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Prevalence, use and sale of contact lenses in Saudi Arabia: Survey on university women and non-ophthalmic stores



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ABSTRACT

Purpose: To assess the prevalence and general knowledge of contact lens (CL) wear among women users and to examine the practice of CL dispensation by non-ophthalmic stores.

Method: One thousand four hundred and sixty-six female university students, between 16 and 31 years of age, and 1766 registered beauty stores in the region were randomly interviewed using self-administered questionnaires. The questions addressed general care/handling of CLs, CL case and solution hygiene practices by patients, the CL selection available in the shops, the type of instructions given to consumers, and who gives these instructions.

Results: The prevalence of CL use was 70.2% (1029/1466). Fifty percent were part time users of CLs, and cosmetic reasons were the major reason (63.3%) for CL use. Approximately 38.7% of the respondents used CL without consultation with an eye care practitioner. The main purchasing locations were optical shops (51%), beauty salons (38%), and pharmacies (11%). Concerning contact lens care, 89.4% of the respondents adequately washed their hands before handling CLs and 72.7% changed their solutions daily, while 7.7% admitted to occasional overnight wear of their CL and 27.6% sometimes shared their CLs with friends. Interestingly, 80.3% of the 1327 shops sold CLs with no prescription, and 61.4% gave no instructions to the patients during purchase.

Conclusion: There is a high prevalence of CL use by female university students in Saudi Arabia, especially for cosmetic purposes. Although, there was good awareness with regard to general lens care practices, some users shared their lenses with friends, and the rate of sale of CLs without prescriptions in ordinary shops was high.

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1. Introduction

The advent of the information age means that patients now have a vast array of information sources to draw on including browsing the Internet and purchasing their contact lenses online [1]. However, before they turn to the eye care practitioner (ECP), patients would usually have received abundant, often sound, yet conflicting, information that is difficult to understand [2,3]. To further confuse the patients, the numerous technologic advances in contact lens (CL) materials and manufacturing have resulted in different wearing modalities including daily, weekly and monthly wear [3]. Confusion also results concerning lens wearing schedules; patients may wear lenses while awake, sleep with lenses on for a few nights a week, sleep with lenses on for an entire week, or they may sleep with them for 30 continuous nights depending on the type of contact lens and the recommendations of the prescribing clinician.

Although overnight wear of CLs had been implicated in complications, such as corneal infections, and has been cited as a factor limiting the success of contact lens wear, companies in Saudi Arabia still promote overnight CL use especially in silicone hydrogel lenses due to their higher oxygen transmissibility [4–7].

Contact lenses have become more important as an optical correction (especially with women) and are becoming increasingly popular among the younger population (school, college and university students, young working adults) [8]. However, despite the evolution of CL materials and designs, fitting success has been jeopardized by the occurrence of complications. The wearer's attitude and knowledge of CL care are often cited as the main causes of complications. These include incorrect cleaning, disinfection, and protein removal; keeping cleaning/storage solutions for longer periods than recommended; topping off solutions in lens cases rather than replacing them; poor hygiene of hands and cases; a period of wear exceeding the recommended regimen; and the lack of eye assessment prior to wear [3,9].

Two studies [10,11] have been published on CL use in Saudi Arabia. The earlier study [10] was an overview on CLs conducted more than 20 years ago when CLs were relatively new in the region.

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The second study noted that in spite of the short history of contact lenses, practice and practitioner standards were good [11]. In a recent survey on fifty randomly selected young female CL users, who were students of King Saud University, the author expressed concern about the following: poor hand hygiene, inadequate care of lens and lens cases, improper use of cleaning solutions, and irregular follow-up visits to ECPs. In addition to the selection bias introduced by the study, their small sample size limits the generalization of their findings. Despite the large number of young adults who wear CLs in the Kingdom of Saudi Arabia (KSA), and despite claims by the manufacturing companies that their sales have skyrocketed in the region [10], no comprehensive study has so far assessed the level of awareness of CL users in the country.

The current study, conducted within Women University communities in Riyadh, KSA, aims to help fill this gap by (a) assessing the prevalence of university women who wear CLs; (b) evaluating their level of knowledge and awareness concerning issues related to CL care; and (c) examining the practice of CL dispensation by non-ophthalmic stores in KSA.

2. Methods

A cross-sectional study was conducted using two structured, self-administered questionnaires after the study protocol was approved by the Research Ethics committee of the College of Applied Medical Sciences. One questionnaire was randomly distributed among female students and staff of Princess Nora bint Abdulrahman, King Saud and Imam Universities (Table 1), during a one-day free vision screening exercise organized in each of the aforementioned institutions by members of the King Saud University Optometry club. The other questionnaire was distributed among registered beauty stores and pharmacies (Table 2) in KSA. The participation of only women in this study was partly because the participating universities were women only institutions and because of the reportedly high rate of CL awareness amongst females [3,12–14]. The questions from the current study were considered by a panel of five optometrists. The initial questionnaires, drafted in both English and Arabic languages, were completed by ten randomly selected female university students, who did not otherwise participate in the study, to determine how the questions would be interpreted and whether any further amendments or additions were appropriate. The interpretation of the questions was also checked for similarity across both the languages. The amended questionnaires were again completed by a different group of randomly selected women contact lens wearers ($n = 10$) at the final pilot stage.

The final questionnaire, shown in Table 1, was handed-out to 1756 female members of three universities in Riyadh, between January 2013 and March 2013. Questionnaires were included in the analysis if they were completed by female university members and excluded if the respondent had participated in the initial validation of the questionnaire. The second questionnaire was also distributed by hand to sales-persons or managers of 1766 registered cosmetic and pharmacy stores in Riyadh, addresses of which were obtained from a government directory. A final year Optometry student (MA) was responsible for distribution and collection of these questionnaires. In both surveys, the anonymity of the respondents was maintained and the participants were included only after informed consent had been obtained following an explanation of the study protocol. The results from both surveys were entered into a Microsoft Excel spreadsheet on a personal computer, overlaid to eliminate data errors, and corrected. Data were analyzed using the SPSS statistical software (version 19.0) program.

The questions addressed in the first survey were key to determine the following: reasons for contact lens use, contact

Table 1
Questionnaire addressing awareness and knowledge of female contact lens users in university communities.

Demographic data:	Age: . . . years old
Student []	Teacher []
Do you use contact lenses?	Yes [] No []
Why do you use contact lenses?	Correction of eye problem [] Cosmetics/fashion [] Both []
How many hours do you wear the contact lenses in a day?	Less than 5 h [] Between 5 and 12 h [] More than 12 h []
How often do you sleep with your contact lenses?	Sometimes [] Always [] Rarely [] Not at all []
Do you know how often your contact lens is to be replaced?	Yes [] No [] If you answered Yes, please select the option that best describes how you replace the lenses Daily [] Weekly [] Every 2 weeks [] Monthly [] Every 6 months [] Yearly []
Do you wash your hands thoroughly before wearing and removing your contact lens?	Yes [] No []
Was your contact lenses prescribed after consultation with an Ophthalmologist/Optometrist/Optician?	Yes [] No [] If the answer is No, where did you purchase your contact lens? Optical Store [] Pharmacy store [] Beauty salon [] Others [] Please specify . . .
How often do you share your Contact lenses with friends?	Sometimes [] Always [] Rarely [] Not at all []
Do you change the solution in the case of your contact lenses every day or two during your continued use of contact lenses?	Yes [] No []
For how long have you been using contact lenses?	Less than 6 months [] Between 6 months and 1 year [] Between 1 and 2 years [] More than 2 years []
How often do you visit the Optometrists/Ophthalmologists/Optician for your eye or contact lens examination since after using contact lenses?	Sometimes [] Always [] Rarely [] Not at all []

lens source, whether the contact lenses were prescribed and by whom, frequency and duration contact lens use, wearing regimen, replacement frequency of both contact lenses and cleaning/storage solutions, sleeping habits with contact lenses on, and contact lens sharing with friends. For the second survey, we sought to find out if the stores sold CLs and for how long, whether they request a doctor's prescription before sales, level of educational training of the sales persons, what instructions are given to customers during

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