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ASSESSMENT AND PREVALENCE OF SPECTACLES USAGE AMONG DEGREE COLLEGE STUDENTS

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ABSTRACT

Spectacles are optical instruments consisting of a frame which hold a pair of lenses to correct visual disabilities, also for protection, fashion. Spectacles have been included in the essential drug list of the WHO. They are the most frequently used options for correcting refractive errors. The WHO has made refractive error (RE) correction a priority in the global initiative to reduce available blindness. **Objectives:** The prevalence, causes, and barriers of usage of spectacles and to assess the complications of improper usage of spectacles in different college students. **Materials and Methods:** A cross sectional study was conducted among different college students at Chitradurga over a period of six months. **Results:** About 400 respondents are selected in that about 150(37.5%) were engineering students, 98(24.5%) were pharmacy, 84(21.0%) were Bachelor of science and remaining 68(17.0%)s were nursing students. In 400 participants most of students wearing spectacles because they can't see far away objects clearly(40.3%), some of students also facing barrier during spectacle usage like disturbances(12%), dislikes and some students not wearing spectacles regularly although they knows it may cause complications like blurred vision and headache also. **Conclusion:** Our study is aimed to assess prevalence, causes, barriers and complications of spectacles usage among degree students, Chitradurga. According to our study the percent of students wearing spectacles is 52.5% (210) out of 400 participants. From our study it's clear that reasons such as repeated exposure to digital screen, stress, lifestyle habit, nutrition require and genetics influence on usage of spectacles. Improper usage of spectacles will influence on self-esteem and confidence, so proper awareness and professional guidance is needed.

KEYWORDS: Myopia, Visual acuity, Refractive error, Astigmatism, Hyperopia.

1. INTRODUCTION

Spectacles are optical instruments consisting of a frame which holds a pair of lenses to correct visual disabilities (refractive errors), also for protection, fashion and for achievement of confidence. Spectacles are the most commonly used options in correction of refractive errors because they are the simplest, economical and most widely used methods to provide good visual acuity, quality of life and cultural acceptance in rural as well as urban population. Spectacles has been included in the essential drug list of the World Health Organisation.[1] Safety glasses provide eye protection from flying debris; they may have protection for sides of the eyes and also in the lenses. Sunglasses are allow for better vision in bright sunlight and may also protect human eyes from damage due to excessive levels of Ultraviolet light.[2]

Refractive error is a common cause of visual impairment and blindness. To prevention of this blindness, cost benefit and good quality spectacles are available.[1]

Corrective lenses are used to correct refractive error by bending the light entering the eye in response to prevent the effects of condition such as Myopia, Hyperopia and Astigmatism.[2] NEI and NIH (National Eye Institute and National Institute of Health) define the refractive error as it occurs when the shape of the eye prevents light from focusing directly on the retina. The length of the eyeball (longer or shorter), changes in the shape of the cornea, or aging of the lens can cause refractive error.[3]

Different types of refractive errors are

- Myopia: In myopia (near-sightedness), the point of focus is in front of the retina, because the cornea is too steeply curved, or the axial length of the eye is too long or both, which results in the distant object being blurred but near object can see clearly.[4]
- Exposure to near work, like reading, has been the most common environmental factor which is reason for development of myopia.[4]

It can be corrected with a concave lens, which causes the separation of light rays to focus on to the retina.[4]

- Hyperopia: In hyperopia (far sightedness), the point of focus is behind the retina, because the cornea is too flatly curved, or the axial length is too short, or both which leads to the near objects blurred in adults.[4]

When the axial length is too short, light from a distant object is brought to a focusbehind the retina.[4]

Refractive surgery or a convex lens can be used to correct hyperopia.[4]

- Astigmatism: Is a non-spherical refractive error that occurs when the incident light rays do not converge at a single focal point which results in the objects appearing broadened or elongated.[4]

It is literally translates to “not point forming”, means that the point of light imaged through an astigmatic optical system will not give a point image.[4]

It occurs when the two principal meridians of the eye have different refractive powers.[4]

Refractive errors (RE) associated with ocular or neurological disease. Though students with RE may feel headache and inability to read the material on the chalkboard, which can have a serious impact on their learning ability, academic performance and personality. Uncorrected refractive errors are the leading cause of visual impairment.

Spectacles are the most commonly used options for correcting refractive errors. They can also be used for protection and fashion. The WHO has made RE correction a priority in the global initiative to reduce available blindness.[5]

Considering all the above facts, our study was considered to assessment and prevalence of Spectacle usage among degree college students.

2. MATERIALS AND METHODS

Design

This was a questionnaire based cross sectional study.

Study Site: Study

This study was conducted among students of selected pharmacy, nursing, engineering and Bachelor of Science degree colleges in Chitradurga, Karnataka.

Study Period

Study was conducted for a period of six months.

Study Subject

Students of degree college of Chitradurga, Karnataka who met the following criteria.

Inclusion Criteria

- Study includes both genders.
- Study includes college students who are willing to give consent forms.
- College students above 18 years and below 26 years.

Exclusion Criteria

- Study excludes primary and high school students using spectacles.
- Study excludes students who got surgery.
- Students who are using contact lens.

Ethical Approval

The study was approved by the Institutional Ethical Committee of SJM College of Pharmacy, Chitradurga.

Ref. No: SJMCP/618/2022-23

Sources of Data

- Data was collected by using self-designed questionnaire given to students of pharmacy, nursing, engineering and bachelor of science in Chitradurga district.

Study Procedure

- The study commenced after getting approval from the Institutional Ethics Committee.
- Participants were college students randomly selected, pertaining to four different courses (Pharmacy, Engineering, Nursing and BSc) from four different colleges in Chitradurga.
- The study was conducted to assess the spectacle usage, causes, and barriers in the usage of spectacles and complications in the improper usage of spectacles.
- Participants were asked to fill the self-designed questionnaire during one to one interaction.

Development of questionnaire

The development of questionnaire was carried out systematically by review of related literatures, using search engines like Google Scholar and Pubmed. The articles were selected to provide a wider view of spectacle usage, causes and barriers of spectacle usage and complications of improper usage of spectacles among degree college students. The

questionnaire consists of 24 questions which includes personal and demographic question such as age, gender, course and usage of spectacles. The questions were categorized as eye disease, family history of eye disease, usage of spectacles, barrier for spectacle usage and complications of improper spectacle usage and complications. The offline questionnaire forms are distributed among college students with the help of permission from respected principle.

Statistical Evaluation of Data

Descriptive statistical analysis has been carried out in our study. Data are presented asmean± standard deviation (SD) and as frequency distribution. The statistical analysis was performed using the IBM SPSS Data Analysis Version 22.0 for windows and Graph Pad Prism 9 (La Jolla, CA, USA) has been used to generate graphs and Microsoft Excel fortables.

2. RESULTS

A total of 400 participants, most of students wearing spectacles because they can't see far away objects clearly, some of students also facing barrier during spectacle usage like disturbances, dislikes and some students not wearing spectacles regularly although they knows it may cause complications like blurred vision and headache also.

EPIDEMOLOGIC PROFILE

Distribution of participants according to age

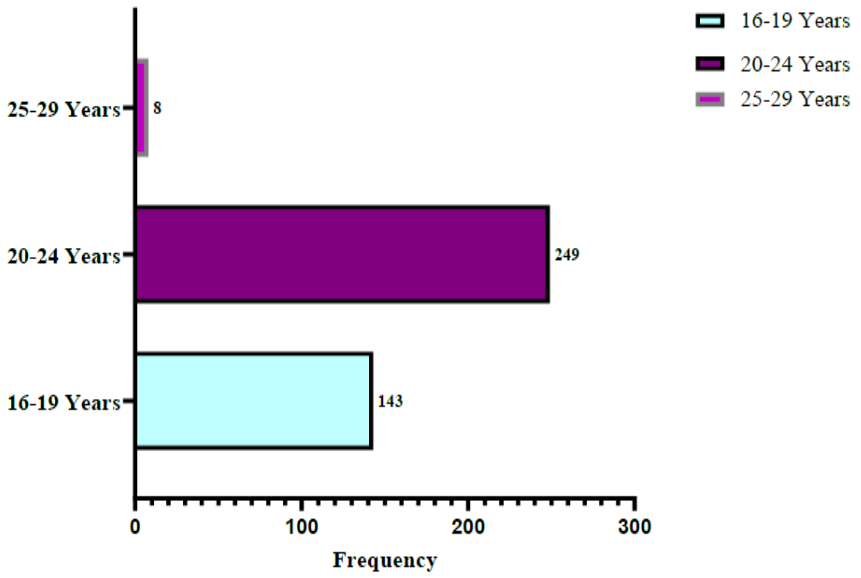

Figure No.1: Distribution of participants according to age.

Distribution of participants according to education status

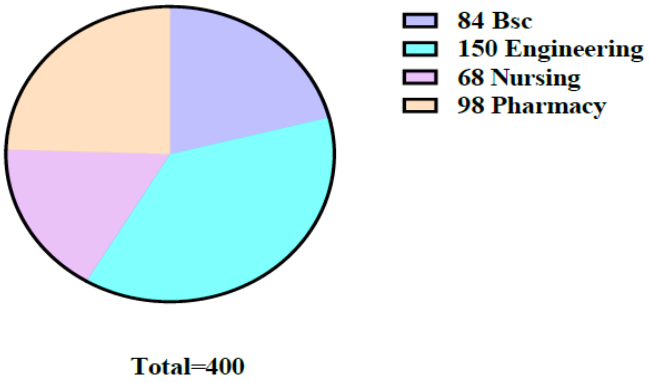

Figure No.3: Distribution of participants according to education status.

ASSESSMENT OF USAGE OF SPECTACLES

Response of the participants about usage of spectacles

Among 400 participants, 210 (52.5%) respondents are wearing spectacles and 190 (47.5%) respondents are not using spectacles. The result has been represented in Table No.1 and graphically represented in figure No.1.

Table No. 1: Response of the participants about usage of spectacles.

Sl no	Yes/No	Frequency	Percent	Valid Percent	Cumulative Percent
1	No	190	47.5	47.5	47.5
2	Yes	210	52.5	52.5	100.0

Figure No.1: Response of the participants about usage.

Response of the participants about duration of using of spectacles

In 400 participants about 117 (29.3%) were wearing spectacle for just part of the day and 98(24.5%) participants were wearing spectacles for whole day. The result has been represented in Table No.2 and graphically shown in figure No.2

Table No. 2: Response of the participants about duration of using of spectacles.

Sl no	Whole day/ just partof the day	Frequency	Percent	Valid Percent	Cumulative Percent
1	Not mentioned	185	46.3	46.3	46.3
2	Just part of the day	117	29.3	29.3	75.5
3	Whole day	98	24.5	24.5	100.0
Total		400	100.0	100.0	

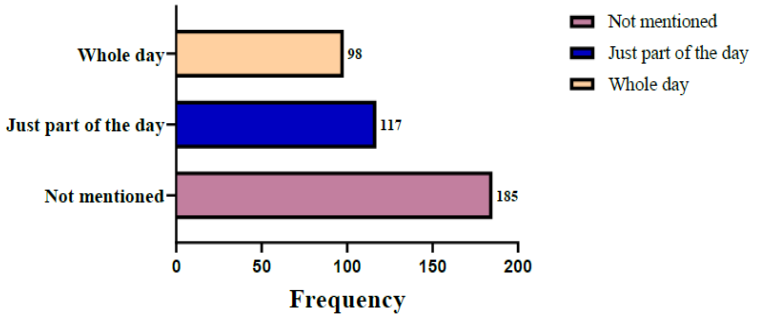

Figure No.2: Response of the participants about duration of using spectacles.

ASSESSMENT OF CAUSES

Response of the participants about causes for spectacle usage

In among 400 participants majority of population 161(40.3%) were wearing spectacles because they can't see far away objects clearly and 23 (5.8%) were wearing for other reason and 22 (5.5%) were because they can't see near objects clearly. The result has been represented in Table No.1 and graphically shown in graph No.1.

Table No. 1: Response of the participants about causes for spectacle usage.

Sl no	Reasons	Frequency	Percent	Valid Percent	Cumulative Percent
1	Not mentioned	189	47.3	47.3	47.3
2	Can't see far away objectsclearly	161	40.3	40.3	87.5
3	Can't see near objectsclearly	22	5.5	5.5	93.0
4	Objects appear like elongated	5	1.3	1.3	94.3
5	Others	23	5.8	5.8	100.0
Total		400	100.0	100.0	

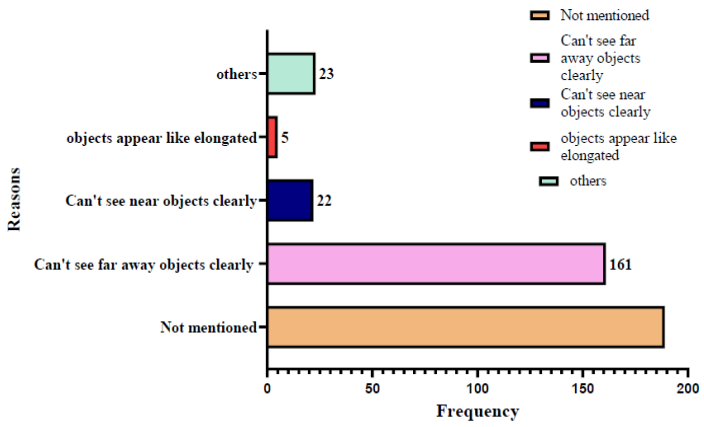

Figure No.1: Response of the participants about causes for spectacle usage.

ASSESSMENT OF BARRIERS

Response of the participants about barriers for using spectacles

Among 400 respondents 108 (27.0%) participants don't have any barriers in wearing spectacles, 48 (12%) participants were had disturbance in their daily activities and 23(5.8%) participants were forgetting to wear the spectacles. The result has been shown in Table No.3 and graphically represented in figure No.3.

Table No. 3: Response of the participants about barriers for using spectacles.

Sl no	Barriers mentioned	Frequency	Percent	Valid Percent	Cumulative Percent
1	Not mentioned	188	47.0	47.0	47.0
2	Cost issue	9	2.3	2.3	49.3
3	Cost issue and Disturbance in daily activities	1	.3	.3	49.5
4	Disturbance in daily activities and Feelinghesitate	4	1	1	50.5
5	Disturbances in daily activities	48	12.0	12.0	62.5
6	Feeling hesitate	16	4.0	4.0	66.5
7	Forgetting to wear	23	5.8	5.8	72.3
8	Forgetting to wear andDisturbance in daily activities	3	.75	.75	73
9	I don't have any barriers	108	27.0	27.0	100.0
Total		400	100.0	100.0	

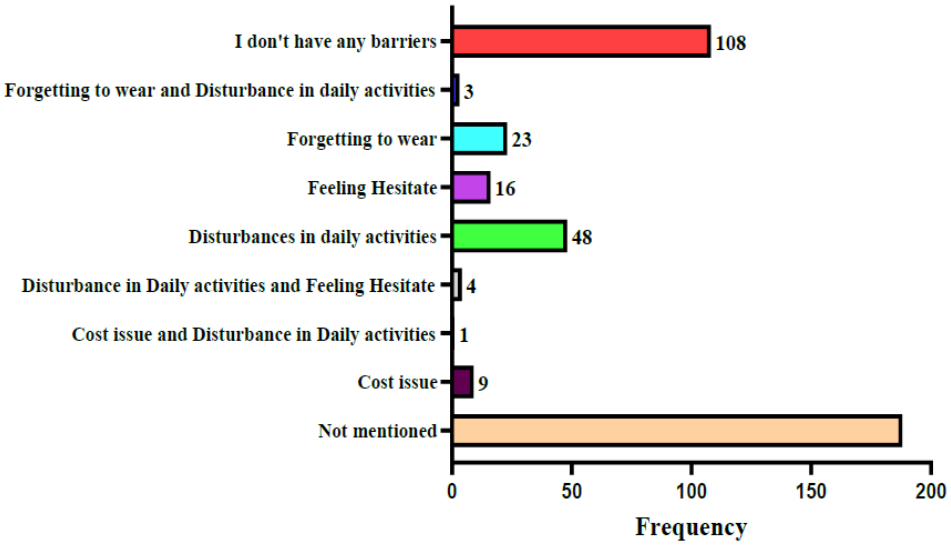

Figure No.3: Response of The Participants About Barriers For Using Spectacles

Assessment of Complications.

Response of the participants about symptoms facing due to improper spectacle usage

Among 400 respondents about 57(14.2%) participants had increased blurred vision and 45(11.3) participants had headache. The result has been shown in Table No.1 and graphically represented in figure No.1.

Table No. 1: Response of the participants about symptoms facing due to improper spectacle usage.

SL No.	Symptoms mentioned	Frequency	Percent	Valid Percent	Cumulative Percent
1	Not mentioned	195	48.8	48.8	48.8
2	Blurred vision	57	14.2	14.2	63.0
3	Blurred vision and others	1	.3	.3	63.2
4	Headache	45	11.3	11.3	74.5
5	Headache and Blurred vision	14	3.5	3.5	78.0
6	Headache and Pain in eye	4	1.0	1.0	79.0
7	Headache,Pain in eye and Blurred vision	10	2.5	2.5	81.5
8	Itching eyes	5	1.3	1.3	82.8
9	Itching eyes, Blurred vision and Pain in eye	3	.75	.75	83.55
10	Itching eyes, Watering eyes and Headache	2	.5	.5	84.05
11	Itching eyes, Watering eyes, Headache, Pain in eye and Blurred vision	1	.3	.3	84.35
12	Others	6	1.5	1.5	85.85
13	Pain in eye	12	2.8	2.8	88.65
14	Pain in eye without blurred vision and other issues	17	.3	.3	88.95
15	Pain in eye with blurred vision	16	4.0	4.0	92.95
16	watering eye, Pain in eye and Blurred vision	6	1.5	1.5	94.45
17	Watering eyes	6	1.5	1.5	95.95
18	Watering eyes and Headache	4	1.0	1.0	96.95
19	Watering eyes and Blurred vision	6	1.5	1.5	98.15
20	Watering eyes, Headache and Blurred vision	4	1.0	1.0	99.15=100
	Total	400	100	100	

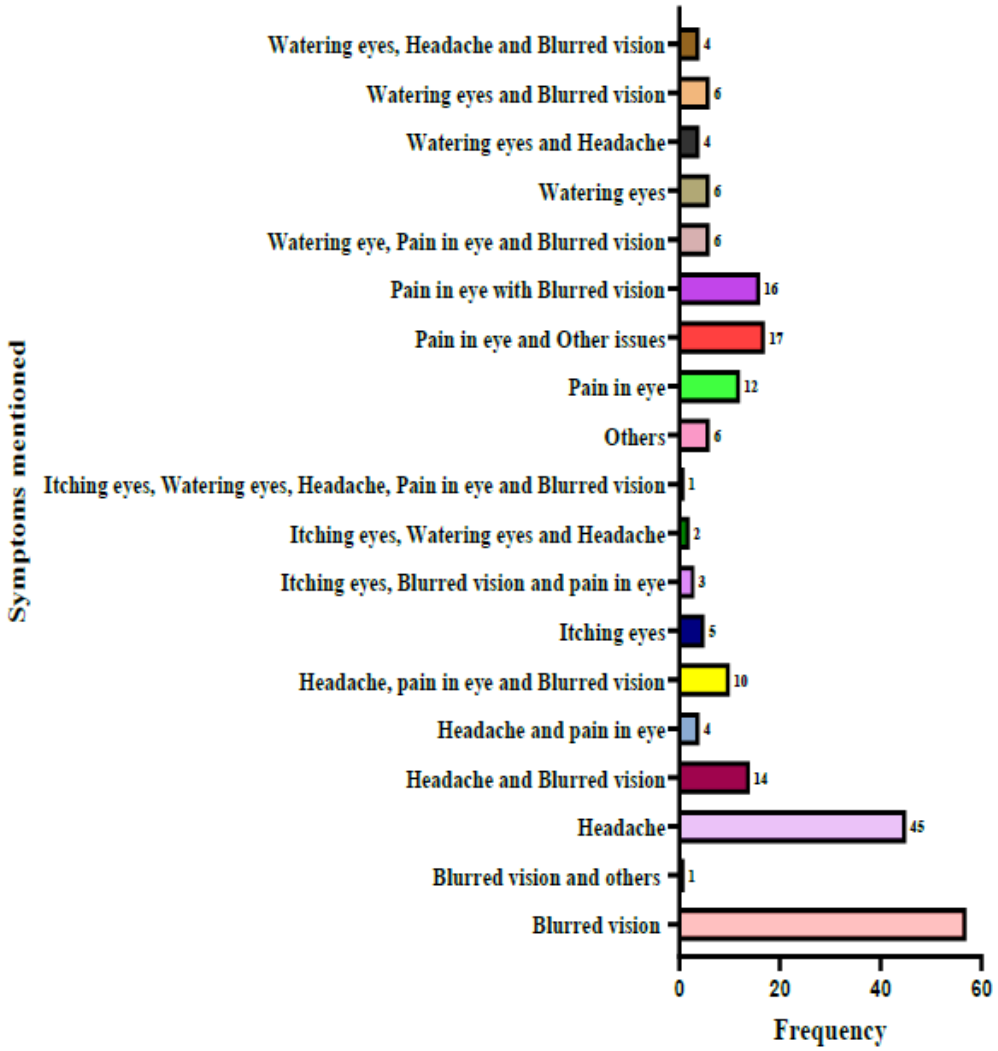

Figure No. 1: Response of the participants about symptoms facing due to improper spectacle usage.

4. DISCUSSION

Spectacles are optical instruments consisting of a frame which hold a pain of lenses to correct visual disabilities (RE), also for protection, fashion. Spectacles have been included in the essential drug list of the WHO. They are the most frequently used options for correcting RE. The WHO has made RE correction a priority in the global initiative to reduce available blindness.

Assessment and prevalence of spectacle usage among degree college students: A cross sectional study was carried out to assess the reasons, barriers and complications of improper usage of spectacles. A total of 400 degree students of Chitradurga were participated in the study by answering the questionnaire.

Among 400 participants or students (n=400) 150 (37.5%) participants are Engineering students, 98(24.5) participants are Pharmacy students, 84(21.0%) are BSc students and 68(17.0%) are Nursing students.

In our study we found that students can't see far away objects clearly (myopia). This reason was supported by 161 participants out of 400 as mentioned in table and graphically represented in figure no 5. Our finding is similar to Dr. Ojo Perpetua ODUGBO et al., among 268 participants, 78(35.3%) participants having myopia.

Students who are wearing spectacles have barriers like disturbances, dislikes etc.

In our study we found that 48 (12.05%) participants having disturbance in daily activities. Our result is similar to Mukhaiser AM et al., (2021) results they found that 51% participants felt that spectacles were inconvenience and 51% think that people who wear spectacle are as being visually handicapped.

5. CONCLUSION

The present study is aimed to assess prevalence, causes, barriers and complications of spectacle usage among degree students, Chitradurga. According to the findings of our study more number of college students using spectacles due to various reasons and they even undergo surgery for vision problems.

- Further studies are required to provide proper treatment and guidance according to the reasons and awareness should be provided for the students to motivate an visiting doctors for their treatment. According to our study the percentage of students wearing the spectacles is 52.5% (210) out of 400 participants, they do not consider wearing a spectacle as a condition were theyneed to visit a doctor.
- From our study it's clear that vision habits, other reasons such as repeated exposure to digital screens, stress, life style habit, nutrition required and genetics influence on usage of spectacles.
- Repeated and excessive exposure to digital screen, stress, visual impairment increases the necessary of usage of spectacles, on following this with safety measurement and proper usage of spectacles can lead to reduce the worseningof condition.
- According to the study it concludes that the college students have highexposure to mobile and other digital screens and have vision problems.

Concisely the study concludes that the non – compliance and improper usage of spectacles is not a minor issue it even influences on self-esteem and confidence so proper awareness and professional guidance is needed.

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