

ARTICLE TYPE

The pattern of contact lens usage among university community: A cross-sectional study in UiTM Puncak Alam

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Abstract:

The cross-sectional study was conducted to find a pattern of contact lens usage among university community and problems related to its use. Two hundred and fifty-two participants among the university community in UiTM Puncak Alam that fulfil inclusion criteria were given a set of questionnaire consists of 22 items to be answered. Results showed that 81.3% of respondents are current contact lens users, with females (81%) outnumbered males in lens wear. Most preferred contact lens type was soft-disposable (73.8%), while most quoted reasons for usage were convenience (61.5%) and comfort (17.9%). Symptoms like dry eyes, red eyes, and watery eyes were the most reported problems faced by the wearers. There was no association between pattern of contact lens usage with contact lens complications. Even though majority of wearers do not have issues with contact lens, problems associated with its wear continue to persist in this study as 33.4% of them experienced problems related to its wear. Even though most participants did not have issues associated with CL use, awareness of lens care and hygiene needed to be increased to avoid any eye complications in the future.

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Keywords: contact lens, complication, a modality of lens wear

1. INTRODUCTION

Contact lens is a thin lens that placed directly on the surface of the eye. It is considered as a medical device and can be worn to correct vision, for cosmetic or therapeutic purpose. The usage of the contact lens is increasing, and the estimated increase is about 6% per year [1]. The estimated size of the contact lens population in both the United States and worldwide vary substantially with worldwide estimated ranging from 125 million in 2004 to 140 million in 2010 [2]. In Malaysia, it is estimated that 6-7% of the population wear contact lenses and the majority of them are in the 20-30 years age group [3].

There are various types of contact lenses in the market, such as soft contact lenses, rigid gas permeable lenses, daily disposable contact lenses (daily, biweekly and monthly) and extended wear contact lenses. Sixty-eight percent of the contact lens users used 1 to 3 months of disposable contact lenses, making it the most commonly used type of contact lenses [4].

Wearing contact lens in daily life needs not only awareness and knowledge but also a high level of compliance [5]. The improper use of contact lens may cause complications to the eyelids, conjunctiva or structure of the cornea. The prevalence of contact lens complications has been reported to be two-third to half of the patients attending the contact lens clinic [2]. The aetiology of the complications with contact lens use is multifactorial, which includes the type and material of contact

lens, wearing schedule, contact lens solutions, cases and the compliance of the patients towards care regimen.

The awareness about these complications lacked in the younger generation, and 87% of these users preferred contact lens use in spite of the ocular problems due to cosmetic reasons. The ocular health education especially knowledge in the correct and careful practice regarding contact lens wear can prevent complications resulting from the wearer's inappropriate behaviour [6]. A recent study by [7] showed that students who use contact lenses for a prolonged time had faced problems such as general discomfort (43.10%) and redness (20.68%). They found that 47.7% experienced ocular discomfort, followed by dry eyes (38%) and redness of eyes comprises (19.4%).

To our knowledge, reports on the pattern of contact lens usage and association with lens complications among Malaysian is scanty. It is, therefore, the aim of this study is to find the pattern of contact lens use including the type of lens wear, wearing schedule, the solution used, lens cleaning and how it affects the wearers' eyes particularly among contact lens users in Universiti Teknologi Mara (UiTM) Puncak Alam Campus in Selangor. By knowing the pattern of contact lens usage, contact lens practitioners may have to play a more significant role to enhance knowledge and correct practice of contact lens patients concerning contact lens care to prevent possible complications.

2. METHODOLOGY

Purposive sampling was used in this cross-sectional study. The subjects were candidates who are current and past contact lens users. Staff and students from the Optometry department were excluded from the study since they were probably exposed to eye health issues related to contact lens wear and care. By using a calculation based on the prevalence of contact lens complication on the previous study, the sample size obtained is 251. The sample size then is rounded up to 252 subjects since it was distributed equally to non-health sciences and health sciences community, including students and staff. This research was approved by UiTM Research Ethics Committee (REC/46/16) and each participant signed a consent form before data collection.

Data was collected using a questionnaire adapted from Unnikrishnan and Hussain [8]. The close-ended questionnaire consists of 22 questions. It comprises of demographic data, the pattern of contact lens usage including the type of CL wear, wearing schedule, the solution used, lens cleaning schedule and problems related to its usage. The questionnaire was self-administered to contact lens users around UiTM Puncak Alam Campus. However, the researcher was present to answer any questions that were not clear to the respondents. If subjects are not familiar with the terms, they can straight away ask and answer the survey properly hence it will decrease the irrelevant answer. The researcher collected it upon completion.

All data collected were analysed using Statistical Package for Social Sciences (SPSS) Software 21.0 in a descriptive statistical test. Chi-Square for the association between the pattern of CL usage and problems related to its use was used and $P < 0.05$ was considered as statistically significant. Only completed questionnaires were included in the data analysis.

3. RESULT AND DISCUSSION

Out of the total 252 university community of UiTM Puncak Alam that have answered the survey, 81% were females, and 81.3% were found to be current users of contact lenses. Forty-seven out of 252 does not currently wear CL but wore them in the past. The reason they stopped wearing contact lens were uncomfortable (6.3%), poor compliance to lens care (4.0%) and infection to the eyes (1.2%). The age of the community surveyed ranged between 19 to 42 years old with a mean age of 22.63. Half of the respondents were from health sciences community and other 50% from non-health sciences students and staff.

3.1 Pattern of contact lens wear

In this present study, the majority of respondents used soft-disposable contact lens (73.8%) followed by extended wear CL and a minority of them used RGP lenses (2.8%). This finding was consistent with the result of a similar study done in Kartanaka, where 96.8% of respondents preferred soft-disposable [8]. However, target population is not the same where this study involving university community comprised of 14 staff and 238 students but study in Kartanaka included college students only.

Table 1: Information of wearing schedule of contact lenses

Wearing Schedule		Frequency (n=205)	Percentage (%)
Hours	Less than 8 hours	57	22.6
	8-10 hours	121	48.0
	More than 10 hours	27	10.7
Days	Less than 5 days	66	26.2
	5 days	122	48.4
	More than 5 days	17	6.7
Sleep with the lens on	Yes	22	8.7
	No	183	72.6

The information regarding wearing schedule of contact lenses by respondents is given in Table 1. This study found that most contact lens wearers used contact lens for 8-10 hours daily (48%) and only 10.7% of them use their lenses for more than 10 hours in a day which is quite similar with a study done in Chengdu [9] but with various universities involved, unlike this study. This is presumed due to the university community working and going to class from 8 a.m. until 5 p.m., which accounted for 9 hours, and they took it off right after the office hours are finished. Wearing contact lens more than 10 hours is not suitable for the eyes as it can induce hypercapnia and hypoxia of corneal epithelium [10]. As for days wearing contact lens, five days is the most reported by wearers in this study (48.4%), similar with a study done by Wu et al. [11], in which 61% of the respondents wore contact lens for more than three days in a week. Nearly 8.7% of respondents admitted to not removing their lenses before going to bed. Because of the lack of sufficient oxygen for a long time, while sleeping with contact lenses, these people may be more prone to suffer from corneal damage.

There are various types of solution used by contact lens wearers and was divided into two categories which are a multipurpose solution (MPS) and saline. In this study majority of respondents use MPS as a solution to clean and store their lenses (94.6%) and only 5.4% of them use saline as lens care and regimen. This is due to most respondents are aware and has knowledge of appropriate lens care and hygiene [12]. This finding is similar with a study done by Wu et al. in 2010 [11] as she reported MPS as the most solution used by participants (76%) and the minority of participants used saline. Fortunately, there was no respondent using tap water to clean or store their lenses like the study done in SEGi University, Damansara where 5.6% of participants used tap water for their lens care [4]. Awareness on infection to eyes by cleaning contact lens using tap water like microbial keratitis is low among the participants there. The wearers do not widely know anti-protein for lens wear; hence, there is a few of respondents (1.6%) used it in their lens care. This finding is in agreement with study done by Tajunisah et al., in 2008 [13] as she

reported that high number of medical students admitted not practising the use of enzyme tablet to clean the lenses.

3.2 Problem related to lens wear

Among infections or problems associated to contact lens wear, it was found out that 14.7% of respondents quoted dry eyes, followed by red eyes (10.3%), watery eyes (4.4%), discomfort (2.8%) and crusting on eyelids (1.2%) as the problems faced due to lens use. Any of the respondents did not report other problems such as poor near and distant vision, short wearing time, allergies to the solution and frequent contact lens deposits. However, around 66.6% of respondents did not have problems associated with the use of contact lens. Figure 1 shows a bar chart for the percentage of problems faced due to contact lens wear.

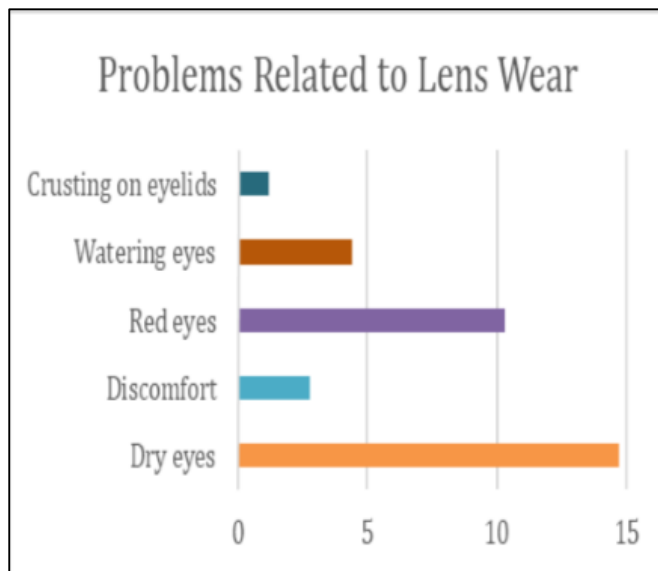


Figure 1. Percentage of problems related to lens wear

3.3 Association between the pattern of contact lens wear and problems related to its use

The association between the pattern of contact lens wear and problems of eyes due to its use was found to be not statistically significant.

It is known that extended contact lens wears prone to get complication than disposable and RGP lenses since it can induce hypoxia and leads to corneal ulcer [14]. Hence longer hours of daily use will exhibit more symptoms because it alters corneal physiology [8]. However, the type of lenses and daily hours of lens wear was not associated with problems related to its use in this study. This might be due to most materials used to manufacture contact lenses nowadays is suitable to be worn for about 8-10 hours daily.

Most of the respondents used multipurpose solution to clean and store their lenses. Therefore, there was no association found between type of solution used and contact lens problem. The finding was not in agreement with findings reported by

Joslin and colleagues [15]. This difference might due to proper way of cleaning lenses and frequent case changing to avoid development of bacteria on the lenses. Cleaning schedule of lens also has no association with problems related to CL wear. It can be assumed that as long as contact lenses were cleaned and appropriately rinsed before reinserting into the eyes, number of pathogen or bacteria growth could be reduced hence, no infection happens. If the respondents knew well about complication of contact lens no matter what type of lens they used, an infection might be reduced. As awareness increasing over time, contact lens complication is decreasing as well.

4. CONCLUSIONS

In conclusion, the study showed most lens type preference by UiTM Puncak Alam community was soft disposable lenses with a various modality such as monthly, biweekly and daily disposable. Majority of respondents used their lenses for 8-10 hours daily and five days in a week. Only some respondents did not remove their lenses before sleep which is worrisome. Solution preferred by contact lens wearers was MPS instead of saline.

On the other hand, there was no association between patterns of contact lens usage with problems related to its use in this study. Even though most participants did not have problems related to contact lens use, awareness of lens care and hygiene needed to be increased to avoid any eye complications in the future. Further study needed to investigate more association between the pattern of CL usage, awareness of lens care and problems related to contact lens use.

ACKNOWLEDGEMENTS

The authors wish to thank all the participating subjects for time and cooperation.

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