

# Knowledge, Attitude, and Practice of Contact Lens Users among Medical College Students in Tamil Nadu

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## Abstract

**Introduction:** The aim of the study is to assess in medical students of Tamil Nadu the knowledge, attitude, and practice of contact lens wear and to highlight the complications of contact lens use and the correct methods to be followed.

**Materials and Methods:** Study was conducted by providing semi-structural questionnaire. Questions are in English and regarding the use of contact lens, maintaining cleanliness of contact lens, ocular complications due to use of contact lens, benefits using contact lens.

**Results:** Of total 600 students surveyed, 128 were wearing contact lens, 80 were females and 48 males. 9.3% were wearing for cosmetic purpose and 6.25% for refractive purpose and rest for both cosmetic and refractive together. Majority were wearing soft contact lenses. 92% have experienced some problem with contact lens use and the most common was discomfort followed by redness and irritation. The students were aware of cleaning material and used lens solution, but 5.4% used water when lens solution not available.

**Conclusion:** Majority of the participants did not know about these complications. There must be more education to the consumers about the contact lens care and complications related to contact lenses, which should be provided by all contact lens providers. There is a need to enact laws that will regulate dispensing of contact lenses by unqualified persons, as well as purchase or sale of contact lens.

**Keywords:** Contact lens, Medical students, Overwear syndrome

## INTRODUCTION

Contact lenses are thin optical corrective lenses worn on the eye, resting on the surface of the cornea.<sup>1</sup> They cling to the film of tears over the cornea due to surface tension. Contact lenses are popular in young school and college students. Contact lenses are devices that can be worn to correct vision, or for cosmetic or therapeutic reasons.<sup>2</sup> According to survey in 2004, it was found that 125 million people use contact lens throughout the world.<sup>3</sup> Contact lenses provide better peripheral vision and can be used in the rain without causing any problem. All these reasons make contact lens ideal for sports and other outdoors activities. Diseases like keratoconus are treated with contact lens.<sup>4</sup> Another advantage of contact lens is that it eliminates prismatic effects of spectacles, and the field of vision is increased. The number of people who use contact lenses

are increasing day by day yet people are not fully aware of various merits and demerits of contact lenses.<sup>5</sup> Dry eye, giant papillary conjunctivitis, corneal abrasion, corneal edema, corneal ulcer, keratitis, and neovascularization are common complications that contact lens wearers encounter.<sup>6</sup> The awareness about these complications was lacking in the younger generation, and 87% of these users preferred contact lens use in spite of the ocular problems due to cosmetic reasons.<sup>7</sup> Ocular health education especially knowledge in the correct and careful practice regarding contact lens wear can prevent complications resulting from the wearer's inappropriate behavior.<sup>8</sup> Contact lenses are usually safe as long as they are used correctly. Hence, we wanted to study whether medical students who are the future practitioners have the knowledge about the proper handling techniques of contact lens and make them aware of the complications.<sup>9</sup>

## MATERIALS AND METHODS

A 1-year cross-sectional study was conducted in Chettinad University. Medical students and dental students were included in the study. There were total 400 medical students and 200 dental students included during the study period, out of which 128 students who have worn contact lens for any period were included for the study. Thus, the prevalence of contact lens wearers was 22%. After explaining the purpose of study, informed consent was obtained. Study was conducted by providing pretested, semi-structured questionnaire. Questionnaire was in English, and it contained questions about the use of contact lenses, how to maintain them and awareness of the complications they may encounter due to improper use of contact lenses. Data were collected and tabulated, and percentage was calculated and analyzed using SPSS software version 22.00.

## RESULTS

Of total 600 students surveyed, 128 were wearing contact lens and 80 were females and 48 males. 9.3% were wearing for cosmetic purpose and 6.25% for refractive purpose and rest for both cosmetic and refractive together. Majority were wearing soft contact lenses. 64% of students wore contact lens for 5-10 h/day, 4.6% habitual overnight and 8.5% occasional overnight use. 92% have experienced some problem with contact lens use and the most common was discomfort followed by redness and irritation. The students were aware of cleaning material and used lens solution, but 5.4% used water when lens solution not available. 52.34% were using contact lens recently for less than a year and 45.31% for 1-4 years. 95% were aware of knowledge of washing hands before using contact lens. 52% were not aware of overwear syndrome. Many girls were not aware of side effects of kajal use, and they were using kajal with contact lens. 57% were aware of acanthamoeba infection by using water as lens solution. 21% have swum wearing contact lens. 73% preferred contact lens over spectacles even though they experienced side effects. Girls preferred contact lens over boys mainly for cosmetic reasons (Table 1).

## DISCUSSION

There is no literature available about the prevalence and pattern of contact lens in medical students from South India, even though large numbers of young adults are wearing contact lenses. Chavan *et al.* study done in Maharashtra showed prevalence of contact in medical students was 17% which was less than ours.<sup>10</sup> Lee *et al.* from Singapore has reported that the prevalence of contact lens

**Table 1: Questionnaire**

Question	Number (%)
Purpose of contact lens use	
Refractive error	8 (6.25)
Cosmetic	12 (9.3)
Both	108 (84.3)
Type of contact lens	
Soft	124 (96.87)
Semisoft	4 (3.12)
Hard	0
Rigid gas permeable	0
Since how long are you using contact lens?	
Less than 1 year	67 (52.34)
1-4 years	58 (45.31)
more than 4 years	3 (2.34)
Duration of contact lens used?	
Daily 5-10 h	82 (64.06)
Daily 10-15 h	29 (22.65)
Occasional overnight use	11 (8.59)
Habitual overnight use	6 (4.68)
Have you experienced any of these symptoms of contact lens use?	
General discomfort	79 (61.71)
Redness, pain, watering	37 (28.90)
Other symptoms	3 (2.34)
No symptoms	9 (7.03)
Cleaning material used?	
Lens solution	121 (94.53)
Water/tap water	7 (5.46)
Do you remove contact lens before going to sleep?	
No	11 (8.59)
Yes	117 (91.40)
Do you wash your hands before handling the lens	
No	6 (4.68)
Yes	122 (95.31)
Use of contact lens beyond expiry date?	
No	123 (96.09)
Yes	5 (3.90)
Knowledge about overwear syndrome?	
No	52 (40.62)
Yes	76 (59.37)
Knowledge about side effect of kajal use?	
No	87 (67.96)
Yes	41 (32.03)
Knowledge about duration of solution used for cleaning contact lens?	
No	54 (42.18)
Yes	74 (57.81)
Knowledge about acanthamoeba infection due to use of water as cleaning material for contact lens?	
Yes	73 (57.03)
No	55 (42.96)
Swimming while wearing contact lens	
No	101 (78.90)
Yes	27 (21.09)
Which do you prefer? and why?	
Contact lens	93 (72.65)
Spectacles	35 (27.34)

use was 8% in their country of age between 15 and 50 years. A study of prevalence of contact lens usage among medical students done by Tajunisah *et al.* was much lower than a similar study reported by Vidotti *et al.* from Brazil (27.4%).<sup>9</sup> Hence, it shows that the prevalence is increasing recently.

Majority of contact lens users were females like other studies, and the reasons were cosmetic.

According to Claydon *et al.*, the reasons of noncompliance in contact lens wear are lack of hand and lens-case hygiene and the over wearing of contact lenses, education was thought to be one of the main factors which will influence compliance. But the results show that the extra education offered had no significant effect on the compliance levels of the patients, and many were still not aware of expiry dates and about overwear syndrome.<sup>11</sup>

A study done by Curran *et al.* among 787 contact lens wearers revealed that only 30% cleaned their lens case daily and that too mainly with tap water only. Most ophthalmologists recommend that lens cases should be cleaned daily with fresh contact lens solution and allowed to air dry. The lens cases should be replaced at least every 90 days.<sup>12</sup> In our study, we found that some of the contact lens users were using tap water to clean the contact lenses. The results of these studies discussed above shows similarities with our current study which shows that many contact lens wearers are increasing their risk to infection and complications by not properly following the lens care methods.<sup>13</sup> It is important to change the storage solution as there is always the chance of contamination of pathogens. Moreover, when it is stored, pathogens multiply and adhere to the contact lens making the contact lens quite a good vector for infection.

Majority of students (96%) were using soft contact lenses as they are more comfortable and better-tolerated. Same was noted by Tajunisah *et al.* in his study 82% students were using soft contact lenses and Chavan *et al.* 94% were using soft contact lens.

In our study, 8% of the students were sleeping with the lenses, which might predispose to corneal infection. Another study by Feys also noted that in addition to poor hygiene, contaminated lens solution, and contamination of contact lens storage case, overwear syndrome also is the cause of bacterial keratitis.<sup>14</sup> People who are wearing contact lens while sleeping are usually more prone to eye complications due to a longer period of contact of the lens on the cornea as it causes corneal anoxia.<sup>15</sup> In the present study, 22% students were using contact lenses for more than 10 h. This observation is contradictory to observation of Chavan *et al.* as in their study 65.5% students were using contact lens for 10-12 h.

Students who use contact lenses for prolonged time have faced problems such as general discomfort (43.10%) and (20.68%) redness. Similarly, study by Unnikrishnan and Hussain has revealed that general discomfort (47.7%)

and (19.2%) redness.<sup>16</sup> There are many ocular symptoms, a contact lens user can encounter such as dry eye or gritty sensation, redness, excessive lacrimation, eye pain, photosensitivity, and presence of haloes.<sup>17,18</sup> 68% of students did not know the side effects of kajal use in contrary with Chavan *et al.* where only 12% did not know. Kajal causes irritation and can aggravate dryness of eyes. Education should be given that removal of contact lens at the first sign of eye symptoms is very important for early recovery from the complications.<sup>19</sup>

Recommendations for contact lens wearers from the American Optometric Association:<sup>20</sup>

1. We should always wash and dry our hands before handling the contact lenses
2. We should carefully and regularly clean the contact lens as directed. Rub the contact lenses with fingers and rinse well before we soak the lenses overnight in sufficient multi-purpose solution so that it completely cover the lens
3. Lens should be stored in proper storage case and should be disposed every 3 months, and it should be cleaned after each use
4. Only fresh solution should be used to clean and store contact lenses, and the solution should not be reused
5. Should always follow the contact lens replacement schedule recommended
6. Contact lenses should be removed before swimming or entering a hot tub.

## CONCLUSION

Contact lens can cause serious complications such as corneal opacities, vascularization, and ulcer. Many students did not know about these complications.<sup>17</sup> There is a need for more education to the contact lens users about the contact lens care and complications related to contact lenses, which should be provided by doctors before prescribing.<sup>21</sup> Education, improving communication, behavioral modifications are important to improve the compliance.

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