

Knowledge of Soft Contact Lenses Wear and Care Among College Students

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Abstract

Aim: To understand knowledge of soft contact lenses wear and care among college students.

Methodology: A prospective-observational study was conducted using a structured questionnaire among the contact lens wearers from November 2020 to May 2021. Study site is healing touch eye hospital. Sets of validated questionnaires were distributed among college students. A convenience sampling method was used in this study, and the sample size was calculated. The total sample size that was taken is 300. The data collected was analysed using Statistical analysis and it was performed using IBM SPSS (Statistical Package for the social sciences) version 20. College students were included within the age group of 18 to 30 years. Subjects not willing to participate were excluded.

Results: In this prospective observational study questionnaires were taken up by 300 subjects, but due to incomplete forms, had to reject 20 forms. Out of 280 subjects, 74.29% (208) subjects had refractive error and 25.71% (72) subjects had no refractive error, and only 44.29% (124) subjects reported that they use contact lenses. Out of the 124 contact lens users, 120 subjects were soft contact lens users, 3 were RGP contact lens users and 1 was Semi Scleral contact lens user. It was also noticed that most of the subjects got their contact lenses from optical shops, eye hospitals and optometric clinics.

Conclusion: From the results of our study, it is hereby concluded that most of the subjects got their contact lenses from optical shops, eye hospitals and optometric clinics. Refractive wear and cosmetic wear were the main purposes for the use of contact lenses. Most of the subjects used contact lenses on a daily basis, followed lens wear modality, and frequent replacement schedule and used multipurpose solution to clean and soak their lenses. Almost all contact lens users washed their hands before using their contact lenses and also cleaned their contact lenses by rubbing and ringing their lenses.

Keywords: Soft contact lenses; Cleaning; Uses.

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Received Date: 04-21-2022

Accepted Date: 05-12-2022

Published Date: 07-30-2022

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Aim and Objective

To understand the knowledge of soft contact lens wears and cares among college students.

Introduction

Refractive errors are the most common eye disorders and not a disease. A refractive error means that the human eyes do not refract the light rays correctly on the retina resulting in blurred vision [1]. The number of people affected globally with refractive errors has been estimated to be 1-2 billion. Rates may vary between regions of the world, with about 25% of Europeans and 80% of Asians affected. Near-sightedness is the most common disorder. Rates among adults are between 15-49% while rates among children are between 1.2-42%. Far-sightedness more commonly affects young children and the elderly [2].

Emmetropia is a normal refractive condition of the eye in which the parallel light rays from infinity come to a focus exactly on the retina without any accommodative changes. Thus, the vision is clear at all distances. In case the rays are focused either in front or behind the retina, then it is termed as ametropia. It can be

classified as short sightedness or myopia and long sightedness or hypermetropia.

Refractive errors are corrected with eyeglasses, contact lenses, or surgery.

Contact lenses are the smallest, least visible, the finest of all devices for correcting refractive errors of the eye. Prescribing and fitting contact lenses have become an integral part of today's comprehensive ophthalmology\optometry practice. Contact lenses are the ideal choice for refractive errors. They give better vision correction without any distortions. Proper lens care and regular follow ups are very essential to maintain a good ocular health. The modern system classifies contact lens into three major types:

- Soft hydrogels
- Gas permeable lenses (semi soft)
- Hard contact lens
- Multifocal Lenses
- Scleral Lenses

Soft contact lenses market in India is expected to display an upward trend and is estimated to grow at a CAGR of 7.05% in terms of revenue over the forecast duration of 2019 to 2025.

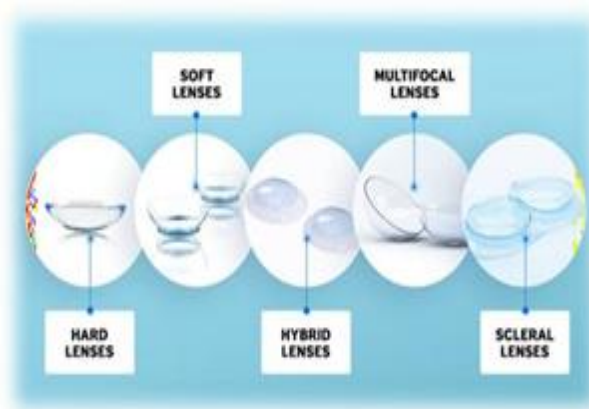


Figure 1: Types of contact lenses.

The young population of India {18 to 30 ages} has formed a vast consumer base for contact lenses in the country. The higher adoption of contact lenses amongst consumers will also lead to increased awareness about contact lens hygiene practices. The major competitors in the Indian contact lens market are purecon lenses pvt. Ltd., Ciba vision corp., Pair vision care pt. Ltd., Johnson & Johnson and Bausch & Lomb eye care (India) pvt. Ltd.

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 [3]. One of the ways of investigating this is from the person's perception regarding his own knowledge of contact lens wear. Self-evaluation regarding knowledge of contact lens wear and care can become an important indicator to how well the actual instructions of contact lens usage were given. Therefore, this study is to understand the knowledge of soft contact lens wear and care among college students in India [4].

Materials and Methodology

A prospective-observational study was conducted using a structured questionnaire among the contact lens wearers from November 2020 to May 2021. Study site is healing touch eye hospital. Sets of validated questionnaires were distributed among college students. Questionnaires are validated by contact lens specialist in optometry field. The questionnaires consist of 21 questions based on the care and maintenance of contact lenses, replacement schedules and lens storage cases as well as knowledge about proper contact lenses care and safe usage. The questionnaires were distributed by online link; consent was

taken before filling the form. The convenience sampling method was used in this study, and the sample size was calculated. The total sample size was taken is 500.

Questionnaire

Demographic Data

1. Email id
2. Age
3. Gender
4. Place
5. Collage \ Institute Name

Contact Lens Use

- Do you have refractive error?
 1. Yes
 2. No
- Are you a contact lens user?
 1. Yes
 2. No
- How long you been wearing contact lenses?
 1. 6 months
 2. 1 year
 3. More than 2 years
 4. More than 6year
- Which type of contact lenses do you wear?
 1. Soft contact lenses
 2. Hard contact lenses
- Give a reason why you are wearing contact lenses?
 1. Refractive purpose
 2. Cosmetic purpose
 3. Therapeutic
 4. Sports
 5. Other please specify
- Where did you get your contact lenses from?
 1. Friend
 2. Optical shop
 3. Optometry clinic

4. Internet
5. Cosmetic store
6. Other please specify
- State the modality of wearing your contact lenses.
 1. Daily wear
 2. Monthly wear
 3. Yearly wear
 4. Biweekly
 5. Other please specify
- How often do you change your contact lenses?
 1. Conventional
 2. Daily disposable
 3. Biweekly disposable
 4. Frequent replacement
 5. Other please specify

- Do you soak your contact lenses in disinfectant solution?
 1. Yes
 2. No
- How long do you soak contact lenses in disinfectant?
 1. Less than 4 hours
 2. More than 6 hours
- Do you use protein tablets in your contact lens immersion?
 1. Yes
 2. No
- Do you share your contact lenses with your friends?
 1. Yes
 2. No

Contact Lens Compliance

- What solution do you use to clean your contact lenses?
 1. Multipurpose solution
 2. Cleaner
 3. Disinfectant
 4. Other please specify
- Do you wash your hand before cleaning your contact lenses?
 1. Yes
 2. No
 3. Sometime
 4. Never
- Do you clean & rinse your contact lenses?
 1. Yes
 2. No
 3. Sometime
- If yes when do you clean your contact lenses?
 1. Each time using contact lenses
 2. Sometimes

Plan for Statistical Analysis

In this study, which was based on questionnaire, the subject's responses were recorded in the inline questionnaire through Google forms and then transferred to excel sheet. Statistical analysis was performed using IBM SPSS (Statistical Package for the social sciences) version 20. The continuous data was summarized using mean and Standard deviation of the responses of subjects which are nominal data was summarized using frequency count and percentage.

Results

In this prospective observational study questionnaires were taken up by 300 subjects, but due to incomplete forms, had to reject 20 forms. Remaining 280 subjects provided complete information. Out of 280 subjects 74.29% (208) subjects had refractive error and 25.71% (72) had no refractive error (Table 1) also only 44.29% (124) subjects reported that they use contact lenses (Table 2). Out of the 124 contact lens users, 120 subjects were soft contact lens

users, 3 were RGP contact lens users and 1 was Semi Scleral contact lens user (Table 3). These 120 subjects of soft contact lenses were included user for further analysis in our

study. There were 72.5% (87) female and 27.5% (33) male with mean age of 21.63 ± 2.97 (Mean \pm SD) years as represented in below graph number 1.

	Frequency	Percent
Absent	72	25.71
Present	208	74.29
Total	280	100

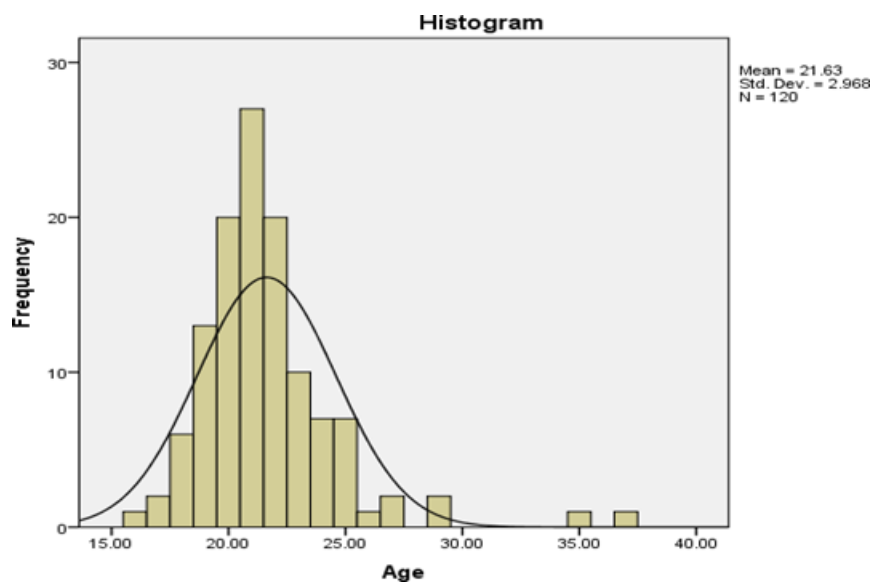
Table 1: Refractive Error.

Yes	124	44.29
No	156	55.71
Total	280	100

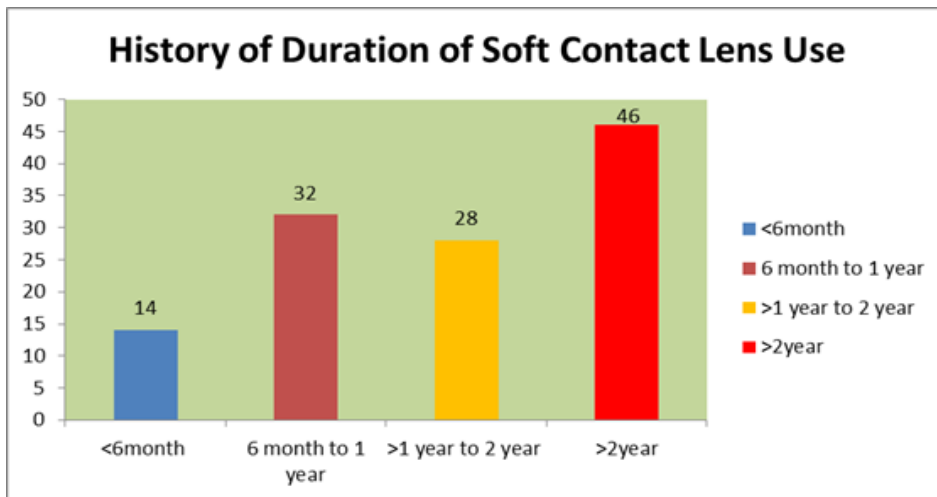
Table 2: Use of Contact Lens.

Soft Contact lens	120	96.77
RGP	3	2.42
Mini-Scleral	1	0.81
Total	124	100

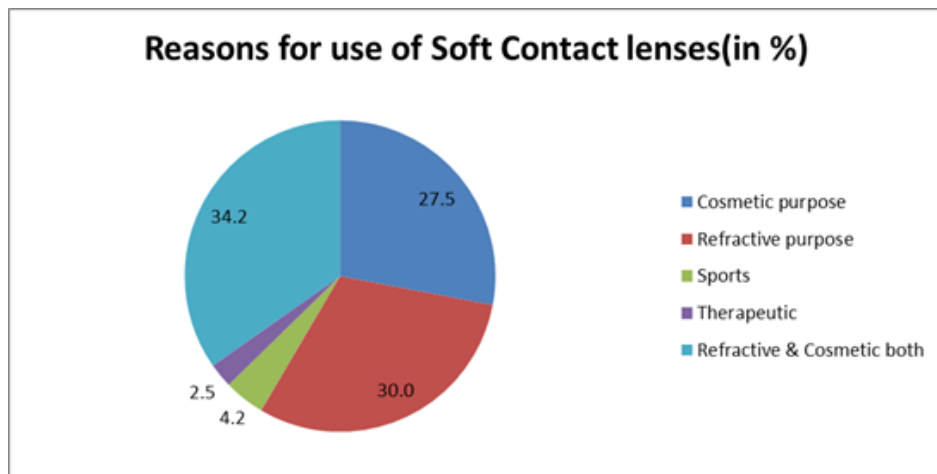
Table 3: Types of Contact Lens.



Graph 1



Graph 2



Graph 3

College/ Institute	Frequency	Percent
Bharati Vidyapeeth School of Optometry	2	1.67
Bhartimaiya college of optometry	3	2.5
Dr D Y Patil university	2	1.67
CT university	2	1.67
H V Desai college of Optometry	2	1.67
Harijot college of Optometry	6	5
ITM college of Optometry	46	38.33
LVPEI	2	1.67
Lotus college of Optometry	2	1.67
MGM institute of health sciences	3	2.5
SNDT college of Optometry	5	4.17
Other Junior or Degree college	45	37.5
Total	120	100

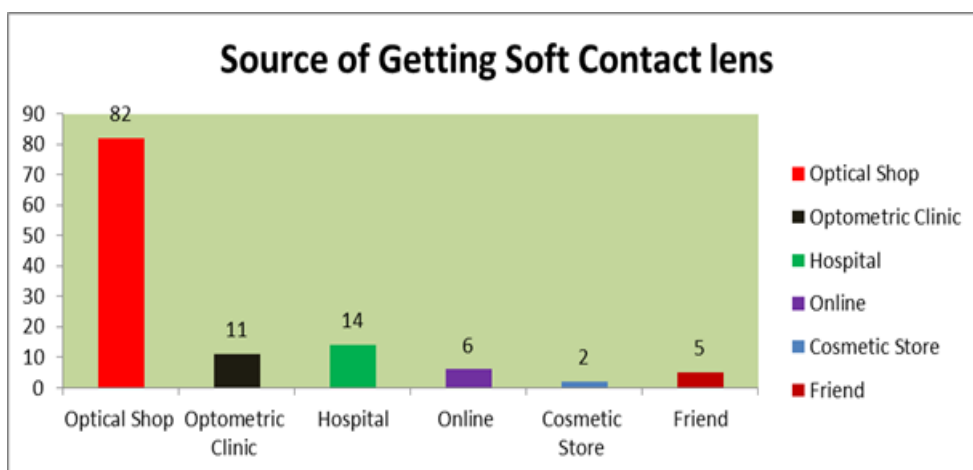
Table 4: Distribution of Subjects according to their college of study.

Responses regarding source of contact lenses from where subjects got the lenses are summarized in table number 5. Most of the subjects 68.33% (82) said that they got it

from an optical store followed by eye hospitals 11.67% (14) and 9.17% (11) subjects from optometric clinics (Graph number 4).

Wearing Modality	Frequency	Percent
Daily Disposable	26	21.67
Biweekly Disposable	15	12.5
Monthly Disposable	34	28.33
Quarterly Disposable	11	9.17
Conventional (Yearly)	34	28.33
Total	120	100

Table 5: Distribution of Contact Lens User depending upon Replacement Schedule.



Graph 4

Further assessment on responses of subjects revealed that 110(91.67%) of the subjects were using lenses for daily wear and remaining 10 subjects were using it on extended wear basis. Responses regarding the replacement schedule of soft contact lenses are summarized in table number 5. There were equal number of users (34) for monthly and conventional replacement, 26 were on daily disposable, and 15 on biweekly disposable and 11 subjects were on quarterly disposable contact lenses [5]. Excluding the daily disposable, remaining 94 subjects who

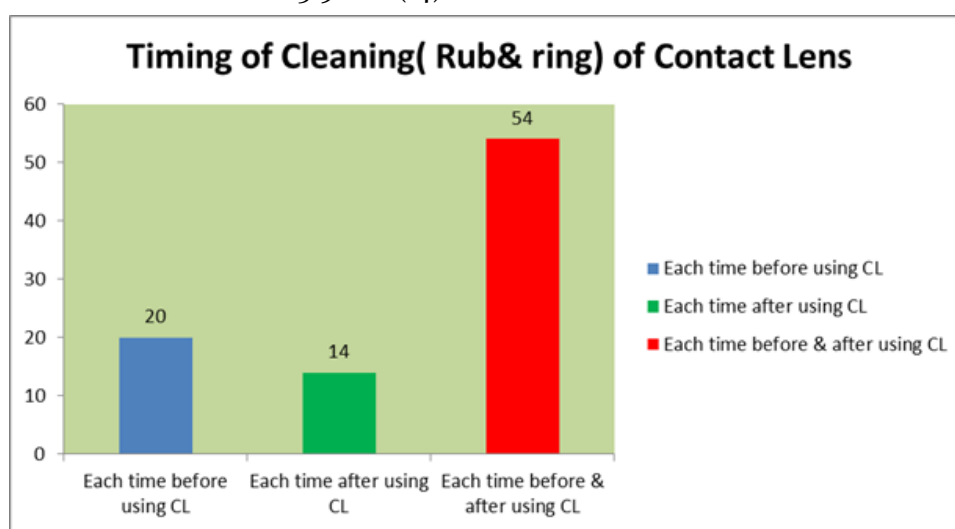
were required to use contact lens solutions 63.33% (76) said they used multipurpose solutions, 11 used disinfectants and 7 used cleaners [6]. Of the total subjects, 118 subjects made sure they wash their hands before the use of contact lenses and 2 did not wash hands. Subjects who used other than daily disposable contact lenses were asked if they clean lenses by rinsing and rubbing, 77 subjects said that they cleaned their lenses regularly, 11 subjects cleaned their lenses sometimes and 6 said that they didn't clean their lenses at all (Table 6).

	Frequency	Percent
Yes	77	81.91
No	6	6.38
Sometimes	11	11.7
Total	94	100

Table 6: Clean Contact Lens by rubbing and ringing.

Of the 88 subjects who reported to clean the lenses, 61.36% (54) clean lenses each time before & after using contact lenses, 22.73% (20) subjects' clean lenses each time before using contact lenses and 15.91% (14)

subjects' clean lenses each time after using contact lenses (Graph 5). Also, these subjects reported to soak lenses in solutions which is summarized below in table 7.



Graph 5

	Frequency	Percent
Less than 4 hours	29	30.85
4 to 6 hours	23	24.47
More than 6 hours	42	44.68
Total	94	100

Table 7: Duration of Soaking contact lens in disinfectant solution.

Out of 120 subjects of soft contact lens user 34 subjects were using conventional (Yearly lenses). Of these 34 conventional soft contact lens users 29 subjects reported that they don't use protein removal tablets while only 5 subjects made sure that they used

protein removal tablet. Also, out of total 120 subjects of soft contact lens users 10% (12) subjects reported that they shared their contact lenses with their friends and siblings.

Discussion

This study illustrates the patterns of use and level of knowledge about contact lens wear amongst collage going students. The analysis showed response rate of 300 patients among which 20 patients filled their forms incomplete. The Questions were prepared and validated with the help of expert in contact lenses and optometry. Online filling of the forms was done with patients concerned.

The results of this study showed that the prevalence of CL was 120 soft contact lens users 46 were using it for more than 2years, 28 subjects for 1 to 2 years, 32 subjects from 6 months to 1 year and 14 subjects were using it for less than 6months. (Graph 2). Almost all of the subjects reported that refractive and cosmetic wear were the main reasons for using soft contact lens, and Refractive & Cosmetic both constitute 34.2% (43), only refractive purpose is 30% (36), only Cosmetic purpose is 27.5% (33) subjects. Most of the subjects 68.33% (82) said that they got it from the optical store followed by eye hospitals 11.67% (14) subjects and 9.17% (11) subjects from optometric clinics. Further assessment on responses of subjects revealed that 110(91.67%) of the subjects were using lenses on daily purpose and remaining 10 subjects were using it on extended wear basis [7].

There were equal number of users (34) for monthly and conventional replacement, 26 were on daily disposable, and 15 on biweekly disposable and 11 subjects were on quarterly disposable contact lenses. Excluding the daily disposable, remaining 94 subjects who were required to use contact lens solutions 63.33% (76) said they used multipurpose solutions, 11 used disinfectants and 7 used

cleaners. Of the total subjects 118 subjects said that they wash their hands before the use of contact lenses and 2 did not wash hands. Subjects who used other than daily disposable contact lenses were asked if they clean their lenses by ringing and rubbing 77 subjects said that they cleaned their lenses regularly, 11 subjects cleaned their lenses sometimes and 6 said that they didn't clean their lenses at all (Table 4). Of the 88 subjects who reported to clean the lenses, 61.36% (54) clean lenses each time before & after using contact lenses, 22.73% (20) subjects' clean lenses each time before using contact lenses and 15.91% (14) subjects' clean lenses each time after using contact lenses (Graph 5). Also, these subjects reported to soak lenses in solutions.

From the results of our study, it can be concluded that most of the subjects get their contact lenses from optical shops, eye hospitals and optometric clinics.

Refractive and cosmetic were the main purpose for use of contact lenses. Most of the subjects were on daily wear, some wearing moderately and on frequent replacement schedule and use multipurpose solution to clean and soak the lenses. Most contact lens user washed their hand before using contact lens and the clean the lenses by rubbing and ringing the lenses [8].

Limitations and Recommendations

Limitations

1. Patient interaction was less due to covid
2. It could not include RGP contact lenses

Recommendations

1. Results can be more precise if taken offline
2. By including RGP contact lenses it can get broader prospective

Conclusion

From the results of our study, it can be concluded that most of the subjects get their contact lenses from optical shops, eye hospitals and optometric clinics.

Refractive and cosmetic were the main purpose for use of contact lenses. Most of the subjects were on daily wear, followed lens wearing modality and frequent replacement schedule and uses multipurpose solution to clean and soak the lenses. Most contact lens user washed their hand before using contact lens and the clean the lenses by rubbing and rinsing the lenses.

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