

PATIENT COMPLIANCE IN A CONTACT LENS WEARING-POPULATION

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Abstract

Objective: To provide an insight to the level of compliance of contact lens users, which in turn would be helpful for the optometrist and eye specialist to concentrate on major areas of non-compliance while dispensing the lens.

Materials and Methods: One hundred and forty-five soft contact lens wearers with an age range of 16-66 years were selected conveniently from the contact lens clinic, Tehran, Iran. All participants acquired their lenses from clinicians. After receiving informed consent from the participants, to assess the level of compliance, the patients were requested to complete a questionnaire.

Results: The mean (\pm SD) age of the contact lens users was 27.16 \pm 6.09 years. Out of 145 participants, only 6 (4.1%) of the lens users were identified to be compliant with the least level of compliance observed in the maintenance of lens care accessories. The age, gender and years of experience in contact lens use did not show any statistically significant difference in the level of compliance.

Conclusion: The data reveal that non-compliance with lens care procedures among our contact lens wearers is common. The study showed that all patients had the least level of compliance and some degree of non-compliance was seen in the care of lens accessories. Whereas; approaches aimed at improving compliance with lens care practices are needed.

Keywords: Compliance, Contact lens, Iran

Introduction

Within the health care field, noncompliance with prescribed lens, accounts for a significant increase in eye care expenditures and morbidity such as increased bacterial bio burden at the ocular surface, acanthamoeba eye infections in contact lens

wearers and symptoms of lens discomfort and reduced performance, which ultimately contributes to non-adaptation and the persistent contact lens dropout rate, necessitating increased physician time and additional interventional treatments¹. Although factors driving noncompliant

behavior are poorly understood, time requirements, the economics and regimen complexity are all likely contributors¹.

In previous, numerous surveys have attempted to assess compliance, many using self-reported written questionnaires, which have generated estimates of compliance ranging from 9% to 91%²⁻⁷. More recently, a study in the United Kingdom reported that for daily lens wearers, only 0.3% of patients were fully compliant compared with 2.7% for extended lens wearers⁸. The ability to assess compliance in these studies is further clouded by the fact that many patients are unaware that their contact lens wear and care practices are reflective of a noncompliant behavior^{2,9}. To date, there is no single predictor for noncompliance among contact lens wearers and compliance with contact lens wear remains an ongoing clinical problem⁹.

The profits of increasing patient compliance are clear. Noncompliance with lens care has been proved to be associated with contact lens-related complications, likely because of increased bacterial disburden at the ocular surface and symptoms of lens discomfort and reduced performance, which ultimately contributes to non-adaptation and the persistent contact lens dropout rate^{2, 10-12}. Although there is a significant need to expand compliance, strategies to effectively increase compliance are limited. Previous studies have examined different methodologies purportedly to increase compliance; however, conflicting evidence exists on the optimal mode of education with respect to oral versus written instructions, repetition, and post training investigation success rates¹³⁻¹⁶. The inability to identify successfully the underlying reasons driving noncompliant behavior and implement useful training programs contributes to the complexity of the problem¹⁶.

This pilot study, using direct patient interviews, evaluated patient compliance as a function of lens wear and care practices and actual compliance using a calculated compliance score based on reported behaviors.

Materials and Methods

One hundred and forty-five soft contact lens wearers with an age range of 16-66 years were selected conveniently from the contact lens clinic, Tehran, Iran. This study was performed between October 2014 and January 2015. All participants acquired their lenses from clinicians. After receiving informed consent from the participants, to assess the level of compliance, the patients were requested to complete a questionnaire.

The lens types included were frequent replacement lenses worn on a daily wear basis. Each candidate was interviewed to collect the information about their contact lens wearing history. Type of lens, wearing experience (year), wearing time and schedule, duration of lens use in a day and details of care system were among the information collected.

A patient who used contact lenses for a minimum of nine hours a day for a period of six months or more was regarded as a contact lens user.

A total of 23 questions were used to assess the compliance status and they were categorized under three major aspects of lens care procedures.

Category – I: Putting on and substitution habits (6 questions).

Category – II: Cleaning and disinfecting of lens (12 questions).

Category – III: Surveillance of contact lens apparatus (5 questions).

After the subjects completed their responses, they were asked to sign the questionnaire and put it into an envelope, close and send for us. They were also informed that their envelopes would remain closed until the end of the study.

The individual compliance score was calculated for all three categories, and then the overall level related to compliance for a patient was investigated. Compliant term was including a patient who got a score of three or more in the entire three lens care categories separately.

Statistical Methods

The Statistical Package for Social Science (SPSS) version 16.0 was applied for analysis of the data. The rate of compliance was investigated in terms of ratio. Chi-square test was used to assess the relationship between compliance and parameters like age, gender. A p-value of <0.05 was considered to be statistically significant.

Results

A total of 145 soft contact lens wears were including 117 females and 28 males with a mean age of 27.16 ± 6.09 years. Summary of

the demographic characteristics are shown in Table 1. About 4.1% of the patients used either antiseptic lotion or soap to remove the pollutants from their hands before using their lenses. 4 out of the users admitted that they were not given proper instructions on lens use and its maintenance at the time of lens dispensing. The most of the subjects stated that they received their first pair of contact lenses from an eye care practitioner after a thorough examining and lens fitting ways.

The investigation of wearing and replacement habits showed that 75.9% of the patients wore their lenses more than the recommended wearing time in a day, 86.9% did not scrap their lenses and switched to a new pair as recommended and 95.2% of them did not attend the suggested after care visits (Figure 1).

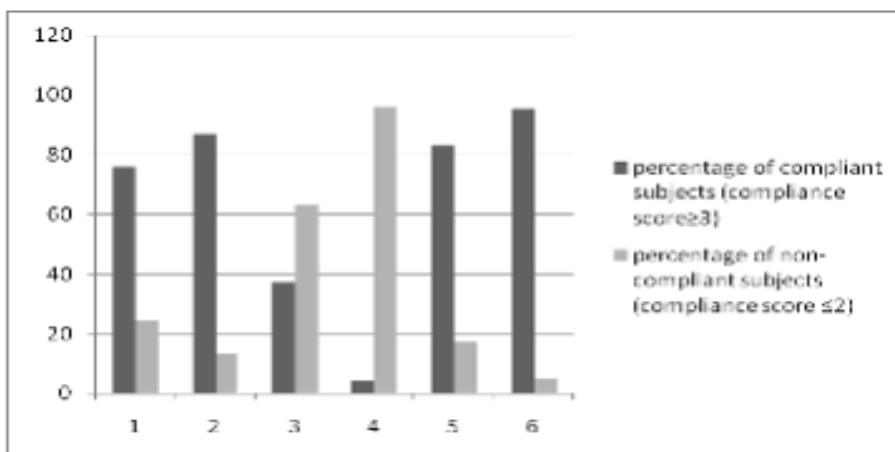


Fig. 1. Status of compliance (Category-I):

1. Lens wear as per the recommended time each day.
2. Discard the old lens and switch to a new pair as recommended.
3. Nap with lenses on.
4. Sleep overnight with the lenses.
5. Remove the lens immediately if the eye is red or irritated.
6. Attend all the aftercare visits as suggested.

The omissions considered in the cleaning and disinfection segment contained 84.1% did not clean their lenses after they wore them, 77.2% did not rub both the sides of

the lens while cleaning and 66.9% did not perform the rinsing step after they completed the lens cleaning (Figure 2).

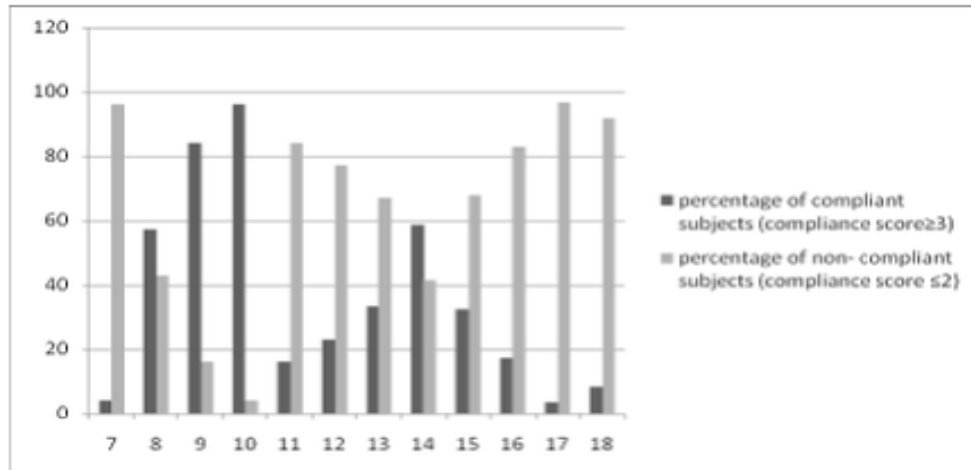


Fig. 2. Status of compliance (Category-II):

7. Wash hands used either soap or antiseptic lotion before handling lenses.
8. Use softening drops when applying lens
9. when out of lenses from eyes use eye drop
10. Use tap water/saliva to clean the lenses in the absence of solution.
11. Clean the lenses every day after wearing them.
12. Rub both the sides of the lens while cleaning.
13. Rinse the lenses with the solution after cleaning.
14. After cleaning the lenses wash them by normal saline solution
15. Check the lenses for debris and damage before insertion.
16. Use fresh solution to soak the lenses at night.
17. Fill the lens case with sufficient solution while soaking.
18. Soak the lenses for more than 4hrs every night

Of the participants 51.7% were not particular about replacing their lens cases every three months. Whereas, only 69.7% allowed to air dry their lens cases after

inserting the lenses and 60% of the subjects did not disinfect their lens case thoroughly once in a week (Figure 3).

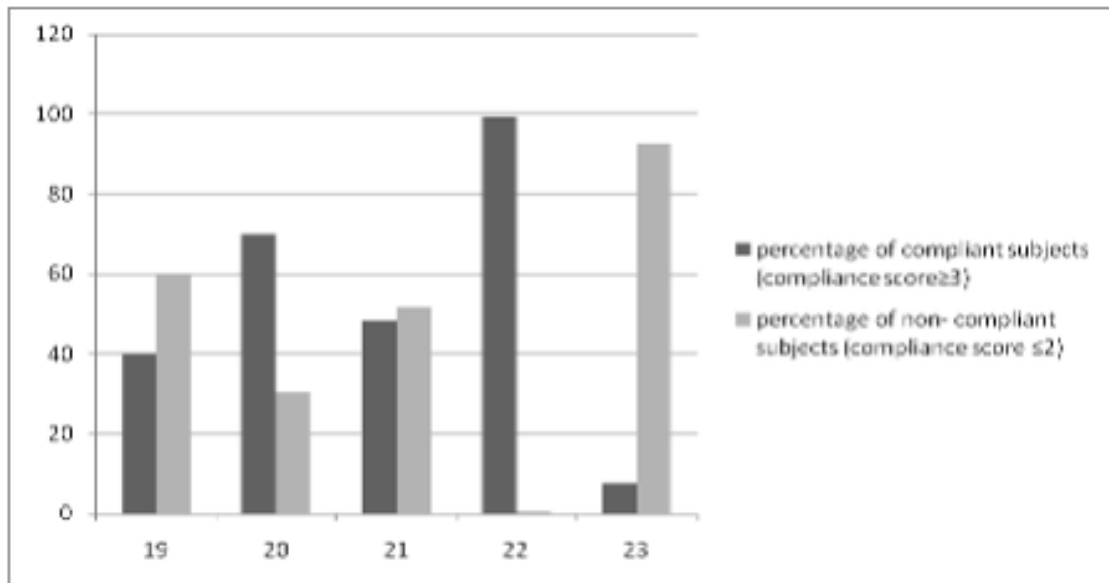


Fig. 3. Status of compliance (Category-III):

19. Clean the lens case once a week.
20. Air-dry the lens case after inserting the lens every day.
21. Replace the lens case every three months.
22. Share the lens case with friends.
23. Pay attention to date of washing solution of the lens.

The lowest level of compliance was observed in the category II. No statistics are computed in the category II, because in this category non-compliant subjects were 100% (Compliance score ≤ 2) (Table 2).

Comparison between two genders did not show any statistically significant in the category I ($P= 0.327$) and 3 ($P= 0.904$) (chi-square test) (Table 3).

Discussion

In the context of contact lens wear, this can be interpreted as a wearer correctly adhering to the instructions provided by the contact lens practitioner with respect to optimum lens wear and care. While using contact lens, it is important that extra burden which

is created to the ocular defensive mechanism due the presence of lens should be minimized as much as possible. This study evaluated patient compliance as a function of lens wear and care practices and actual compliance using a calculated compliance score based on reported behaviors in Iran.

Our study shows that the lowest level of compliance was observed in the category II. 37.2% of the subjects used to sleep for short periods with their lenses and 75.9% wore their lenses more than the recommended wearing time in a day. A proper hand wash and hygiene has a lot to do in controlling the risk of infection while handling contact lenses as well as in general health.

It is clear that the methods adopted to assess the level of compliance was different in all the studies and hence the outcome too. Morgan reported rate of non-compliance (38%) in the lens replacement habits¹⁷. Status of compliance in our study was 37.2% (Table 2).

In another study, the gender and years of experience in contact lens use did not show any statistically significant difference in the level of compliance and among the subjects studied; only 34% were identified to be compliant that it was similar to present study (37.2%). In the mentioned study 21% did not rub their lenses while cleaning and 27% did not rinse their lenses after the cleaning step¹⁸ while in our study these percentages were 77.2% and 66.9%, respectively.

Collins and Carney observed that the category II had highest level of non-compliance rate in maintaining the lens cases out of the 14 aspects of lens care they studied¹⁹ that was similar to present study.

In a study, four samples each from 50 participants (n=200) were collected from the lenses, lens care solution bottles, lens care solutions and lens cases along with a questionnaire regarding their lens use. 64% of the participants showed medium grade of compliance to lens cleaning practices that it was no similar to our study because category II showed the lowest level of compliance (0%) in present study²⁰.

In another study, 58% of patients in the general community could identify by name a complication associated with lens wear compared to 91% within the medical center. The majority of patients could correctly identify risk factors associated with lens-related complications; awareness for topping-off solutions, tap water exposure, and hygiene varied between groups. However, only 0.4% of patients were fully compliant with contact lens wear and care practices but in present study status of compliance was 37.2%²¹.

Conclusion

Although it is difficult to improve the patient behavior to the ideal level, as primary eye care practitioners, we have to emphasize all the lens care instructions and reinforce the same at follow-up visits to minimize lens contamination and a possible ocular complication.

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Table 1: Subject demographics & lens wearing schedule

	Mean + SD
Age	27.16±6.0
CL wearing experience (years)	3.52±3.36
Wearing time (hrs/day)	9.12±3.01

Table 2: Compliance data in each lens care categories

	Category I	Category II	Category III
Mean (SD) compliance score	2.13±0.42	2.07±0.42	2.59±0.55
Status of Compliance (%) (Compliance score ≥ 3)	4.1%	0%	33.1%
Median Compliance Score	2.16	2.08	2.6

Table 3: Compliance data in the categories 1 & 3 based on gender

	Category I N(%)		Category III N(%)	
	Compliant	Non-compliant	Compliant	Non-compliant
Male	2 (7.1)	26 (92.9)	9 (32.1)	19 (67.9)
Female	4 (3.4)	113 (96.6)	39 (33.3)	78 (66.7)
Total	6 (4.1)	139 (95.9)	48 (33.1)	97 (66.9)
P-value	0.327		0.904	