ORIGINAL ARTICLE

Knowledge and Awareness Level of Contact-lens Complications in the Population of Saudi Arabia

Talal Althomali[1], Mohammed B. AlHamrani[2], Genan A. AlMajed[3], Shahad F. AlYousif[4], Wael S. AlHarbi[5], Abdullah I. AlMatani[6], Hind H. AlHadban[7], Abdulrahman H. AlRammah[8], Reem A. AlAteeq[3], Abdulaziz M. Alrasheed[9], Asim O. Alahmadi[4], Khames T. Alzahrani[10]

[1]Department of Ophthalmology, Medical College, Taif University, Taif, Saudi Arabia, [2]Department of Ophthalmology, College of Medicine, Shaqra University, Riyadh, Saudi Arabia, [3]Department of Ophthalmology, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, [4]Department of Ophthalmology, Taibah University, Medina, Saudi Arabia, [5]Department of Ophthalmology, Northern Border University, Arar, Saudi Arabia, [6]Department of Ophthalmology, Taif University, Taif, Saudi Arabia, [7]Department of Ophthalmology, Imam Mohammed bin Saud University, Riyadh, Saudi Arabia, [8]Department of Ophthalmology, King Faisal University, Al-hasa, Saudi Arabia, [9]Department of Ophthalmology, King Saud University, Riyadh, Saudi Arabia, [10]PGD Endo from Stanford University, Saudi Board of Endodontic SR, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia

Abstract

Introduction: Contact lenses (CLs) are widely used ophthalmic devices that offer numerous benefits, such as improved cosmesis, expanded visual field, and enhanced vision without the drawbacks associated with spectacles. However, improper use of CLs can lead to complications, including corneal abrasions, ulcers, conjunctivitis, and keratitis, with severe cases resulting in blindness due to microbial keratitis and endophthalmitis. Despite the advantages, misuse of CLs due to a lack of knowledge and non-prescription acquisition poses significant risks to users. **Objectives:** This study aims to assess the level of knowledge regarding CL complications among the Saudi Arabian population and to identify the gaps in knowledge that may contribute to the misuse of CLs. **Methods:** A cross-sectional study was conducted from July 2024 to March 2025 across various regions in Saudi Arabia. A total of 386 adult Saudi citizens, selected through a simple random sampling method, participated. Data were collected using a validated, self-administered online survey comprising sociodemographic information and knowledge assessment questions about CL use, its complications, and factors that increase the risk of developing complications. The survey instrument was pilot-tested with 20 individuals to ensure clarity and feasibility. Data analysis was performed using statistical software to evaluate the level of knowledge and identify significant associations between sociodemographic variables and knowledge levels. **Results:** This study assessed knowledge and awareness of CL complications among the Saudi Arabian population. Among 386 participants, 62.7% had high knowledge, 16.6% moderate, and 20.7% low knowledge, despite 48.7% showing high awareness. Women and employment had significantly higher knowledge levels ($P < 0.05$), while other sociodemographic factors were not statistically significant. Key misconceptions included misunderstanding CL hygiene and risk factors. The findings highlight critical knowledge gaps despite awareness, emphasizing the need for targeted educational interventions to improve CL safety and reduce preventable complications through public health campaigns and optometric counseling in Saudi Arabia. **Conclusion:** The findings of this study highlight significant gaps in knowledge and awareness regarding CL complications among the Saudi population. Despite a relatively high level of awareness, the lack of understanding concerning specific risk factors and proper care practices poses a risk for increased complications.

Key words: Contact-lens complications, knowledge and awareness, ocular health, ophthalmic implants, Saudi Arabian population

Address for correspondence:
Khames T. Alzahrani,
BDS, PGD in Endo, Saudi Board of Endodontics SR, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia.

E-mail: dr.khames.alzahrani@gmail.com

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INTRODUCTION

CLs are ophthalmic implants placed directly onto the surface of the cornea; they are present in differing sizes, shapes, and consistencies depending on the usage.[1] The majority of people who use contact lenses (CLs) benefit from several advantages, including better cosmesis, an expanded field of vision, enhanced vision due to the lack of reflections, less fogging of spectacle lenses, and more stable vision when there is a significant disparity in refractive error between the two eyes.[2]

CLs are commonly used, however, not always appropriately, which may lead to several complications that are not often easily managed.[3] The more frequent complications are corneal abrasions or ulcers, eye dryness, giant papillary conjunctivitis, keratitis, neovascularization, and edema. Blindness induced by microbial keratitis and endophthalmitis are complications that fall under the most severe complications.[1,3,4]

It has been shown that improper handling practices of CL cases, such as poor hygiene, irregular replacements, and purchasing cosmetic CLs online without the advice from eye care personnel, are all contributing factors to CL-induced microbial keratitis.[4] The lack of knowledge regarding the misuse of CLs, in addition to its attainment without prescription, could expose many of its users to hazards; hence, why it is vital to inform the public of its complications.

As stated, the benefits of CLs include but are not limited to correcting refractive errors; additionally, they are frequently used for cosmetic purposes.[5] Approximately 125 million people worldwide wear CLs for cosmetic or refractive index correction, according to a 2004 survey.[6]

In support of these points, a 2019 cross-sectional study at UiTM Puncak Alam examined CL usage and complications, revealing high usage among females (81%) and common issues, such as dry eyes (14.7%), red eyes (10.3%), and watery eyes (4.4%). Despite no significant link between usage patterns and complications, 33.4% of users experienced problems. The study highlighted the need for better awareness and education on lens care and hygiene to prevent complications. It also found that higher income and education levels were associated with greater knowledge of CL complications, emphasizing the importance of targeted educational interventions.[7]

Similarly, a 2019 study by Alharbi *et al*. surveyed the Saudi Arabian population on CL usage. The results showed that 29.5% of participants wore CLs for refractive correction, 39.5% for cosmetic reasons, and 31% for both purposes. Among the 498 participants, 98% reported that wearing CLs during sleep is harmful to the eyes, and 90% believed that swimming with CLs could have negative effects. In addition, 67% believed that the misuse of CLs could cause corneal ulcers, and another 67% thought that CLs could lead to blindness.[8]

A study on CL practices and knowledge of complications in Saudi Arabia revealed that most current CL users did not have vision problems. It found that non-users (12.4%) were more likely to perceive CL use as harmful compared to current users (2.93%). The primary reason for CL use across all groups was emulating others. Dryness was a commonly recognized complication among current users, while evening discomfort was prevalent among former users. Social circles were the main source of information for 40% of users. The study also indicated that a high monthly income was significantly associated with better knowledge of CL complications compared to low income. In addition, education played a major role in users' understanding of the increase in refractive error and infection caused by CLs.[9]

Further illustrating these issues, a study conducted in the Hail region of Saudi Arabia, titled "prevalence, knowledge, and attitude of CLs care and complications among Hail Region Population, Saudi Arabia," evaluated the awareness of CL complications among 809 participants. The findings showed that 58.5% recognized eye dryness as a complication, while 23.9%, 13.7%, 12.8%, and 7.9% were aware of keratitis, corneal ulcers, uveitis, and allergic conjunctivitis, respectively.[10]

A recent survey in the Eastern Region of Saudi Arabia assessed awareness and attitudes towards CL side effects (CLSE) among adults. While 67.4% were generally aware of CLSE, specific awareness varied: 94% recognized red eye, 90.6% identified itching, 82.6% knew about eye infections/discharge, and 85.2% were aware of corneal abrasion/ulcer. However, only 47.8% were aware of glaucoma as a serious complication. Just 1% correctly identified the need for regular ophthalmologist visits, though 74.4% sought medical help for complications. Despite 60.4% emphasizing hand hygiene, only 5% understood the necessity of single-use CLs. The mean awareness score was 8.39 out of 12, with 51.4% showing poor awareness. The mean attitude score was 1.99 out of 5, with 59.8% exhibiting a negative attitude towards CL care.[11]

Adding to this body of research, a recent study conducted among university students in Cyberjaya, Selangor, and Malaysia, provides valuable insights relevant to assessing the level of knowledge and awareness of CL complications. The study found that while basic knowledge about specific safety practices was high – 98% of respondents correctly identified the importance of adhering to CL expiry dates, and 95% knew it was unsafe to sleep with CLs – comprehensive awareness of potential risks associated with CLs use was significantly lower. Only 59% of respondents could correctly identify all the risks, such as red eyes, dry eyes, and infections.[12]

These findings underscore a critical need for enhanced educational initiatives to improve both the awareness and attitudes regarding CLSE among the general public.

There is a significant lack of research specifically addressing the level of knowledge about CL complications among the Saudi Arabian population. This absence of data highlights the necessity for a focused study in this area to better understand and address potential public health concerns.

Objectives

The main objective of this research was to determine the Saudi population's level of awareness and knowledge about CL-related complications and the level of knowledge about the factors that increase the risk of developing complications.

METHODS

Study design

This is a cross-sectional study conducted between July 2024 and March 2025 in Saudi Arabia. This study evaluates the level of knowledge regarding CL-related complications and assesses the awareness level about the factors that increase the risk of developing them.

Study setting: Participants, recruitment, and sampling procedure

For maximum reach across Saudi Arabian regions, we utilize social media platforms (e.g., Twitter, Instagram, WhatsApp, and Facebook) and recruit individuals through simple random sampling.

Inclusion and exclusion criteria

The study included adult participants, aged 18 and above, from the general population in Saudi Arabia. Participants were drawn from all social classes and included both men and women. Healthcare personnel with an ophthalmology background, as well as individuals younger than 18 years old, were excluded from the study.

Sample size

Data collection involved a minimum target sample size of 384 persons (confidence level: 95%; margin of error: 5%). The sample size was estimated using the following formula:

n = P(1-P) *Zα 2/d 2 with a 95% confidence level.

n: Calculated sample size.

Z: The z-value for the selected level of confidence (1-a) = 1.96.

P: An estimated prevalence of knowledge.

Q: (1–0.50) = 50%, i.e., 0.50.

D: The maximum acceptable error = 0.05.

Therefore, the calculated minimum sample size was $n = (1.96)\ 2 \times 0.50 \times 0.50/(0.05)\ 2 = 384$.

Method for data collection and instrument (data collection technique and tools)

We collect the data through a validated self-administered survey distributed online across the regions of Saudi Arabia. It was constructed after reviewing relevant studies conducted in Saudi Arabia.[9] The final version of the questionnaire consisted of 41 questions in total, divided into 5 sections. After the topic and obtaining informed consent, the participants started the proposed sections. The first section deals with sociodemographic data, whereas the second consists of 10 questions that cover CL use duration, types used, reasoning of use, and the frequency of CL-related problems experienced after CL usage. The third section consists of 9 questions concerned with the assessment of the awareness level of CL complications such as corneal ulcers, glaucoma, cataract, and itching. The following section, with a total of 10 questions, assesses the knowledge concerning the factors/practices that may lead to CL complications, which include sleeping and swimming while the CLs are on, the handling of CLs, etc. Finally, 4 questions in the fifth section inform us of the sources of knowledge acquisition. Informed consent was obtained from all participants; additionally, all data were anonymized and stored securely.

Scoring system

Part 1: Awareness of CL complications

In this section, we asked the participants 9 questions, with two options for each. A correct response received a score of 1, whereas an incorrect answer received a score of 0. The original Bloom's cut-off points, 80.0–100.0%, 60.0–79.0%, and ≤59.0% were adopted. The awareness score ranged from 0 to 10 points, and according to their scores, participants were classified into three levels as follows: High level: 7–9, Moderate level: 5–6, and Low level: 0–4.

Part 2: Knowledge of factors that may influence CL complications

There were 10 questions in this part. Each one of them has three options. The correct answers in this domain have been given a score of one. While the wrong answers, or I am not sure, got zero points. The total knowledge score has been assessed using the same original Bloom's cut-off points: 80.0–100.0%, 60.0–79.0%, and ≤59.0%. The scores varied from 0 to 10 points, and the participants were divided based on their answers into three levels as follows: High level: 8–10, Moderate level: 6–7, and Low level: 0–5.

Pilot test

The questionnaire was distributed to 20 individuals who were asked to complete it. This pilot test aimed to evaluate

the simplicity of the questionnaire and the feasibility of the study. Data collected during the pilot study were excluded from the final analysis of the study.

Analyses and entry method

The gathered data were entered into a computer using Microsoft Excel (2024) Windows application. The data were then transferred to the Statistical Package for the Social Sciences Software version 29 to be statistically analyzed.

RESULTS

Table 1 shows sociodemographic characteristics of the participants. The study included 386 participants. Participants

Table 1: Sociodemographic characteristics of the participants (*n*=386)

Variable	Parameter	No.	Percentage
Age group	<23	116	30.1
	23–25	101	26.2
	26–35	56	14.5
	36–45	40	10.4
	More than 45	73	18.9
Gender	Female	247	64.0
	Male	139	36.0
Nationality	Saudi	367	95.1
	Non-Saudi	19	4.9
Marital status	Single	225	58.3
	Married	151	39.1
	Widowed	6	1.6
	Divorced	4	1.0
Region	Eastern	179	46.4
	Central	114	29.5
	Northern	48	12.4
	Western	38	9.8
	Southern	7	1.8
Education	Bachelor	152	39.4
	College student	130	33.7
	Diploma	35	9.1
	High school or lower	53	13.7
	Master or higher	16	4.1
Employment	Student	173	44.8
	Employed	99	25.6
	Unemployed	79	20.5
	Retired	35	9.1
Monthly income (SAR)	<5,000	190	49.2
	5,000–15,000	128	33.2
	>15,000	68	17.6

Table 2: Descriptive characteristics related to contact-lens and glasses use (*n*=386)

Variable	Parameter	No.	Percentage
Contact-lens use	Current user	83	21.5
	Former user	80	20.7
	Never used them	223	57.8
Glasses use	Current user	160	41.5
	Former user	69	17.9
	Never used them	157	40.7
Duration of glasses use	1–5 years	66	25.4
	5–10 years	66	25.4
	<1 year	60	23.1
	More than 10 years	68	26.2
Duration of contact-lens use	1–5 years	55	28.1
	5–10 years	35	17.9
	<1 year	86	43.9
	More than 10 years	20	10.2
Contact-lens use pattern	Intermittent use	59	28.9
	On occasions	112	54.9
	Persistent use	33	16.2
Ophthalmology visits	Other	44	11.4
	Regular visits	28	7.3
	When needed	301	78.0
	When wanting to buy contact lenses	13	3.4
Contact-lens type	I do not use contact lenses	213	55.2
	Orthokeratology	5	1.3
	Other	11	2.8
	Rigid	2	0.5
	Soft	155	40.2
Reason for contact-lens use	I do not use contact lenses	209	54.1
	Other	12	3.1
	Started based on advice from others	13	3.4
	Started based on doctor recommendation	17	4.4
	Started for cosmetic reasons	75	19.4
	Started on my own volition	55	14.2
	Started to emulate others	5	1.3

Table 3: Contact lens complications awareness questions among the participants (*n*=386)

Variable	Parameter	No.	Percentage
Aware of contactlens sideeffects	Yes	254	65.8
	No	132	34.2
Red eye is a side-effect	Yes	335	86.8
	No	51	13.2
Cataract is a side-effect	Yes	208	53.9
	No	178	46.1
Blurred vision is a side-effect	Yes	298	77.2
	No	88	22.8
Eye infection/discharge is a sideeffect	Yes	316	81.9
	No	70	18.1
Itching is a side-effect	Yes	323	83.7
	No	63	16.3
Changes in iris/eye color are a sideeffect	No	216	56.0
	Yes	170	44.0
Glaucoma is a side-effect	No	227	58.8
	Yes	159	41.2
Corneal abrasion/ulcer is a sideeffect	Yes	300	77.7
	No	86	22.3

were predominantly female (247, 64.0%) and Saudi nationals (367, 95.1%). The largest age stratum was <23 years (116, 30.1%), followed by 23–25 years (101, 26.2%). Individuals ≥45 years constituted 18.9%. Most respondents were single (225, 58.3%); married individuals represented 39.1%, while widowed and divorced statuses were uncommon (1.6% and 1.0%, respectively). Regionally, nearly half resided in the Eastern region (179, 46.4%), with the Central region accounting for 29.5%. Educational attainment clustered at bachelor level (152, 39.4%) and current college enrolment (130, 33.7%). Students formed the largest employment category (173, 44.8%), and monthly household income <5,000 SAR was reported by 49.2%, whereas 17.6% earned >15,000 SAR.

Table 2 shows descriptive characteristics related to CL and glasses use (n = 386). A majority had never worn CLs (223, 57.8%); current and former users were comparable in size (21.5% and 20.7%). Conversely, spectacle wear was common: 41.5% were current users and 17.9% former users, leaving 40.7% never – users. Among spectacle wearers (n = 260), duration was evenly distributed: 26.2% exceeded 10 years, 25.4% each reported 1–5 years and 5–10 years, and 23.1% had worn them <1 year. For CL users (n = 196 responses), 43.9% had worn lenses for <1 year, 28.1% for 1–5 years, 17.9% for 5–10 years, and 10.2% for >10 years. Use was mainly occasional: 54.9% used lenses "on occasions," 28.9% intermittently, and 16.2% persistently. Most participants (78.0%) visited ophthalmology clinics only when needed; regular scheduled visits were reported by 7.3%. Soft lenses predominated among users (155, 40.2% of the total sample), whereas 55.2% did not use lenses at all. Cosmetic motivation was the leading stated reason for lens initiation (75, 19.4%), followed by self-decision (55, 14.2%); medical recommendation accounted for 4.4%.

Table 3 shows CL complications awareness questions among the participants (n = 386). Two-thirds of respondents (254, 65.8%) acknowledged that CLs may cause sideeffects. Recognition of individual complications varied: Red eye (86.8%), corneal abrasion/ulcer (77.7%), blurred vision (77.2%), eye infection or discharge (81.9%), and itching (83.7%) were widely identified. Conversely, fewer participants considered cataract (53.9%), changes in iris/eye colour (44.0%), or glaucoma (41.2%) to be CL related. Thus, knowledge was high for acute inflammatory sequelae, but lower for long-term ocular pathologies.

Table 4 shows knowledge of factors that increase/does not increase the risk of CL-related complications among the Participants (n = 386). Most participants correctly classified high-risk behaviours such as sleeping in lenses (77.5%), lens sharing (80.6%), showering (65.5%) or swimming (68.4%) with lenses, rinsing lenses with tap water (63.7%), and infrequent lens replacement (57.5%) as increasing complications. Use of fresh cleaning solution was appropriately regarded as non-risky by 63.2%. Uncertainty was pronounced for topping-up solution in the case (43.8% "not sure") and for lens-case replacement frequency (40.7% "not sure"). Hand-washing before lens handling was correctly perceived by 73.8% as not raising risk; however, 7.5% mistakenly viewed it as hazardous. Overall, correct risk attribution predominated, although several maintenance practices generated substantial indecision.

Table 5 shows participants' awareness and knowledge score levels. On the composite awareness scale (maximum 9 points), 48.7% achieved a high level, 31.9% moderate, and 19.4% low. For the 10-point knowledge scale, 62.7% scored high, 16.6% moderate, and 20.7% low. Thus, high knowledge scores were more common than high awareness scores within the cohort.

Table 6 shows frequency of knowledge acquisition sources. Respondents cited multiple channels. Ophthalmologists were "always" consulted by 31.9%, whereas 26.4% never sought them. Opticians were always consulted by 31.6%; 21.5% never used this source. Relatives and friends constituted a frequent source for 38.6% (always) but were never utilised by 21.8%. Social media and broadcasts were always accessed by 32.6%, with 22.0% never using them. Across all sources, the "sometimes" and "rarely" categories captured considerable

Table 4: Knowledge of factors that increase/does not increase the risk of contact lens-related complications among the participants (*n*=386)

Variable	Parameter	No.	Percentage
Sleeping in your lenses	Increase risk of complications	299	77.5
	Not sure	73	18.9
	Does not increase risk of complications	14	3.6
Sharing lenses with others	Increase risk of complications	311	80.6
	Not sure	56	14.5
	Does not increase risk of complications	19	4.9
Replacing lenses less frequently than recommended	Increase risk of complications	222	57.5
	Not sure	118	30.6
	Does not increase risk of complications	46	11.9
Showering with lenses on	Increase risk of complications	253	65.5
	Not sure	102	26.4
	Does not increase risk of complications	31	8.0
Swimming while wearing lenses	Increase risk of complications	264	68.4
	Not sure	97	25.1
	Does not increase risk of complications	25	6.5
Usea fresh cleaning solution	Does not increase risk of complications	244	63.2
	Not sure	113	29.3
	Increased risk of complications	29	7.5
Adding fresh solution to existing solution in lens case	Not sure	169	43.8
	Increased risk of complications	145	37.6
Rinsing lenses with tap water	Does not increase risk of complications	72	18.6
	Increased risk of complications	246	63.7
	Not sure	105	27.2
	Does not increase risk of complications	35	9.1
Replacing the lens case	Not sure	157	40.7
	Does not increase risk of complications	151	39.1
	Increased risk of complications	78	20.2
Wash hands before handling lenses	Does not increase risk of complications	285	73.8
	Not sure	72	18.6
	Increased risk of complications	29	7.5

Table 5: Participants' awareness and knowledge score levels

Variable	Parameter	No.	Percentage
Awareness level	High	188	48.7
	Moderate	123	31.9
	Low	75	19.4
Knowledge level	High	242	62.7
	Moderate	64	16.6
	Low	80	20.7

proportions, indicating mixed utilisation patterns and no single dominant conduit of information.

Table 7 association between sociodemographic variables and awareness level (Chi-square test). Chi-square analysis revealed no associations reaching the predefined significance threshold ($P \leq 0.05$). Gender approached significance ($P = 0.0523$), with low awareness observed in 15.8% of females versus 25.9% of males. Monthly income also approached significance ($P = 0.053$), where higher awareness tended to cluster in the 5,000–15,000 SAR group (56.2% high awareness). Regional distribution displayed variability – southern respondents showed the highest proportion of low awareness (57.1%)—but the overall $P = 0.0958$ indicated nonsignificance. Education, employment, age, nationality, and marital status demonstrated *P*-values

Table 6: Frequency of knowledgeacquisition sources

Source	Response	No.	Percentage
Ophthalmologist	Always	102	31.9
	Never	35	26.4
	Often	66	17.1
	Rarely	60	15.5
	Sometimes	123	9.1
Optician	Always	54	31.6
	Never	59	21.5
	Often	83	17.6
	Rarely	68	15.3
	Sometimes	122	14.0
Relatives and friends	Always	41	38.6
	Never	53	21.8
	Often	59	15.3
	Rarely	84	13.7
	Sometimes	149	10.6
Social media and broadcasts	Always	47	32.6
	Never	51	22.0
	Often	85	19.9
	Rarely	77	13.2
	Sometimes	126	12.2

well above 0.05, indicating comparable awareness distributions.

Table 8 association between sociodemographic variables and knowledge level (Chi-square test). Significant associations emerged for gender (P = 0.0001) and employment status (P = 0.017). High knowledge was attained by 71.3% of females versus 47.5% of males; low knowledge was more frequent among males (36.7%) than females (11.7%). Among employment categories, 75.8% of employed participants achieved high knowledge, exceeding students (60.1%), unemployed individuals (55.7%), and retirees (54.3%). Other variables – age group, marital status, nationality, region, education, and income – showed no significant relation to knowledge level (all P > 0.05), although high knowledge percentages consistently surpassed 50% across most strata.

DISCUSSION

The research analyzed Saudi Arabian residents' knowledge and understanding of CL complications in their population. This study matters because CL use increases in the regional market, and patients should have a sufficient understanding of complications caused by improper CL use. The research shows an alarming gap exists between how well people understand CL complications alongside their general understanding of these risks, just like other worldwide populations.

Our study showed that 48.7% of participants displayed high awareness about CL complications, but 37.3% of the respondents had limited knowledge regarding the risk factors leading to these complications. The current situation reveals serious concerns because such persons know about potential issues but lack sufficient knowledge to minimize risks effectively. Research by Cope *et al*.[13] showed that considerable numbers of adult and adolescent Americans failed to follow the suggested CL care guidelines, which produced higher possibilities of complications and infections. A universal problem exists in CL education and compliance that might require dedicated instructional strategies.

Many of the study participants showed ignorance about particular practices that enhance the risk of CL-related complications. Nearly half of the participants showed uncertainty regarding the significance of using replacement cleaning solutions combined with their lack of know-how regarding tap water risks to spectacle lenses. A study by Robertson and Cavanagh[14] demonstrated that few patients followed CL care guidelines properly since the rate of full compliance amounted to only 0.4%. Poor hygiene practices produce severe outcomes because they lead to serious eye conditions, such as microbial keratitis and corneal ulcers, according to medical evidence.[15]

Research findings showed that females demonstrated superior knowledge scores than males when considering gender differences. Previous data from Saudi Arabia supports this discovery because female students showed superior adherence to CL hygiene practices than male students.[16] The different knowledge levels between male and female Colombian droplet wearers stem from social and educational norms; thus, educational programs targeting young men specifically could improve symptom control efficacy.

A significant portion of 86.8% of participants identified red eye as a possible adverse effect from CL usage, though this complication happens frequently. The insufficient understanding of red eye as a CL complication creates concerning delays for proper medical treatment, which increases the potential severity of related health outcomes. The need for educational programs focusing on CL hygiene instruction stands clear according to the findings by Varshney *et al*.[17] because younger people who wear CLs mostly for beautification need better information about CL care. Public health campaigns must focus on

Table 7: Association between sociodemographic variables and awareness level (Chi-square test)

Variable	Parameter	Low *n* (%)	Moderate *n* (%)	High *n* (%)	Total	*P*-value
Gender	Female	39 (15.8)	81 (32.8)	127 (51.4)	247	0.0523
	Male	36 (25.9)	42 (30.2)	61 (43.9)	139	
Age group	<23 years	29 (25.0)	32 (27.6)	55 (47.4)	116	0.462
	23–25 years	21 (20.8)	31 (30.7)	49 (48.5)	101	
	26–35 years	9 (16.1)	18 (32.1)	29 (51.8)	56	
	36–45 years	4 (10.0)	13 (32.5)	23 (57.5)	40	
	>45 years	12 (16.4)	29 (39.7)	32 (43.8)	73	
Marital status	Divorced	1 (25.0)	3 (75.0)	0 (0.0)	4	0.0727
	Married	20 (13.2)	50 (33.1)	81 (53.6)	151	
	Single	53 (23.6)	67 (29.8)	105 (46.7)	225	
	Widowed	1 (16.7)	3 (50.0)	2 (33.3)	6	
Nationality	Non-Saudi	3 (15.8)	7 (36.8)	9 (47.4)	19	0.8612
	Saudi	72 (19.6)	116 (31.6)	179 (48.8)	367	
Region	Central	22 (19.3)	39 (34.2)	53 (46.5)	114	0.0958
	Eastern	28 (15.6)	62 (34.6)	89 (49.7)	179	
	Northern	10 (20.8)	10 (20.8)	28 (58.3)	48	
	Southern	4 (57.1)	1 (14.3)	2 (28.6)	7	
	Western	11 (28.9)	11 (28.9)	16 (42.1)	38	
Education	Bachelor	27 (17.8)	53 (34.9)	72 (47.4)	152	0.3164
	College student	33 (25.4)	38 (29.2)	59 (45.4)	130	
	Diploma	4 (11.4)	8 (22.9)	23 (65.7)	35	
	High school/lower	8 (15.1)	20 (37.7)	25 (47.2)	53	
	Master/higher	3 (18.8)	4 (25.0)	9 (56.2)	16	
Employment	Employed	14 (14.1)	31 (31.3)	54 (54.5)	99	0.3062
	Retired	6 (17.1)	16 (45.7)	13 (37.1)	35	
	Student	40 (23.1)	53 (30.6)	80 (46.2)	173	
	Unemployed	15 (19.0)	23 (29.1)	41 (51.9)	79	
Monthly income (SAR)	5,000–15,000	15 (11.7)	41 (32.0)	72 (56.2)	128	0.053
	<5,000	44 (23.2)	57 (30.0)	89 (46.8)	190	
	>15,000	16 (23.5)	25 (36.8)	27 (39.7)	68	

raising awareness and delivering education about the distinct risks and correct care practices that users of CLs encounter.

Many participants in the study received their knowledge about CLs from friends and social media platforms instead of following professional guidance. These channels present a specific problem because misinformation spreads quickly through them. Research by Alghamdi *et al*.[16] showed that in Jeddah, Saudi Arabia, CL users commonly employed dangerous usage techniques because professional CL education remained insufficient. Eye care practitioners need to step up their patient interactions in order to supply evidence-based educational materials about CL use and care protocols.

The research gives important understanding about CL complications in Saudi citizens, yet it has various drawbacks. The study uses self-reported data that may show inaccurate results because participants might report higher levels of knowledge and compliance than the actual reality. The study design, as a cross-sectional approach, presents barriers to proving cause-effect relationships between what healthcare professionals know and their real-world actions. Longitudinal examinations of this relationship across time would deliver a better examination of knowledge on

Table 8: Association between sociodemographic variables and knowledge level (Chi-square test)

Variable	Parameter	Low *n* (%)	Moderate *n* (%)	High *n* (%)	Total	*P*-value
Gender	Female	29 (11.7)	42 (17.0)	176 (71.3)	247	0.0001
	Male	51 (36.7)	22 (15.8)	66 (47.5)	139	
Age group	<23	28 (24.1)	19 (16.4)	69 (59.5)	116	0.666
	23–25	18 (17.8)	17 (16.8)	66 (65.3)	101	
	26–35	11 (19.6)	8 (14.3)	37 (66.1)	56	
	36–45	4 (10.0)	8 (20.0)	28 (70.0)	40	
	More than 45	19 (26.0)	12 (16.4)	42 (57.5)	73	
Marital status	Divorced	1 (25.0)	0 (0.0)	3 (75.0)	4	0.543
	Married	29 (19.2)	28 (18.5)	94 (62.3)	151	
	Single	47 (20.9)	36 (16.0)	142 (63.1)	225	
	Widowed	3 (50.0)	0 (0.0)	3 (50.0)	6	
Nationality	NonSaudi	2 (10.5)	3 (15.8)	14 (73.7)	19	0.498
	Saudi	78 (21.3)	61 (16.6)	228 (62.1)	367	
Region	Central region	28 (24.6)	18 (15.8)	68 (59.6)	114	0.186
	Eastern region	27 (15.1)	32 (17.9)	120 (67.0)	179	
	Northern region	15 (31.2)	9 (18.8)	24 (50.0)	48	
	Southern region	1 (14.3)	2 (28.6)	4 (57.1)	7	
	Western region	9 (23.7)	3 (7.9)	26 (68.4)	38	
Education	Bachelor	25 (16.4)	28 (18.4)	99 (65.1)	152	0.429
	College student	30 (23.1)	24 (18.5)	76 (58.5)	130	
	Diploma	6 (17.1)	3 (8.6)	26 (74.3)	35	
	High school or lower	14 (26.4)	8 (15.1)	31 (58.5)	53	
	Master or higher	5 (31.2)	1 (6.2)	10 (62.5)	16	
Employment	Employed	12 (12.1)	12 (12.1)	75 (75.8)	99	0.017
	Retired	12 (34.3)	4 (11.4)	19 (54.3)	35	
	Student	40 (23.1)	29 (16.8)	104 (60.1)	173	
	Unemployed	16 (20.3)	19 (24.1)	44 (55.7)	79	
Monthly income (SAR)	5,000–15,000	22 (17.2)	21 (16.4)	85 (66.4)	128	0.590
	<5,000	44 (23.2)	34 (17.9)	112 (58.9)	190	
	>15,000	14 (20.6)	9 (13.2)	45 (66.2)	68	

behavioral changes. The research sample mostly contained younger users of CL, which may fail to demonstrate the behaviors of the complete population of CL users within Saudi Arabia.

CONCLUSION

Research findings demonstrate that Saudi nationals lack a fundamental understanding of CL complications throughout their population. The known risk factors and proper care practices receive limited understanding from the population, even though individuals demonstrate a general awareness about the situation. Other research worldwide supports these findings, which demonstrate why educational programs must target CL users to enhance patient compliance and reduce the number of complications associated with their use. The success of procedures to enhance safe CL utilization depends on resolving existing knowledge gaps to guarantee ocular safety within the community.

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ETHICAL APPROVAL

Informed consent was obtained from each participant after explaining the study in full and clarifying that participation was voluntary. Data collected were securely saved and used for research purposes only.

INFORMED CONSENT

Written informed consent was obtained from all individual participants included in the study.

DATA AND MATERIALS AVAILABILITY

All data associated with this study are presented in the paper.

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