

# Beliefs, attitude and knowledge of contact lens wear and care among Saudi Arabia population

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## Abstract

People wear contact lenses (CL) not only to correct the refractive errors of the eye, but also for cosmetic reasons. However, people who wear CL have little or no knowledge of the rules of proper handling of CL and of the complications they may cause. Our aim is to assess the awareness of CL wear and care in Saudi Arabia. This is a prospective cross-sectional study. A validated questionnaire was administered between June to July 2018. The age range of target participants was between 18 and 60 years. The invitation to participate in the study was sent to 900 individuals and the data was statistically analyzed using SPSS v24.01. The study targeted 507 participants, with a mean age 25.03 SD ( $\pm 7.79$ ). The results indicate that 100 participants (29.5%) wear CL for refractive correction, 134 (39.5%) wear them for cosmetic reasons, while 105 (31%) wear them for both correction and cosmetic ends. Moreover, 498 (98%) of the participants report that wearing contact lens during sleep is harmful to eyes, and 90% of the participants believed that swimming with CL might have negative effects on the eyes. 67% of the participants believed the misuse of contact lenses may cause corneal ulcer, 67% of participants think the contact lenses cause blindness. The use of contact lenses in Saudi Arabia is mainly for cosmetic reasons. Accordingly, there is a need for health education program on how to use contact lenses for cosmetic reasons to minimize their risks.

## Introduction

A population-based survey revealed that around 4.9 million people wear contact lenses in the US [1]. In the UK, the number of CL wearers has gone up from 1.6 million in 1992 to 3.5 million in 2014 then to 3.7 million in 2016 [2]. The numbers for CL wearers in Saudi Arabia are not clear as most studies have concentrated on CL complications rather than exploring the CLs prevalence or compliance among the Saudi Arabian community [3-6].

Contact lenses (CL) are optical devices worn on the eye. They are directly placed on the surface of the cornea so as not to block oxygen from getting through it [7]. Contact lenses are soaring in popularity among the younger generations. People wear contact lenses not only to correct the refractive errors of the eye, but also for cosmetic reasons [8]. They come in two types: soft and hard contact lenses [9]. However, people who wear CL have little or no knowledge of the rules of proper handling of CL and of the complications they may cause [10]. Such complications can vary from a simple feeling of discomfort to sight-threatening conditions, such as microbial keratitis. These complications are related to the level of compliance with CL wear and care. The most common reasons for the low level of compliance, insufficient CL care education by eye care practitioners (ECPs), poor self-hygiene habits, missing aftercare visits and obtaining CLs from unauthorized vendors. [11-17]. Several studies have been carried out on the complications caused by CL and the most reported ones are eye dryness, corneal abrasion and edema, neovascularization giant papillary conjunctivitis, corneal ulcer and keratitis [18]. The aim of this study is to assess the awareness of CL wear and care in Saudi Arabia. **Materials and methods**

This is a prospective cross-sectional study. A validated questionnaire was administered between June to July 2018. A random cluster sampling method was applied to select participants in Saudi Arabia. A well-structured questionnaire was designed in Arabic and was

electronically administered. In addition, a paper-based survey was used to collect responses from illiterate participants and those who do not use smartphones. Their responses were later processed electronically. The questionnaire aimed at collecting data related to the demographics of the participant, their knowledge, attitude, practice of contact lens wear and daily care, awareness toward common complications and how to handle them. The age range of target participants was between 18 and 60. The invitation to participate in the study was sent to 900 individuals. The data was exported from google sheets to Microsoft Excel for the descriptive analysis. Using SPSS v24.0 to investigate the association of independent variables (age, gender, educational level, history of eye exam) with the dependent variables (knowledge, belief and attitude on contact lens). The p value for the test significance was set at 0.05.

## Results

This study included 507 participants with a response rate of 56.5%. Their ages ranged from 10 to 80 years with a mean  $\pm$  SD of age 25.03 ( $\pm 7.79$  years) 77.7% of the participants were females and 23.3% were males. The participants' level of education ranged from illiteracy to post-graduate studies, from maximum to minimum 272 (53.6%) bachelor degree, 196 (38.7%) school education, 38 (7.5%) post-graduate studies, 1 (0.2%) illiterate. The geographical distribution of the participants was as follows: 354 (69.8%) from the western region, 83 (16.4%) from the central region, 26 (5.1%) from the eastern region, 26 (5.1%) from

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the south and 18 (3.6%) from the north. 243 (47.9%) of participants reported having undergone an eye examination in the past year, 116 (22.9%) had an eye examination within 5 years, 59 (11.6) had an eye examination more than 5 years ago and 89 (17.6) reported that they had never had an eye examination (Table 1). Three hundred and thirty-nine (67.8%) of participants were using contact lens in which 303 were females and 36 were males. The purpose of wearing contact lens was 100 (29.5%) for refractive correction, 134 (39.5%) were cosmetic while 105 (31%) for correction & cosmetic. 498 (98%) of the participants were aware that wearing contact lenses during sleep is harmful. 332 out of the 498 use contact lenses, while the remaining 166 don't use them.

The majority of participants, 373 (74%) believed that handling contact lens before makeup is better in which 271 use contact lens and 102 don't use them. The rest of participants believed that the use contact lens after makeup is better. The American Optometric Association recommends replace the contact lens case at least every three months. 74 (15%) of participants reported that they should replace the lens storage case at least once every year, 166 (33%) of the participants reported that they should replace the lens storage case at least once every 6 months, 146 (26%) of the participants show that they should replace lens storage case monthly, 19 (4%) of the participants reported that they should replace the lens storage case every two weeks, 34 (7%) of the participants reported that they should replace the lens storage case weekly, 68 (13%) of the participants think that they should replace lens storage case daily. Among the contact lenses wearers 175 (52%) purchase their contact lens without a prescription from a specialist. Furthermore, 206 (15%), 22 (6%) and 15 (5%) purchase their contact lens from optical shop, pharmacy and beauty salons, respectively. Ninety percent of the participants believe swimming with contact lens might have negative effects on the eyes. 67% of the participants believed the misuse of contact lenses may cause corneal ulcer while 33% did not believe that. 67% of participants think the contact lenses cause blindness and 33% did not think that (Table 2).

## Discussion

The results of the study suggest that women prefer to use contact lenses for medical purposes as a substitute for the glasses. The lenses give them more flexibility, freedom, a more beautiful appearance and

perhaps for aesthetic purposes to change the color of your eyes and brighten your eyes [7].

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A cross sectional descriptive study was carried out between 1st August 2012 to 30th November 2012 in Fatima Memorial Hospital College of Medicine and Dentistry to determine the awareness of contact lens care among medical students. This study revealed that medical student, even though they have good knowledge of the use of CL, are not fully aware of the proper way to clean the CL and their cases. Failure to comply with the hygiene rules of CL can have serious repercussions on the eye. A good care system of CL is likely to maximize comfort, improve eyesight, improve the health of the eye and keep the lenses hydrated. In this study revealed that women use CL to correct refractive errors, while in our study revealed that women in Saudi Arabia wear it mostly for cosmetic reasons [8].

Another cross-sectional study was carried out in Saudi Arabia between January-March 2013 in order to evaluate the use and knowledge of CL among women. The study aimed also at investigating the dispensation practices of CL in non-ophthalmic stores. The results of the study suggest that CL use is prevalent among Saudi women, particularly for cosmetic reasons. The findings of this study agree with this study in that the majority of CL users purchase them from optical shops [9].

Finally, in a cross-sectional descriptive study conducted in January 2013, researchers sought to discover the awareness level of the indications and care of CL among medical students. The study found out that the majority of medical students were unaware of the important indications of contact lens. Our study is similar in wearing CL during sleep is reported to be harmful by the participants [10].

**Table 1.** Demographic Profile of the Participants and their Eye Examination (n=507)

Variable		n	Percentage (%)
Age	Minimum=10 years	507	100
	Maximum=80 years		
	Mean=25.03		
	Std. Deviation= ±7.79		
Gender	Male	113	22.3
	Female	394	77.7
Educational level	Illiterate	1	0.2
	School	196	38.7
	Bachelor	272	53.6
	Post graduate	38	7.5
Region*	Central	83	16.4
	Northern	18	3.6
	Southern	26	5.1
	Western	354	69.8
	Eastern	26	5.1
Last eye examination	More than 5 years	59	11.6
	Less than 5 years	116	22.9
	Less than 1 year	243	47.9
	Never had an eye exam	89	17.6

**Table 2.** Distribution of the Knowledge of Contact Lens by Contact Lens Wearers (n=507)

Variable	Category	Using CL (%)	Not using CL (%)	Total (%)
<b>Purpose of wearing contact lens</b>				
	Correction	100 (29.5)	--	100 (29.5)
	Cosmetic	134 (39.5)	--	134 (39.5)
	Correction & Cosmetic	105 (31)	--	105 (31)
	<b>Total</b>	<b>339 (100)</b>	<b>--</b>	<b>339 (100)</b>
<b>Sleeping with contact lenses are harmful to the eyes</b>				
	Yes	332 (98)	166 (99)	498 (98)
	No	7 (2)	2 (1)	9 (2)
	<b>Total</b>	<b>339 (100)</b>	<b>168 (100)</b>	<b>507 (100)</b>
<b>Wearing contact lens before or after makeup</b>				
	Before	271 (80)	102 (61)	373 (74)
	After	68 (20)	66 (39)	134 (26)
	<b>Total</b>	<b>339 (100)</b>	<b>168 (100)</b>	<b>507 (100)</b>
<b>Replace contact lens cases</b>				
	Daily	50 (15)	18 (11)	68 (13)
	Weekly	11 (3)	23 (14)	34 (7)
	Every two weeks	8 (2)	11 (7)	19 (4)
	Monthly	87 (26)	59 (35)	146 (29)
	Every six months	121 (36)	45 (27)	166 (33)
	Yearly	62 (18)	12 (6)	74 (15)
	<b>Total</b>	<b>339 (100)</b>	<b>168 (100)</b>	<b>507 (100)</b>
<b>Purchase contact lenses based on prescription of specialist</b>				
	Yes	164 (48)	--	164 (48)
	No	175 (52)	--	175 (52)
	<b>Total</b>	<b>339 (100)</b>	<b>--</b>	<b>339 (100)</b>
<b>Places to purchase contact lenses</b>				
	Optical shop	206 (15)	--	206 (15)
	Pharmacy	22 (6)	--	22 (6)
	Beauty salon	15 (5)	--	15 (5)
	Optical shop & pharmacy	85 (25)	--	85 (25)
	Optical shop & beauty salon	3 (1)	--	3 (1)
	Pharmacy & beauty salon	8 (2)	--	8 (2)
	Optical shop & pharmacy & beauty salon	0	--	0
	<b>Total</b>	<b>339 (100)</b>	<b>--</b>	<b>339 (100)</b>
<b>Swimming with contact lenses are harmful to the eyes</b>				
	Yes	308 (91)	150 (89)	458 (90)
	No	31 (9)	18 (11)	49 (10)
	<b>Total</b>	<b>339 (100)</b>	<b>168 (100)</b>	<b>507 (100)</b>
<b>Misuse of contact lenses may cause corneal ulcer</b>				
	Yes	216 (64)	124 (74)	340 (67)
	No	123 (36)	44 (26)	167 (33)
	<b>Total</b>	<b>339 (100)</b>	<b>168 (100)</b>	<b>507 (100)</b>
<b>Complications of contact lens may lead to blindness</b>				
	Yes	216 (64)	124 (74)	340 (67)
	No	123 (36)	44 (26)	167 (33)
	<b>Total</b>	<b>339 (100)</b>	<b>168 (100)</b>	<b>507 (100)</b>

## Conclusion

The use of contact lenses in Saudi Arabia is mainly for cosmetic reasons. Accordingly, there is a need for health education program on how to use contact lenses for cosmetic reasons to minimize their risks. These programs should aim at promoting CL hygiene practices and eliminating the likelihood of CL related complications.

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