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Research Article

Computer Vision Syndrome Among The Undergraduate Students, Itm University, Gwalior

Sunil Kumar Sah[1*], Himani Chauhan[1], Mathew George[1], Prashant Kumar[2], Shreya Thakral[3], Ruby Singh[4]

[1*]Assistant Professor, Department of Optometry, School of Nursing Sciences, ITM University Gwalior, M.P. India.
[2]Clinical Instructor, Department of Optometry, School of Nursing Sciences, ITM University Gwalior, M.P. India.
[3]Assistant Professor, College of Paramedical Sciences, TMU Moradabad, U.P. India.
[4]Senior Optometrist, LJ Eye Institute, Ambala India.

***Corresponding Author** Sunil Kumar Sah
Email; Sunielgupta23@gmail.com

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ABSTRACT

Aim:
The Aim of this study was to assess the changes which will be seen with or without blue cut glasses among undergraduate students of ITM University Gwalior.

Methodology:
A questionnaire based study was conducted among UG student which was performed in ITM University, Gwalior. The participants were surveyed using a pre tested structured questionnaire through Google form.

Result:
A total 101 students were included in the study subject, majority i.e. 85(84.15%) were male 25 (24.7%) were 20 years of age. and 16(15.85%) were female. The incidence of computer vision syndrome was (79%). The commonest symptoms of computer vision syndrome were watering of eye (32.5%), followed by eye pain (23.75%), headache (12.5%) etc. The use rate of computer or phones i.e.(100%) was higher and the majority (51%) of their screen time were for more than 5hr. out of 101 (75%) students were wearing glasses and most of them are using blue cut glasses which is (73.68%) and rest of them were using ARC and hard coat type of coating glasses .Also we find that There is no significant changes was found when someone use blue cut glasses or without blue cut glasses i.e. looking normal vision.

Conclusion:
The present study shows that maximum UG students are affected by computer vision syndrome that is they possess at least one symptoms of computer vision syndrome. Those students who use computer or phones for more than 5hr daily were at a higher risk of developing computer vision syndrome when compare to student who spend some time or hour and take frequent breaks. Even the use of screen had not yet proven to cause any permanent damage to the eye, but studies have proven that temporary discomfort reduced the efficiency of work. It needs to update the students with necessary knowledge regarding the preventive aspect of the current conditions. And also there is no significant change was found when someone use blue cut glasses and without blue cut glasses.

Keywords: Computer vision syndrome, dry eye, video display terminal, Eye, Visual display terminals

INTRODUCTION

It has been observed that use of computer by medical students is increasing. Study material is becoming more digital; computers are used in many of the diagnostic tests that take place within the hospital. This study was conducted with the aim to study the prevalence, risk factors and clinical evaluation and spread awareness of computer vision syndrome among University students.[11]. In the tech-driver 21th century, use

of computer device and gadget has almost become indispensable in every aspect of life. It has been documented that 75% of all daily activities involves the use of computer.[1] Computer vision syndrome also referred to as digital eye strain, describe eye and vision related problem during computer use. It is the one the rising health issue related to technology (phone, computer screens) due to regular use of computer among students even for 3h/ days. [2] In this era, children are smarter to use smart phones, screen devices to play and learn. Almost every college, university and homes started using digital screen in some or the different way. [3] Common symptoms of computer vision syndrome include eyestrain, headache, blurry vision, neck or shoulder pain, that generally increase in severity with the amount of video display terminal (VDT). [1] Prevalence of computer vision syndrome ranges from 64% to 90% among computer user. Nearly 60 million people suffer from CVS globally. [1] The computer using population in India is more than 40 million and 80% of them have discomfort due to computer vision syndrome. [5] A survey study among American optometrist found that 14.25% of patient who visited optometry clinic were suffering primarily from symptoms associated with computer use. [6] A million new cases of CVS occur each year. Although many studies have repeated that association between prolonged computer use, poor posture at work station and various musculoskeletal discomforts, most of them were focused on western adult subject. [1] Computer vision syndrome can be virtually eliminated by taking a few simple, in expensive precaution. Computer vision syndrome is an increasing health issue unnoticed by many which affects the lives of many especially students through our study we try to find out more about this issue at present time. [7] Very little research has been performed to document the effect of computer use on the eye health of India users especially among UG students**.** The aim of this study is to find the incidence of computer vision syndrome in undergraduate students and to assess the changes will be seen with or without blue cut glasses.

METHODOLOGY

This Cross sectional study was conducted at ITM University Gwalior. The questionnaire was allotted to students of ITM University; those who were found to be symptomatic were further evaluated in Out Patient Department of Ophthalmology data analyzed by using SPSS software version 17.0. Statistical tools used were proportions & percentages & other appropriate. Statistical tests of significance applied

Objective:

To assess the changes will be seen with or without blue cut glasses.

Material and Methods:

A questionnaire based study was conducted among under graduate student which is performed in ITM University Gwalior

Inclusion Criteria:

- Patient with no ocular disease.
- Both genders will be included.
- No ocular manifestation.
- Age group is 20-25 year

Exclusion Criteria:

- Patient with ocular disease
- Patient with any traumatic condition
- Patient which age group is less than 20 and more than 25 years.

In previous study there is mention that Associated factors among medical and engineering students.In my study I am looking out for undergraduate students & age group is different.

Research Methodology: A Questionnaire-Based Study
Research Design:
Type of Study: Cross-sectional survey
Sampling method: Convenient sampling
Data Collection: Self-administered questionnaires
Participants: University students
Sample Size: 101 Students

Pre-testing
Run the questionnaire through its paces with a small sample of university students to find any ambiguities, contradictions, or problems with the questions.

Statistical Analysis
All statistics were input into Microsoft Excel, Data Entry and organization, data cleaning by reviewing the data for missing values, outliers, or inconsistencies, necessary corrections or clarifications was done and then examined. The data was assessed using Microsoft Excel.

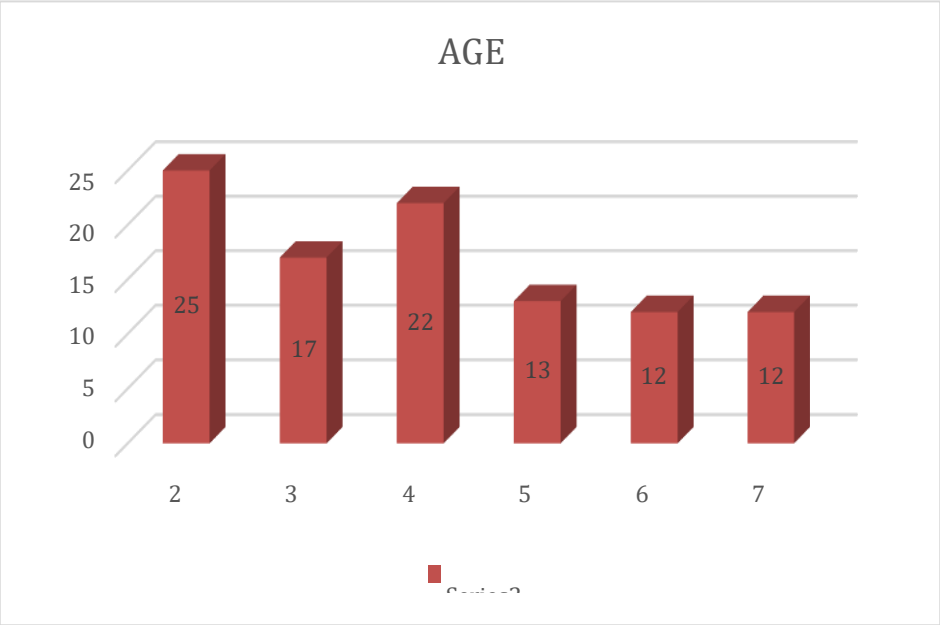
RESULTS

A Total 101 students were included which was conducted at ITM University, Gwalior. The mean age of the participants was [67.33±48.79] years of age, out of which [85 (84.15%)] were male and [16 (15.85%)] were female.

Table 1: Distribution of patient according to Age

Age	No. of students
20	25
21	17
22	22
23	13
24	12
25	12

Graph 1: Distribution of students according to age

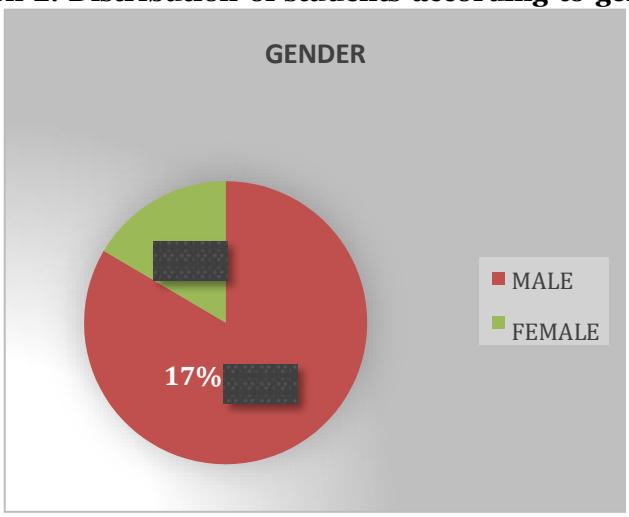


The above graph shows that the age of participant range is 20 to 25 years, in which the maximum no. of students is of 25 (24.7%) participants were in the age group of 20 years.

Table 2: Distribution of students according to gender

Gender	No. of students
Male	85
Female	16
Total	101

Graph 2: Distribution of students according to gender



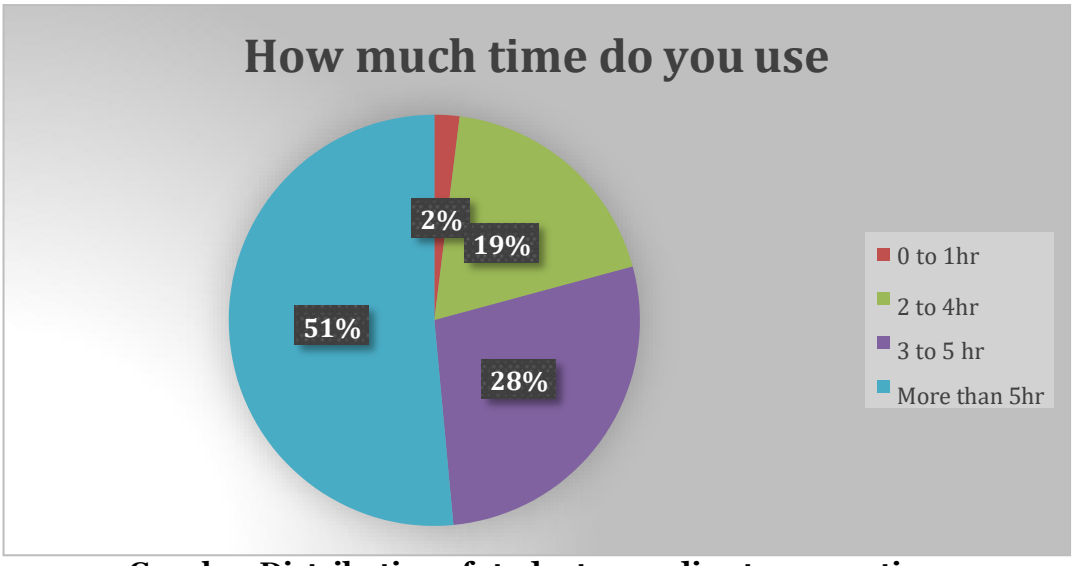
The above graph shows that out of 101 students there are 85 (84.15%) Male and 16 (15.85%) Female students are included.

Table 3: Table of computer users

Are you a computer user	
YES	101
NO	0

How much time do you use	
0 to 1hr	2
2 to 4hr	19
3 to 5hr	28
More than 5hr	52
Total	101

Table 4: Table showing approximate screen time

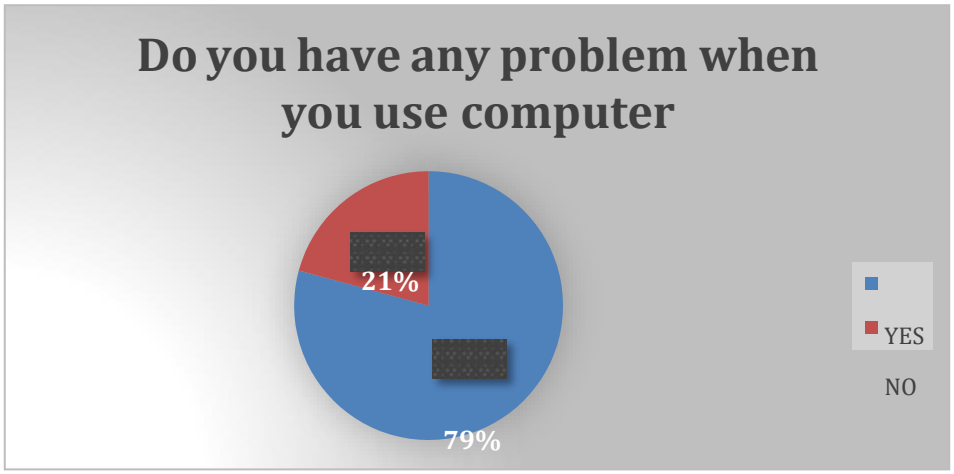


Graph 4: Distribution of student according to screen time

The above graph shows that the majority of the students were using a digital screen for more than 5hr i.e. 52/101 (51%) students were using more than 5hr screen time, 28/101 (28%) were using a digital screen for around 3 to 5hr daily, 19/101 (19%) were using digital screen for 2 to 4hr and 2/101 (2%) were using around 0 to 1hr which is negligible screen time in daily. The present study found that increase in the no. of hours spent on laptop or phones increase the risk of CVS significant. Students who spend less that 3hr per day on screen daily reported only a single or even no symptoms. Computer usage time of more than 5hr is found to be significantly associated with visual symptoms.

Table 5: Table showing the study subject with computer vision syndrome

Do you have any problem when you use computer	
YES	80
NO	21
Total	101



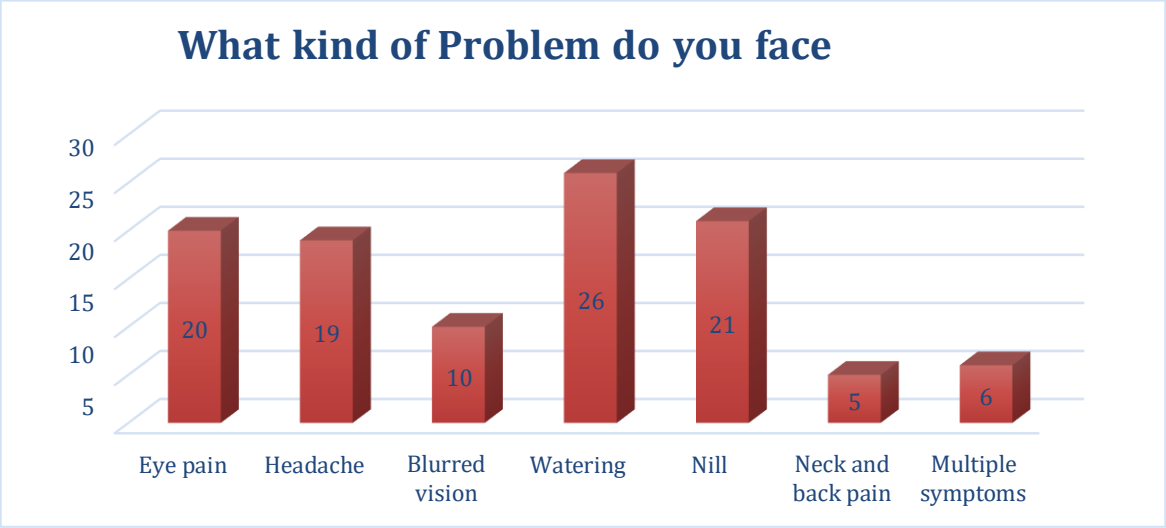
Graph 5: Graph show that the study subject with computer vision syndrome

The above graph show that a total 101 undergraduates students were included in the study in which80/101 (79%) of the student were have incidence of computer vision syndrome UG students.
‘

Table 6: Table showing the symptoms of computer vision syndrome.

What kind of problem do you face	
Eye pain	20
Headache	19
Blurred vision	10
Watering	26
Nil	21
Neck and back pain	5
Total	101

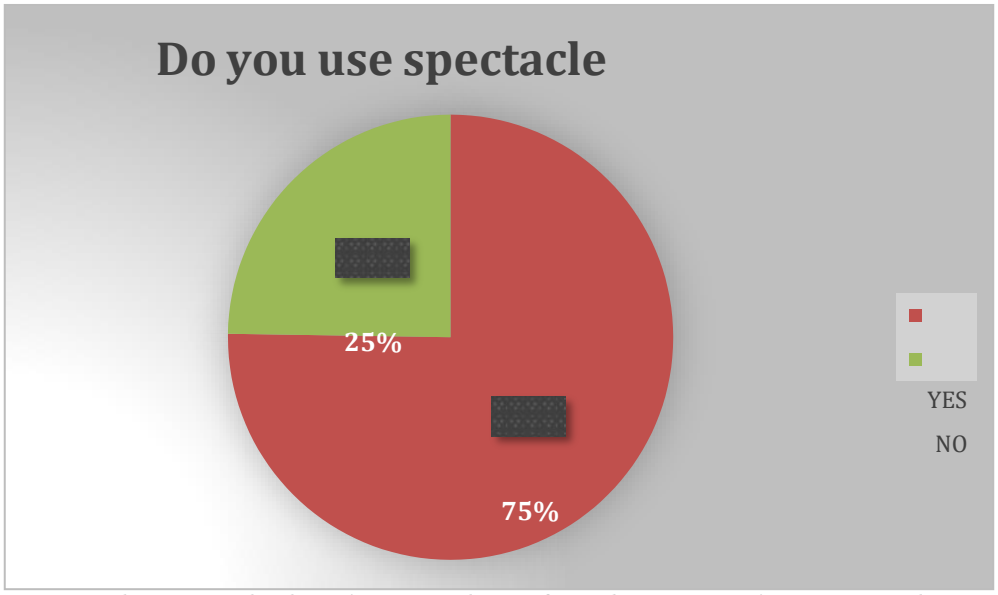
Graph 6: Graph shows the symptoms of computer vision syndrome.



Among 80/101 students having CVS, they had experience at least one symptoms of computer vision syndrome. The symptoms experienced in the study includes 26/80 (32.5%) i.e. maximum watering of eye, 20/80 (25.0%) eye pain, 19/80 (23.75%) headache, 10/80 (12.5%) blurring of vision and 5/80 (6.25%) which is neck and back pain.

Table 7: Table showing Number of students wearing spectacles

Do you use spectacles	
YES	76
NO	25
Total	101

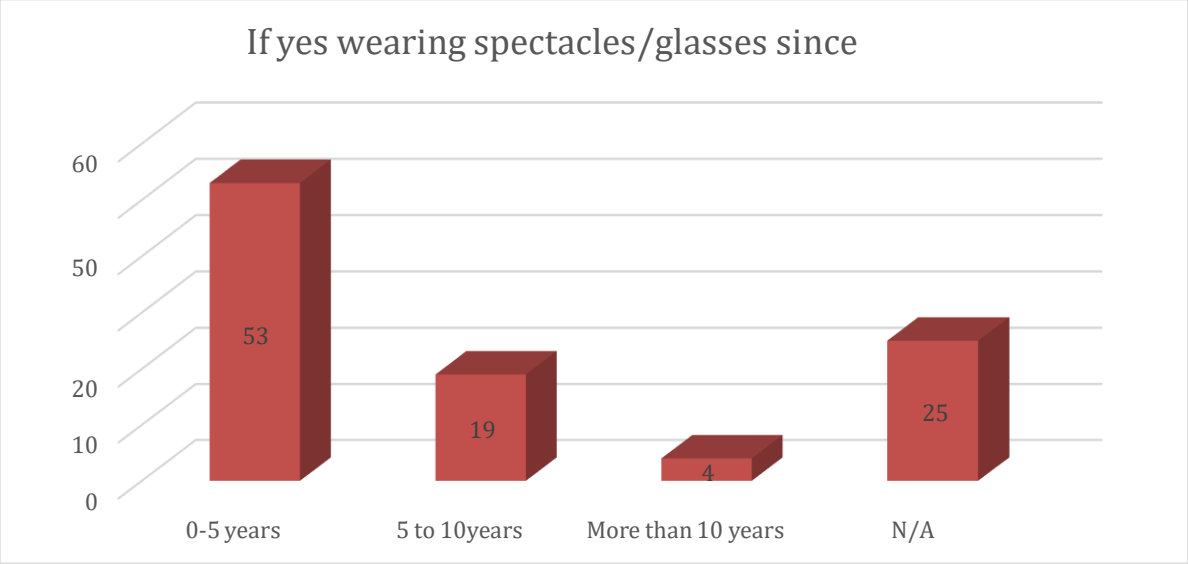


Graph 7: Graph showing number of students wearing spectacles

Above graph show that of the total 76(75%) students who were wearing spectacles and 25 (25%) students don't wearing spectacles.

Table 8: Table showing spectacle history.

If yes wearing spectacles/glasses since	
0-5 years	53
5 to 10years	19
More than 10 years	4
N/A	25
Total	101

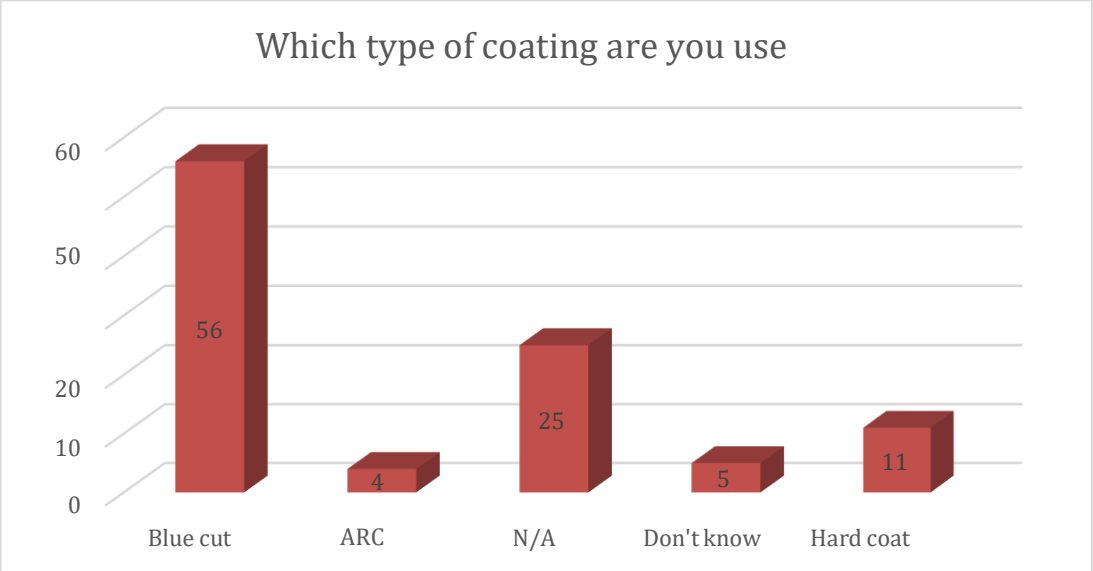


Graph 8: Graph showing spectacle history.

Above graph show that the maximum i.e. 53/76 (52.47%) students were wearing spectacles since 0 to 5years, 19/76 (18.81%) students wearing spectacles since 5 to 10years and 4/76 (3.96%) students were wearing spectacles for more than 10years.

Table 9: showing the distribution of type of spectacle coatings.

Which type of coating are you use	
Blue cut	56
ARC	4
N/A	25
Don't know	5
Hard coat	11
Total	101

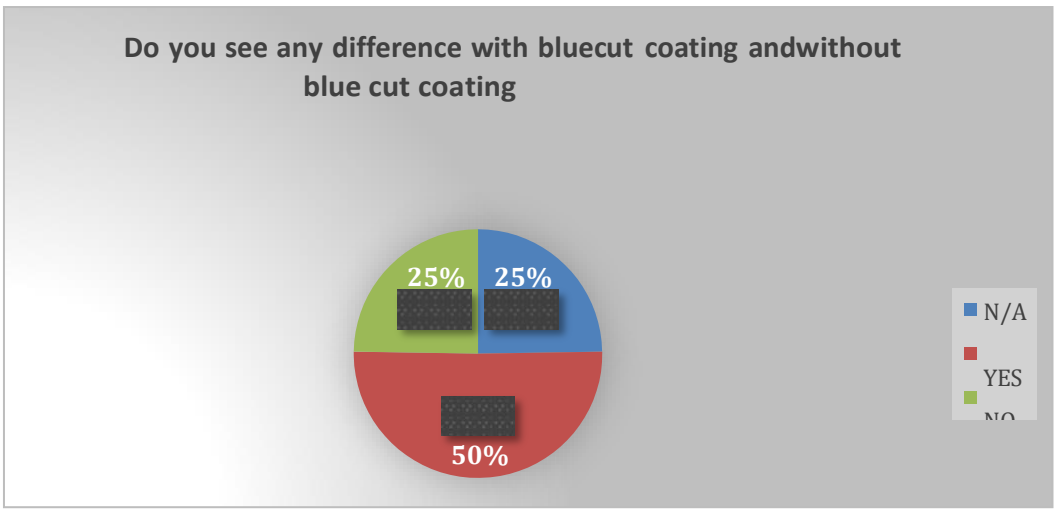


Graph 9: Graph showing types of coating on spectacles.

The above graph show that maximum i.e. 56/76 (73.68%) participants used to wear blue cut coating glasses, 4/76 (5.26%) student use to wear ARC coating and rest of them are used hard coat which is 11/76 (14.47%) and 5/76 (6.57%) don't know which type of coating they are uses.

Table 10: Distribution according to changes with blue cut coating and without blue cut coating.

Do you see any difference with blue cut coating and without blue cut coating	
N/A	25
YES	51
NO	25
Total	

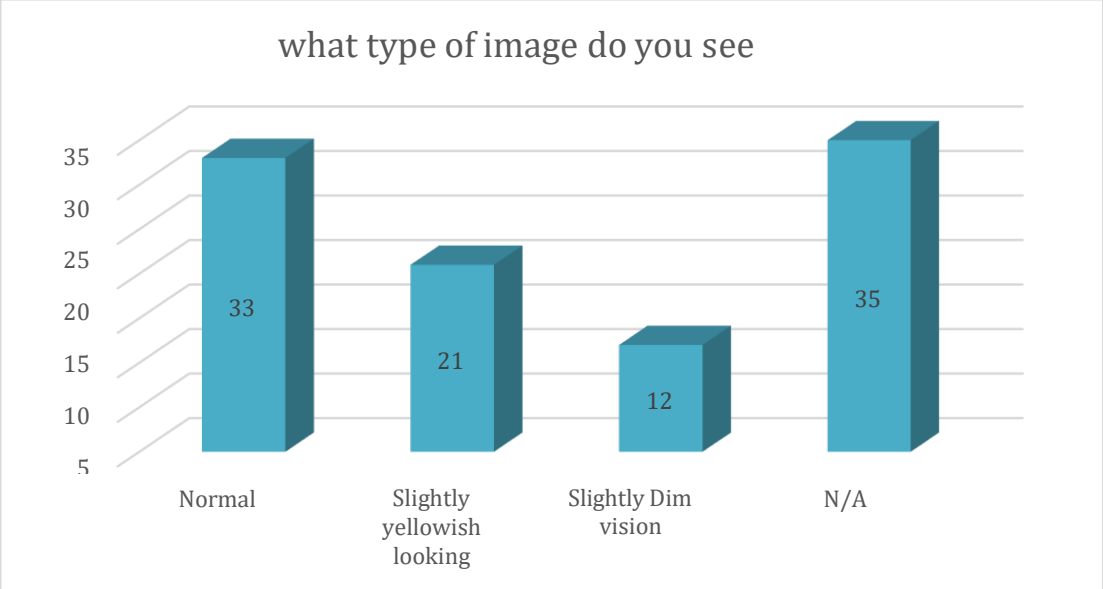


Graph 10: Graph according to changes with blue cut coating and without blue cut coating glasses

In the above graph show that out of 76 students 51 (50%) student feel a changes with blue cut coating glasses and 25 (25%) students feel no any changes when they wear blue cut coating glasses and 25 (25%)student were not applicable.

Table 11: Distribution according to type of image visible

what type of image do you see	
Normal	33
Slightly yellowish looking	21
Slightly Dim vision	12
N/A	35
Total	101



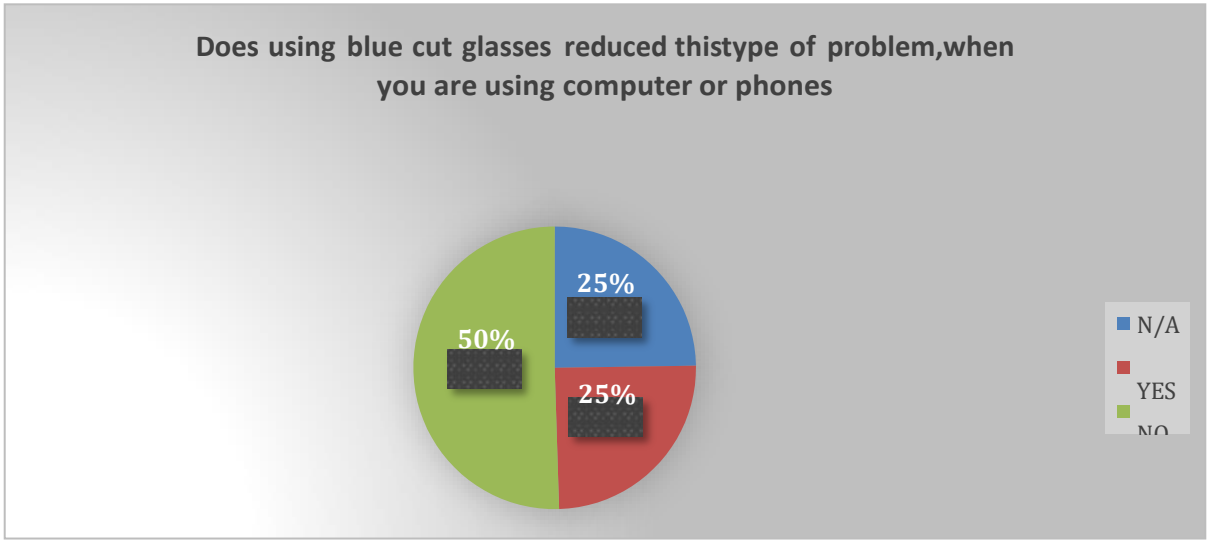
Graph 11: Graph according to type of image visible

The above graph show that out of 76 students 33/76 (32.67%) students feel no change in image which is normal looking, 21/76 (20.79%) student feel that images slightly yellowish looking and 12/76 (11.88%) students feel that images slightly dim looking and rest of them are not applicable.

Table 12: Table showing blue cut glasses reduced this type of problem of not.

Does using blue cut glasses reduced this type of problem, when you are usingcomputer or phones like eye strain ,irritation, eye pain, headache.	
N/A	25
YES	25
NO	51
Total	101

Graph 12:



The above graph shows that out of 101 students 25/101 (25%) student feel that blue cut glasses work it feel comfortable it reduced this type of problem when they works on the computer or using phones, 51/101 (50%) student don't feel that blue cut glasses reduced this type of problem it can't work and rest of them i.e.25/101 (25%) which is not applicable for this.

Table 14: Distribution of ocular

Do you have any type of allergies	
YES	0
NO	101
Total	101
Do you have any eye disease or any traumatic conditions	
YES	0
NO	101
Total	101

Graph 14: Distribution of graph according to eye diseases.

In this particular study, A total 101 undergraduates students were included in the study based on the inclusion criteria, of 80 (79.0%) were male while 21 (21%) where female. In the present study (79%) reported that they had experienced at least one symptoms of computer vision syndrome in last 3 to 5 months. This figure is remarkably similar as compare to previous studies by ranganath [5] in the reported a prevalence of computer vision syndrome is (86.67%), logaraj [1] et al. reported (80.3%) prevalence of computer vision syndrome among medical and engineering students in Chennai [3]. Ghufran [6] et al. reported (95%) prevalence of computer vision syndrome in king abdulaziz university Saudi Arabia.
Sanjay et al. reported the prevalence of computer vision syndrome was found (97.2%) [5]. that is high as compare to present study.
The most common symptoms of computer vision syndrome reported in the present study were watering of eye (32.5%), Headache which is (23.75%), eye pain (25%), blurring of vision (12.5%), Neck or back pain (6.25%). Similarly john rozar [8] et al. reported symptoms of watering of eye (52%), headache (42%) which is very high [4]. Khola [9] Noreen et al. reported headache (71%), watering (2.1%), blurred vision (6.4%) university of rawalpindi Pakistan which is reported low symptoms [6]. Similarly in the study of ranganatha et al. reported (83.5%) headache, eye strain (64.6%), blurred vision (23.9%) were the most prevalence ocular symptoms [1].
Computer vision syndrome was more common among student working on screen for more than 5hr per day is (51%), similarly computer vision syndrome symptoms were commonly observed among the student i.e. (63.9%) who used computer for more than 4-6hrs in the study by ranganatha [1]. Many studies have proved that an increase in number of hours spend on the computer increases the risk of computer vision syndrome significantly.

Discussion

In the present study (75%) students wore glasses in which most of them wore blue cut glasses in which maximum students did not feel any changes when they wore blue cut glasses. And also it was noticed that maximum students didn't feel that blue cut glasses don't fix eyestrain, irritation, eye pain, and headache.

Which is similar study to sumer singh [10] et al. reported blue blocking lenses did not alters sign or symptoms of eye strain with computer use. Whereas some students feel that blue cut glasses work its feel comfortable on eye, it reduced this type of problem.
Visual problems have been known to lead to 4-8% slower performance on occupational tasks [12]. The interruptions in the computer work of the students posed by the headaches and dry eyes, as seen in the study could prove to decrease their productivity and hence needs to be addressed.
Computer eyestrain is identified to occur due to frequent, long saccadic movements, continuous accommodation changes and continuous changes in alignment (vergence). The visual fatigue results when the stress caused by these movements on the musculature of the eye exceeds the visualperformanceability.[13]

Conclusion

The present study shows that maximum UG students are affected by computer vision syndrome that is they possess at least one symptoms of computer vision syndrome. Those students who use computer or phones for more than 5hr daily were at a higher risk of developing computer vision syndrome when compare to student who spend some time or hour and take frequent breaks. Even the use of screen had not yet proven to cause any permanent damage to the eye, but studies have proven that temporary discomfort reduced the efficiency of work. It needs to update the students with necessary knowledge regarding the preventive aspect of the current conditions. And also there is no significant change was found when someone use blue cut glasses and without blue cut glasses i.e. looking normal vision.

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