

# Effects of a contact lens subscriber replacement program on patient lens care behavior in Japan



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## ABSTRACT

**Purpose:** Compliance with practitioner recommended lens care guidelines was assessed and compared in two test groups: patients belonging to a subscription membership group and a nonaffiliated group of 2-week frequent replacement (2WFR) soft contact lens wearers.

**Methods:** Wearers (143 members and 149 nonmembers), whose clinical records were available for 18–24 months from September 2010 to August 2012, were queried by a written questionnaire: (1) source of lens purchase; (2) “rub” or “no-rub” care solution; (3) replacement interval of lens care products; (4) lens cleaning method; (5) noncompliant behaviors; and (6) replacement frequency of lens storage cases.

**Results:** The questionnaires were completed by 104 members and 100 nonmembers. Of member group wearers, 63.0% correctly recognized the types of lens care products used (“rub”, “no-rub”) vs. 77.4% of nonmembers. Of member wearers, 82.2% used “rub” and rubbed each time vs. 76.3% of nonmembers. The replacement interval for care products was 26.2% (members) and 27.6% (nonmembers) for 1 month or less, while replacement frequency of storage cases was 22.3% and 19.2% for 1 month or less in each group respectively. There were no significant differences observed between each of these group comparisons ( $p > 0.05$ , Fisher exact test).

**Conclusions:** Compliance with practitioner recommended lens care regimens was equally poor in both test groups. Subscription membership of CLs which does not provide lens care products is not accompanied by an increase in compliance with lens care practices.

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## 1. Introduction

Noncompliance by contact lens (CL) wearers with practitioner recommended guidelines for CL wear and lens care regimens is a widely reported clinical problem [1–9]. In a previous internet survey study, we established the determining factors that motivated wearers to purchase CLs, the reasons for CL changes, and compliance with the recommended duration of use of a single CL for current lens wearers who use their CLs regularly with satisfaction in Japan [10]. In this survey group, the choice of CLs was found to be price driven rather than being safety focused.

A subscription membership system for CLs was introduced domestically in Japan in 2001. This membership system is offered to CL wearers via their eye care professionals. To join the system,

wearers sign a contract, and pay a first-time admission subscription fee and a continued monthly fixed fee. As a 2-week frequent replacement (2WFR) lens service in the system, 2WFR soft CLs needed for 3 months are usually supplied quarterly, and the recommended replacement frequency can be shortened by the recommendation of the prescribing eye care professional as needed. Initial results of evaluation of a proprietary membership replacement system suggested that ongoing membership in the subscription group appeared to improve compliance of wearers with the recommended duration of lens use as compared with a nonmember group [11]. The improved compliance observed also appeared to be associated with decreased reporting of ocular surface irritation in the member wearers. Additionally, it has been recently reported that monthly payment plans in United Kingdom improve loyalty among contact lens wearers as compared with nonmembers [12].

This membership system in Japan, however, does not provide lens care products for the members. In the current study, we

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further assessed lens care practices in the same test groups [11] by written questionnaires to determine if subscription membership of CLs was additionally correlated with increased compliance with the individual lens care regimens selected by each patient. The question asked is whether increased compliance of duration of lens use is also accompanied by increased compliance with use of care regimens.

## 2. Methods

### 2.1. Study design

Subjects were all fitted with 2WFR silicone hydrogel lenses, PremiO (asomfilcon A, Menicon, Nagoya, Japan), at Shimamoto Eye Clinic. Manual review of patient clinical records beginning at 31 August 2012, identified 143 subjects who belonged to the Menicon Eye Life Support (MELS) membership system and 149 contemporary nonmembers were randomly selected from those patients whose clinical records were available for at least 18 months from 1 September 2010 to 31 August 2012. After September 2012, patients received a written-postal mail which explained the study design, privacy protection, non-profit status and usage of data only for research in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki). Each participating patient provided written consent to enter the study, and was asked to answer the questionnaires shown in Table 1. Patients returned the questionnaires filled out to Shimamoto Eye Clinic by prepaid postal mails. Participants received no compensation or reward for study participation. The rate of respondents was 69.9% (72.2% of members and 67.1% of nonmembers).

### 2.2. Statistical analysis

Univariate analysis was performed using the Fisher exact test. Differences of  $P < 0.05$  were taken as significant.

## 3. Results

### 3.1. Demographics

One hundred and four members (70 female, 34 male, age (average  $\pm$  standard deviation):  $30.8 \pm 10.3$  years) and 100 nonmembers

**Table 1**  
Questionnaire for wearers of 2-week frequent replacement contact lenses.

1. Purchase “channels” of lens care products  
 ·CL store adjacent to Shimamoto Eye Clinic ·Care MELS delivery<sup>a</sup> ·Other eye clinic/store ·Drugstore ·Internet ·Others (optical shop, tel/mail order sales, etc.)
2. “Rub” or “no-rub”, brand name and bottle volume of lens care product
3. Replacement intervals of lens care product  
 ·1 Month or less ·2 Months or less ·3 Months or less ·More than 3 months
4. Lens care method  
 ·Rubbing each time ·Rubbing sometimes ·No-rub ·Others
5. Noncompliant behaviors  
 I “topped-off” care solution for my lens disinfection/storage  
 I used tap water for my lens care  
 I wore my CLs while swimming (including goggle wearing)  
 I wore my CLs while taking a shower  
 (For each:) ·Always ·Sometimes ·Rare ·Never (not applicable)
6. Replacement frequency of CL storage cases  
 ·Every 1 month or less ·Every 2 months or less ·Every 3 months or less  
 ·Every 6 months or less ·Un-fixed interval ·Never replaced

<sup>a</sup> Direct delivery of 6 bottles of care products to members every 6 months.

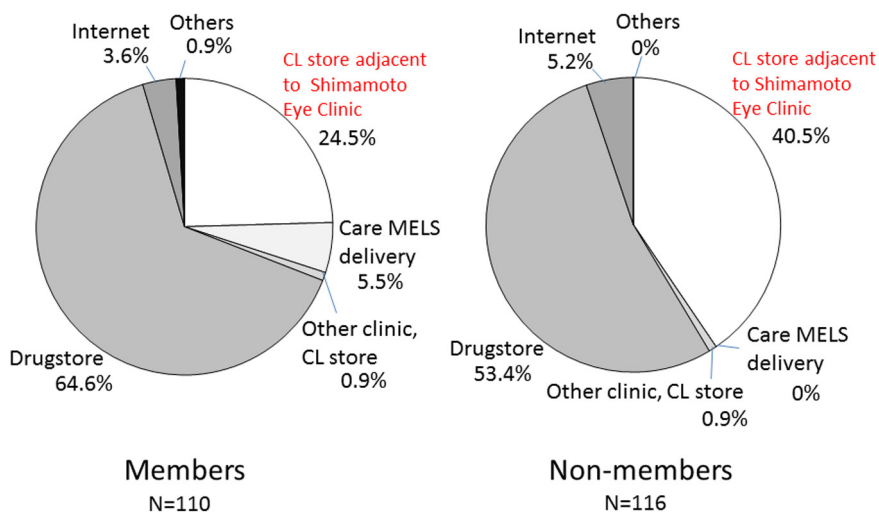
(81 female, 19 male, age:  $34.3 \pm 12.2$ ) agreed to participate in the study and responded to the questionnaires.

### 3.2. Purchase “channels” of care products

Fig. 1 shows purchase “channels” of lens care products in member ( $n = 104$ ) and nonmember ( $n = 100$ ) groups obtained from questionnaire item 1. The most popular channel was drugstores in both members and nonmembers (64.6% and 53.4%, respectively), followed by the store adjacent to the prescribing clinic (24.5% and 40.5%, respectively). There was no significant difference in the former ( $P > 0.05$ ); however, there was significant difference in the latter between the members and nonmembers ( $P < 0.05$ , Fisher exact test). In addition, 5.5% subscriber members selected Care MELS delivery, Internet was used by 3.6% members and 5.2% nonmembers; there was no significant difference seen between both groups ( $P \geq 0.05$ , Fisher exact test).

### 3.3. Circumstances of use and recognition of care products

Table 2 shows circumstances of current use and patient recognition for available lens care products and answers to bottle volumes obtained from questionnaire item 2. Wearers who correctly



**Fig. 1.** Comparison of purchase “channels” of lens care products between members and nonmembers. Members:  $n = 110$  (6 wearers had multiple answers). Nonmembers:  $n = 116$  (16 wearers had multiple answers). Care MELS delivery: Direct delivery of 6 bottles of care products to members every 6 months.

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