

Research Article

Yemmiganur Pharmacy College Students' Knowledge, Attitudes, and Behaviour towards Contact Lenses

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DOI: <https://doi.org/10.24321/2278.2044.202240>

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How to cite this article:

Raja SR, Ahad HA. Yemmiganur Pharmacy College Students' Knowledge, Attitudes, and Behaviour towards Contact Lenses. Chettinad Health City Med J. 2022;11(4):48-52.

Date of Submission: 2022-09-27

Date of Acceptance: 2022-11-16

A B S T R A C T

Introduction: The study's objective was to evaluate the knowledge, attitudes and practises of pharmacy students at St Johns College in Yemmiganur, Andhra Pradesh, India, regarding the use of contact lenses.

Method: A semi-structural questionnaire was provided to conclude the inquiry. The questions were in English and covered wearing contacts, taking care of them, problems they can create with their eyes, and their advantages. 65 (46 female and 19 male) of the 175 Pharm D students and 139 (95 female and 44 male) of the 406 B Pharmacy students participated in the study while using contact lenses.

Result: 7.91% of B Pharm and 13.84% of Pharm D students used contacts for cosmetic purposes, 25.97% (27.33% of B Pharm and 24.61% of Pharm D) for refractive correction, 7.08% (6.47% of B Pharm and 7.69% of Pharm D) for headache relief, and 56.05% (58.27% of B Pharm and 53.84% of Pharm D) for both cosmetic and refractive purposes. Most of them wore soft contact lenses. The most frequent issue (30.93% of B Pharm and 27.69% of Pharm D) of students who wore contacts was pain, which was followed by redness and irritation. Even though 23.96% (18.70% of B Pharm and 29.23% of Pharm D) also utilised water, the students chose lens solutions because they were aware of their options.

Conclusion: The majority of participants had no idea what these problems were. All businesses that sell contact lenses ought to inform their customers more thoroughly about contact lens issues and lens maintenance.

Keywords: Contact Lens, Per Cent, Pharmacy Students, Overwear Syndrome, Survey

Introduction

Small, transparent corrective lenses called contacts fit over the cornea and are worn on the eye. They adhere to the tear film that coats the cornea due to surface tension.¹ Contact Lenses (CLs) are popular among younger children in high school and college. They are optical devices that can be used for health, beauty, or vision correction.² According to a 2021 survey, 196 million individuals worldwide wear CLs.³ They can be worn in the rain without any problems, and offer better peripheral vision. For all of these reasons, CLs are the ideal choice for outdoor activities.⁴ They are employed for the treatment of ailments like keratoconus.⁵ Another advantage of CLs is the elimination of the prismatic effects of spectacles and the expansion of the visual field.⁶ Although the fact that more people are wearing CLs every day, many are still not aware of their advantages and disadvantages.^{7,9} Dry eye, big papillary conjunctivitis, corneal abrasion, corneal oedema, corneal ulcer, keratitis, and neovascularisation are common conditions experienced by contact lens users.^{10,11} The younger generation was unaware of these effects, and 87% of users still preferred contact lens use for cosmetic reasons despite ocular problems.^{12,13} Ocular health education can aid in preventing difficulties

brought on by improper contact lens-wearing behaviour by raising awareness of prudent and safe practices. CLs are safe as long as they are worn properly.^{14,15} The authors assessed pharmacy students' familiarity with the proper handling techniques for CLs and informed them of the potential risks associated with them.

Materials and Methods

A one-year cross-sectional study was conducted at St Johns College of Pharmaceutical Sciences, Yemmiganur, Andhra Pradesh, India from May 2022 to August 2022. Students studying in B Pharmacy and Pharm D (139 B Pharmacy and 65 Pharm D students) participated in the study, the total sample size being 204. After explaining the intention of the study, informed consent was acquired. Permission was procured from the principal of the same organisation to perform the study. The survey was directed using a semi-structured questionnaire that had been pretested. The English-language survey asked questions about using contacts, taking care of them, and understanding the potential problems that may arise from inappropriate contact use. Using Microsoft Excel-2021 software, data were gathered and tabulated, and percentages were computed.

Table I. Questionnaire and Respondents' Relative Responses

Questions		N (139)	%	N (65)	%	N (204)
		B Pharm		Pharm D		Both B Pharm and Pharm D
Purpose of contact lens use	Refractive error	38	27.33	16	24.61	25.97
	Headache	9	6.47	5	7.69	7.08
	Cosmetic	11	7.91	9	13.84	10.87
	Both A & B	81	58.27	35	53.84	56.05
Type of contact lens	Soft	118	84.89	59	90.76	87.82
	Semi-soft	19	13.66	6	9.23	11.44
	Hard	2	1.43	0	0.0	0.71
	Rigid gas permeable	0	0.0	0	0.0	0.0
For how long (years) have you been using contact lenses?	< 1	104	74.82	42	64.61	69.71
	1-5	29	20.86	21	32.30	26.58
	> 5	6	4.31	2	3.07	3.69
Duration of contact lens use	Daily 5-10 h	89	64.02	35	53.84	58.93
	Daily 10-15 h	31	22.30	17	26.15	24.22
	Occasional overnight use	15	10.79	11	16.92	13.85
	Habitual overnight use	4	2.87	3	4.61	3.74

Have you experienced any of these symptoms of contact lens use?	General discomfort	75	53.95	39	60.00	56.97
	Redness, pain, watering	43	30.93	18	27.69	29.31
	Other symptoms	15	10.79	6	9.23	10.01
	No symptom	6	4.31	2	3.07	3.69
Cleaning material used	Lens solution	113	81.29	46	70.76	76.02
	Water	26	18.70	19	29.23	23.96
Do you remove your contact lenses before going to sleep?	Yes	125	89.92	57	87.69	88.80
	No	14	10.07	8	12.30	11.18
Do you wash your hands before handling the lens?	Yes	119	85.61	52	80.00	82.80
	No	20	14.38	13	20.00	17.19
Use of contact lenses beyond the expiration date	Yes	21	15.10	11	16.92	16.01
	No	118	84.89	54	83.07	83.98
Knowledge about overwear syndrome	Yes	82	58.99	39	60.00	59.49
	No	57	41.00	26	40.00	40.50
Knowledge about the side effects of kajal use	Yes	95	68.34	48	73.84	71.09
	No	44	31.65	17	26.15	28.90
Knowledge about the use of solutions used for cleaning contact lenses	Yes	89	64.02	41	63.07	63.54
	No	50	35.97	26	40.00	37.98
Knowledge about acanthamoeba infection due to the use of water as a cleaning material for contact lenses	Yes	90	64.74	47	72.30	68.52
	No	49	35.25	19	29.23	32.24
Swimming while wearing contact lenses	Yes	46	33.09	13	20.00	26.54
	No	93	66.90	52	80.00	73.45
Choice	Contact lens	95	68.34	54	83.07	75.70
	Spectacles	44	31.65	11	16.92	24.28

Results

139 B Pharm students (95 girls and 44 boys) and 65 Pharm D students (46 girls and 19 boys) wearing CLs were surveyed. 10.87% (7.91% of B Pharm and 13.84% of Pharm D) of participants wore lenses for cosmetic reasons, 25.97% (27.33% of B Pharm and 24.61% of Pharm D) for refractive correction, 7.08% (6.47% of B Pharm and 7.69% of Pharm D) for headache, and 56.05% (58.27% of B Pharm and 53.84% of Pharm D) wore for both cosmetic reasons and refractive correction. They were mostly using soft CLs. 58.93% (64.02% of B Pharm and 53.84% of Pharm D) of students wore CLs 5-10 hours per day, 13.85% (10.79% of B Pharm and 16.92% of Pharm D) wore them occasionally overnight, and 24.22% (22.30% of B Pharm and 26.15% of Pharm D) wore them for 10-15 hours per day. 56.97% (53.95% of B Pharm and 60.00% of Pharm D) of respondents

who used CLs felt general discomfort, followed by 29.31% (30.93% of B Pharm and 27.69% of Pharm D) who felt redness, pain, and watering. Although 23.96% (18.70% of B. Pharm and 29.23% of Pharm D) of participants used water, the remaining students were aware of the cleaning options and utilised lens solutions. 26.58% (20.86% of B Pharm and 32.30% of Pharm D) and 3.69% (4.31% of B Pharm and 3.07% of Pharm D) of individuals had worn contacts for 1-5 years, and more than 5 years respectively, whereas the remaining were wearing them from the past year. 82.80% (85.61% of B Pharm and 80.00% of Pharm D) of people were aware that they should wash their hands before using CLs. Overwear syndrome was known to 59.49% (58.99% of B Pharm and 60.00% of Pharm D) of study subjects. Many girls wore CLs while wearing kajal because they were ignorant of its side effects. 32.24%

(35.25% of B Pharm and 29.23% of Pharm D) of respondents claimed that using water as a lens solution can result in an acanthamoeba infection. 26.54% (33.09% of B Pharm and 20.00% of Pharm D) of swimmers had worn contacts while doing so. Despite the drawbacks, 75.70% (68.34% of B Pharm and 83.07% of Pharm D) of subjects preferred CLs to spectacles. Girls preferred CLs over boys for mostly cosmetic reasons (Table 1).

Discussion

There is little research on the frequency and usage trends of CLs among pharmacy students at St Johns College in Yemmiganur, Andhra Pradesh, India, though, many young people wear CLs. In contrast to our study, 121 pharmacy students at the University of Malaya in Malaysia were studied for their knowledge and practice of CLs wear and care.¹⁶ A similar study was conducted on 100 participants among the South Indian population, in which it was inferred that they needed hygienic advice in handling CLs.¹⁷ A study was conducted on 493 subjects studying at a Thai university in Thailand. As in prior research, the majority of CLs wearers were women, and the motivation was purely aesthetic.¹⁸

According to Zhu et al., the primary reasons for noncompliance with CLs wear were inadequate hand and lens-case hygiene and excessive CL wear. Education was thought to be one of the major factors affecting compliance. However, the results showed that patients' compliance levels were not significantly affected by the additional information given, and many of them were still unaware of overwear syndrome and expiration dates.¹⁹ Khoza et al., expressed the need for CLs users to edify young CLs wearers regarding proper CLs-connected care and CLs-connected safety to ensure long-term ocular fitness.²⁰

Most ophthalmologists suggest washing lens casings with fresh CLs solution every day and letting them air dry.²¹ The lens casings should be replaced no less frequently than every 90 days.²² This research revealed that some students who wore CLs cleaned them with tap water. The results of the said investigation showed that many subjects who wear CLs increase their risk of infection and other issues by not strictly following the lens care instructions. Since the possibility of microbial contamination is always present, the storage solution must be routinely replaced. Additionally, when CLs are stored, germs develop and adhere to them, making them a potent vector for infection.²³ A vast majority of students (96%) wore soft contacts because they were more tolerable and pleasant. Ijaz et al. discovered that 94% of students wore soft CLs while studying.²⁴

Despite improvements in the design and material of CLs, problems associated with their use continue to persist, as was shown by 79.3% of CL users who experienced problems related to their use in a study by Unnikrishnan

and Shakir.²⁵ This knowledge would be beneficial in young forthcoming CLs users in terms of lens type and hygiene, as described by Unnikrishnan and Shakir in 2009. A person who wears CLs may have a range of ocular symptoms, including haloes, redness, excessive lacrimation, pain in the eyes, and photosensitivity. 68% of students were uninformed of the negative effects of using kajal in our study, in contrast to Giri et al., who discovered that just 12% of students were unaware. The use of kajal might dry out the eyes and irritate them.²⁶ It should be made clear that removing CLs as soon as eye symptoms develop is essential for a quick resolution of the issues.

Boqursain et al. found that female contributors had higher total mean knowledge scores than males.²⁷

Conclusion

The use of contact lenses can have serious side effects, including ulcers, vascularisation, and corneal opacities. Many students were not aware of these issues. Contact lens wearers need more information on contact lens care and related issues, which should be supplied by doctors before the prescription. To improve compliance, education, better communication, and behavioural adjustments are essential.

Acknowledgements

The authors are thankful to the management for their encouragement and support.

Source of Funding: None

Conflict of Interest: None

References

1. Sharma A, Ruckenstein E. The role of lipid abnormalities, aqueous and mucus deficiencies in the tear film breakup, and implications for tear substitutes and contact lens tolerance. *J Colloid Interface Sci.* 1986;111(1):8-34. [Google Scholar]
2. Efron N, Morgan PB. Rethinking contact lens aftercare. *Clin Exp Optom.* 2017;100(5):411-31. [PubMed] [Google Scholar]
3. GBD 2019 Blindness and Vision Impairment Collaborators; Vision Loss Expert Group of the Global Burden of Disease Study. Causes of blindness and vision impairment in 2020 and trends over 30 years, and prevalence of avoidable blindness in relation to VISION 2020: the Right to Sight: an analysis for the Global Burden of Disease Study. *Lancet Glob Health.* 2021;9(2):e144-e160. [PubMed] [Google Scholar]
4. Kandel H, Khadka J, Goggin M, Pesudovs K. Impact of refractive error on quality of life: a qualitative study. *Clin Exp Ophthalmol.* 2017;45(7):677-88. [PubMed] [Google Scholar]
5. Kankariya VP, Kymionis GD, Diakonis VF, Yoo SH.

- Management of pediatric keratoconus - evolving role of corneal collagen cross-linking: an update. *Indian J Ophthalmol.* 2013;61(8):435. [PubMed] [Google Scholar]
6. Vincent SJ. The use of contact lenses in low vision rehabilitation: optical and therapeutic applications. *Clin Exp Optom.* 2017;100(5):513-21. [PubMed] [Google Scholar]
 7. Shuy RW. In-person versus telephone interviewing. In: Holstein J, Gubrium JF, editors. *Inside interviewing.* Sage Publications; 2003. p. 175-93. [Google Scholar]
 8. Jones L, Hui A, Phan CM, Read ML, Azar D, Buch J, Ciolino JB, Naroo SA, Pall B, Romond K, Sankaridurg P, Schnider CM, Terry L, Willcox M. BCLA CLEAR - contact lens technologies of the future. *Cont Lens Anterior Eye.* 2021;44(2):398-430. [PubMed] [Google Scholar]
 9. Goh PP, Shamala R, Chandamalar S, Tai XY; National Eye Database Study Group. Contact lens--related corneal ulcer: a two-year review. *Med J Malaysia.* 2010;65:120-3. [PubMed] [Google Scholar]
 10. Kobia-Acquah E, Akowuah PK, Antwi-Adjei EK, Forkuo PM, Koomson NY, Odotei SO, Alabi E, Donkor R. Contact lens complications among wearers in Ghana. *Cont Lens Anterior Eye.* 2021;44(1):67-71. [PubMed] [Google Scholar]
 11. 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(3):113-7. [PubMed] [Google Scholar]
 12. Evans BJ. Monovision: a review. *Ophthalmic Physiol Opt.* 2007;27(5):417-39. [PubMed] [Google Scholar]
 13. Lim CH, Stapleton F, Mehta JS. A review of cosmetic contact lens infections. *Eye (Lond.).* 2019;33(1):78-86. [PubMed] [Google Scholar]
 14. Wolffsohn JS, Dumbleton K, Huntjens B, Kandel H, Koh S, Kunnen CM, Nagra M, Pult H, Sulley AL, Vianya-Estopa M, Walsh K, Wong S, Stapleton F. BCLA CLEAR-evidence-based contact lens practice. *Cont Lens Anterior Eye.* 2021;44(2):368-97. [PubMed] [Google Scholar]
 15. Papas EB, Ciolino JB, Jacobs D, Miller WL, Pult H, Sahin A, Srinivasan S, Tauber J, Wolffsohn JS, Nelson JD; members of the TFOS International Workshop on Contact Lens Discomfort. The TFOS International Workshop on Contact Lens Discomfort: report of the management and therapy subcommittee. *Invest Ophthalmol Vis Sci.* 2013;54(11):TFOS183-203. [PubMed] [Google Scholar]
 16. 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 Malaya.* 2008;63(3):207-10. [PubMed] [Google Scholar]
 17. Shaik R, Samanthula BS, Pulivarthi SK, Adusumilli PK. Knowledge, attitude and practice of contact lens users among South Indian Population. *Indian J Pharm Pract.* 2021;14(4). [Google Scholar]
 18. Supiyaphun C, Jongkhajornpong P. Contact lens use patterns, behavior and knowledge among university students in Thailand. *Clin Ophthalmol.* 2021;15:1249. [PubMed] [Google Scholar]
 19. Zhu Q, Yang B, Deng N, Li Y, Wang T, Qi H, Liu L. The use of contact lenses among university students in Chengdu: knowledge and practice of contact lens wearers. *Cont Lens Anterior Eye.* 2018;41(2):229-33. [PubMed] [Google Scholar]
 20. Khoza N, Moodley T, Sokhulu S, Sotyana NO, Suliman A, Hansraj R, van Staden D. Knowledge, attitudes and practices of contact lens use in a South African adolescent population. *Afr Health Sci.* 2020;20(2):768-74. [PubMed] [Google Scholar]
 21. Wu YT, Willcox M, Zhu H, Stapleton F. Contact lens hygiene compliance and lens case contamination: a review. *Cont Lens Anterior Eye.* 2015;38(5):307-16. [PubMed] [Google Scholar]
 22. Dart JK, Radford CF, Minassian D, Verma S, Stapleton F. Risk factors for microbial keratitis with contemporary contact lenses: a case-control study. *Ophthalmology.* 2008;115(10):1647-54. [PubMed] [Google Scholar]
 23. Szcotka-Flynn LB, Pearlman E, Ghannoum M. Microbial contamination of contact lenses, lens care solutions, and their accessories: a literature review. *Eye Contact Lens.* 2010;36(2):116. [PubMed] [Google Scholar]
 24. Ijaz H, Ijaz R, Rustam N. Awareness of contact lens care among medical students. *Pak J Ophthalmol.* 2017;33(2). [Google Scholar]
 25. 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(6):467. [PubMed] [Google Scholar]
 26. Giri PA, Chavan WM, Phalke DB, Bangal SV. Knowledge and practice of contact lens wear and care among contact lens users medical students of rural medical college, Loni, Maharashtra, India. *Int J Biol Med Res.* 2012;3(1):1385-7. [Google Scholar]
 27. 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(10):3765. [PubMed] [Google Scholar]