±4.4 years. Participants' demographic data are shown in table 1.

Table 1: Demographic data of the participants

Variable	Parameter	Number	%
Age	18- 22	277	82.7
	23-27	53	15.8
	28 -30	5	1.5
Colleges	Applied Medical sciences	205	61.2
	Education	76	22.7
	Arts	44	13.1
	Business Administration	10	3.0
Academic year	First Year	135	40.3
	Second Year	96	28.7
	Third Year	58	17.3
	Fourth Year and Internship	46	13.8
Family H/O RE	Yes	177	52.8
	No	158	47.2
Personal H/O RE	Yes	118	35.2
	No	217	64.8

Regarding the participants' perception about CL, majority (65.4%) of them reported that CL give more natural appearance, however 70.4% believed that CL require extra care. Data regarding participants' perception are shown in **table 2.**

Table 2. Participants' perception about Contact Lens (CL) use:

Concepts	Agree		Neutral		Disagree		Total
	N	%	N	%	N	%	
1. CL are better than glasses.	181	54.0	82	24.5	72	21.5	335 (100%)
2. CL give more natural appearance.	219	65.4	95	28.4	21	6.3	335 (100%)
3. In CL nobody knows that you have RE	198	59.1	90	26.9	47	14.0	335 (100%)
4. CL are more expensive than glasses.	140	41.8	94	28.1	101	30.1	335 (100%)
5. CL are associated with more complications.	173	51.6	105	31.3	57	17.0	335 (100%)
6. CL require extra care.	236	70.4	63	18.8	36	10.7	335 (100%)
7. Hygiene is important for CL wearing.	215	64.2	70	20.9	50	14.9	335 (100%)
8. CL can be worn while swimming.	71	21.2	59	17.6	205	61.2	335 (100%)
9. CL can be worn while sleeping.	62	18.5	59	17.6	214	63.9	335 (100%)
10. CL can be worn to change eye color.	199	59.4	72	21.5	64	19.1	335 (100%)

Regarding the knowledge question, the overall score was 7.3±2.3 out of total score of 10. The participants demonstrated the highest score (78.5% correct answers) in the question pertaining to the cleaning material used for the CL, while the lowest score (only 42.7% correct answers) was reported in the question

about the benefits of CL after refractive surgery or corneal collagen cross linking (CCXL). Summary of the correct answers given by the participants is shown in **table 3**.

Table 3: Participants' response to knowledge questions about Contact Lens (CL)

Do you have knowledge about:	**Positive response (n)**	**%**
1. Cleaning material used for CL.	263	78.5
2. Expiry date of CL usage.	227	67.8
3. Therapeutic use of CL after refractive surgery or corneal collagen cross linking (CCXL).	143	42.7
4. Use of CL to match the iris color to the other eye in case it has a different color.	196	58.5
5. Risk for infection in exchanging CL with another person.	240	71.6
6. Risk for microbial keratitis in CL wearer.	181	54.0
7. Risk for acanthamoeba infection if water is used to clean the CL.	183	54.6
8. Unmotivated people are not suitable for CL.	170	50.7
9. Poor hygiene is a contraindication for CL.	203	60.6
10. Active inflammation or infection is a contraindication for CL.	198	59.1

Two hundred and fifty-one participants (71.7%) had showed sufficient knowledge about CL. There was a significantly higher knowledge scores among students of the College of Applied Health Sciences (p=0.0057) in comparison to the other colleges. Also the scores were significantly higher among persons with personal history of RE (p=0.045). (**Table 4**).

Table 4: Impact of demographic variables on the overall knowledge score about CL

Variables	**Parameter**	**Totals (100%)**	**Insufficient knowledge**		**Sufficient knowledge**		**P value**
			N	%	n	%	
Age	18- 22	277	66	23.8	211	76.2	1.560, 2 0.458
	23-27	53	16	30.2	37	69.8	
	28 to 30	5	2	40.0	3	60.0	
College	Education	76	29	38.2	47	61.8	14.58, 4 0.0057
	Applied Medical Sciences	205	38	18.5	167	81.5	
	Arts	44	15	34.1	29	65.9	
	Business Administration	10	2	20.0	8	80.0	
Academic year	1st to 3rd years	289	67	23.2	222	76.8	0.4370, 1 0.508
	Above 3rd year	46	17	37.0	29	63.0	
Family H/O RE	Yes	177	47	26.6	130	73.4	0.4051, 1 0.524
	No	158	37	23.4	121	76.6	
Personal H/O RE	Yes	118	32	27.1	86	72.9	4.007, 1 0.045
	No	217	52	24.0	165	76.0	

Two hundred and seventy-three participants (81.5%) reported that they were using currently and/or had used CL before. Regarding the personal experience about CL among CL users, majority of them were using CL either for correcting the RE or for cosmetic purposes. Soft type was the most frequently used CL. About 67% were satisfied by VA obtained with CL correction. The monthly disposable CL was the most commonly used (**Table 5**).

Table 5. Personal experience about Contact Lens (CL) among CL users.

Questions	Options	Number	%
What is the purpose of CL?	Refractive error	37	13.5
	Cosmetic	46	16.7
	Both	190	69.6
What types of CL do you know?	Soft	162	59.4
	Semisoft	48	17.7
	Hard	48	17.7
	Rigid gas permeable	14	5.2
Are you satisfied with the vision and comfort of your CL?	Yes	191	69.8
	No	82	30.2
What is most important for you in choosing the type of CL?	Comfort	173	63.5
	Brand/ Cost	83	30.4
	Easy maintenance	17	6.3
What modalities of CL wear do you know?	Daily disposable	74	27.1
	Weekly disposable	48	17.7
	Biweekly disposable	23	8.3
	Monthly disposable	88	32.3
	Quarterly replacement	17	6.3
	Others	23	8.3

Red eye was the commonest complication reported by CL users (39.6%). Most of participants (58.3%) preferred to remove the CL whenever complications occurred without consultation of a medical practitioner. Only about 40% of the participants had an idea about the CL over wear syndrome. In case deposits were found on their CL 62.5% of the users preferred to consult an ophthalmologist (**Table 6**).

Table 6. Contact Lens (CL) users' response to complications of Contact Lenses:

Questions	Options	Number	%
Have you experienced any of these symptoms with CL use?	General discomfort/irritation	57	20.8
	Dry eye(s)/ gritty sensation in the eye	74	27.1
	Red eye	108	39.6
	Pain	85	31.3
	Blurred vision	48	17.7
	Other symptoms	20	7.3
	No symptoms	46	16.7
If you have problems due to CL usage, what do you do?	Remove CL immediately	159	58.3
	Self-medication	71	26
	Consult ophthalmologist	43	15.6
Do you know CL over-wear syndrome?	Yes	108	39.6
	No	165	60.4
Should you consult an ophthalmologist if deposits are found on your CL:	Yes	171	62.5
	No	102	37.5

Fortunately, healthcare personnel were the most common (35%) sources of knowledge about CL. Other sources of participants' knowledge about CL are shown in **figure 1**.

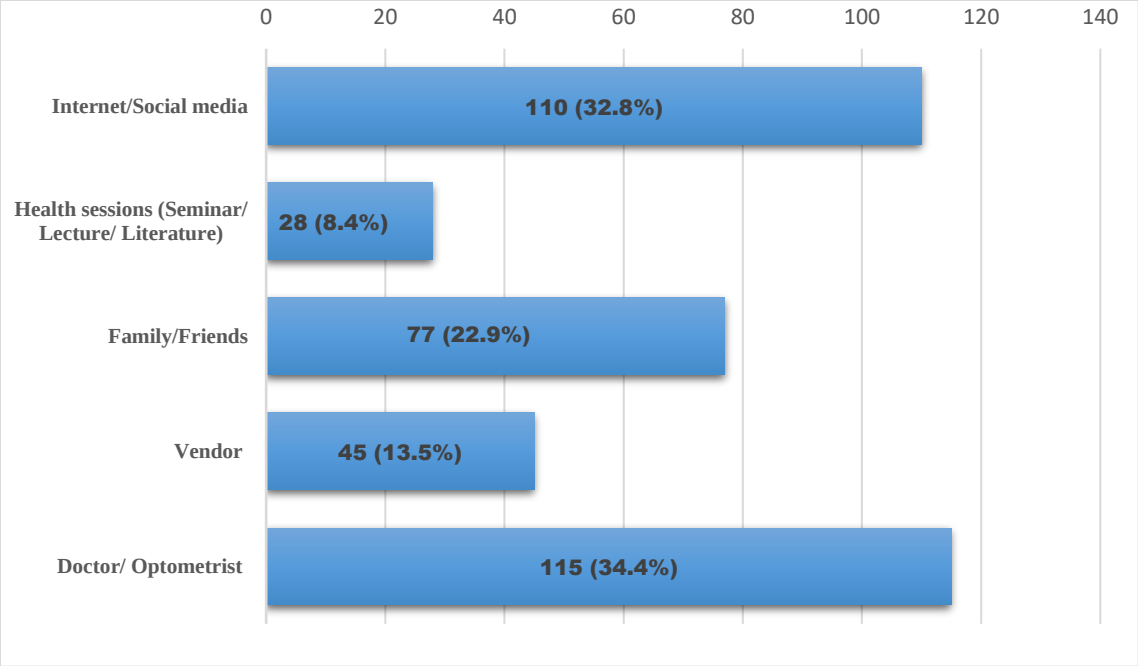

Figure 1. Source(s) of knowledge about Contact Lenses

DISCUSSION:

The current study was conducted to evaluate the perception and knowledge about the CL among female undergraduates in Hafr Al-Batin city through a structured questionnaire. The majority of the participants (65.4%) had reported that CL give more natural appearance, however about 70.4% believed that CL require extra care. Regarding knowledge question, the overall score was 7.3±2.3 out of 10. The highest score (78.5%) was shown in the question about the cleaning material used for the CL, while the lowest (42.7%) score was found in the question pertaining to the benefits of the CL after refractive surgery or CCXL. Two hundred and fifty-one (71.7%) participants had showed sufficient knowledge about CL. Their scores were significantly affected by the faculties and personal history of RE. Two hundred and seventy-three participants (81.5%) reported that they were using currently and/or had used CL before. Regarding the personal experience about CL among CL wearers, majority of them were using CL either for correcting their RE or for cosmetic reasons. Soft type was the most frequently used CL. While, depending on regime, monthly disposable CL was the most commonly used. Red eye was the commonest (39.6%) complication reported by CL users Fortunately, healthcare personnel were the most common (35%) sources of knowledge about the CL.

Regarding perception, 65.4% of the participants reported that CL provide more natural appearance and even better cosmetic outcomes. This is in line with other Saudi studies conducted by Abahussin et al. in 2014[13], Bamahfouz et al.in 2016 [14] and Alobaidan et al. in 2018 [15]. Also, 70.4% of the participants believed that CL require extra care and the highest score in the knowledge questions was shown for the question about the cleaning material used for CL (78.5%) and about 60% of participants reported that CL are not suitable for persons with bad hygiene and poor motivation. Our data showed high awareness about CL hygiene which is in accordance with other previously published Saudi studies as Abahussin et al. (2014) [13] about awareness of CL hygiene among Saudi female university students. Poor hygiene among CL users was reported to cause serious microbial contamination which may be asymptomatic or may lead to serious eye infections including pseudomonas aeruginosa and staphylococcus aureus. [16, 17, 18]

Regarding knowledge questions, 251 participants (71.7%) had showed sufficient knowledge about CL. Faculties and personal history of RE significantly affected their knowledge scores. This level of knowledge was higher than what was that reported in a previous study by Alobaidan et al. in 2018 [15]. They had reported sufficient knowledge among only about 55% of their study participants. The current

study showed that the level and the field of education is associated with higher level of awareness. In addition, self-experience of RE among participants is a main motive to know about CL and improved awareness. This finding is in accordance with previously published data which has also confirmed the self-experience as the main CL awareness motive [19].

Two hundred and seventy-three participants (81.5%) reported that they were using currently and/or had used CL before. This is higher than the percentages reported in the earlier Saudi studies. This may be due to the reason that our study targeted the female participants with expected higher CL-wearers among them for cosmetic reasons and to keep more acceptable appearance while correcting their RE [14]. This assumption is also in line with the current data as majority of CL users had reported that they were using CL for both RE and cosmetic reasons at the same time.

Among our participants, soft type was the most frequently used CL and the monthly disposable type was the commonest as far as the regime is concerned. This is in line with the study conducted by Bamahfouz et al., 2016 [14] who reported that the soft type was the most commonly used, but the conventional non-disposable CL was the commonest used type. This increased use of disposable CL may be due to improved awareness about the hygiene between 2016 and 2019 and also may be due to availability of wider range of the disposable lenses with cheaper prices. About 67% of the CL users were satisfied by VA obtained with CL correction.

A wide range of CL complications from mild to severe were reported by the CL wearers that occurred with all CL modalities [20]. Red eye was the commonest (39.6%) complication reported among the current study CL users. Similarly, red eye was reported to be a common complication of CL in other studies. [15, 21, 22] This red eye may be caused by wide range of ocular pathologies among which conjunctivitis (papillary and giant papillary types) is the most common. [23]

Fortunately, healthcare personnel were the most common sources of knowledge about CL (in 35% participants). This is different from other Saudi studies which have reported personal and peers' experience as the main source of CL knowledge among their enrolled participants [15,24]. This variation may be due to the fact that our study was focused on university students who are expected to get more information from its proper source to keep their eyes healthy.

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