# COMPUTER VISION SYNDROME IN MEDICAL STUDENTS AMID THE COVID-19 PANDEMIC

CODE: 1327511

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# FINANCIAL DISCLOSURE
# NO CONFLICT OF INTEREST

# INTRODUCTION:

- Multiple lockdowns & social distancing due to the COVID-19 pandemic have cut face to face interactions & interrupted various activities like education, work & recreation.
- This led to a sharp increase in digitalizing of almost all activities as an alternative.
- To continue their education, students have turned to online platforms for their classes and studying.
- However, Our eyes have not yet evolved to stare continuously at digital screens all day.

- This invariably lead to a multitude of symptoms like blurred vision, diplopia, tired eyes, headache, itchiness, glare, stiff neck etc. collectively called as **computer vision syndrome.**
- Computer vision syndrome, also known as digital eye strain is a term used for a complex of visual & musculoskeletal symptoms as a result of prolonged usage of digital devices.

- **AIM:**
- To evaluate the prevalence of digital eye strain in medical students during the covid pandemic.

- **OBJECTIVES:**
- To evaluate the burden of digital eye strain in medical students via a customized questionnaire.
- To improve the quality of life by educating the students about computer vision syndrome & how to ameliorate it.
- To further evaluate students with severe symptoms and provide appropriate treatment.

# MATERIALS & METHODS:

- STUDY DESIGN: cross sectional observational study
- STUDY PERIOD: June 2021- August 2021 (3 months)
- STUDY SETUP: Study was conducted in Department of Ophthalmology, Andhra Medical College.
- SAMPLE SIZE: 200 patients
- INCLUSION CRITERIA: medical students who consented to the study are included.
- EXCLUSION CRITERIA: students with a history of ocular disease or ocular surgery were excluded.

# METHODOLOGY

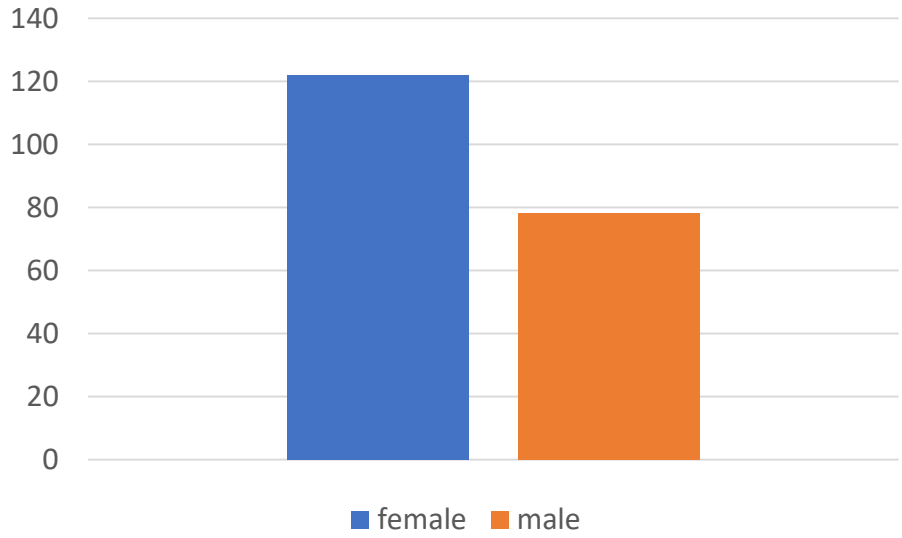
- All students included in the study were explained about the details of the study & consent was taken from them.
- They were asked to complete a questionnaire which was compiled particularly for this study.
- The questionnaire addresses demographic data, ocular symptoms (by OSDI ), behavior of digital devices usage, other musculoskeletal symptoms & knowledge of digital eye strain.

# QUESTIONNAIRE:

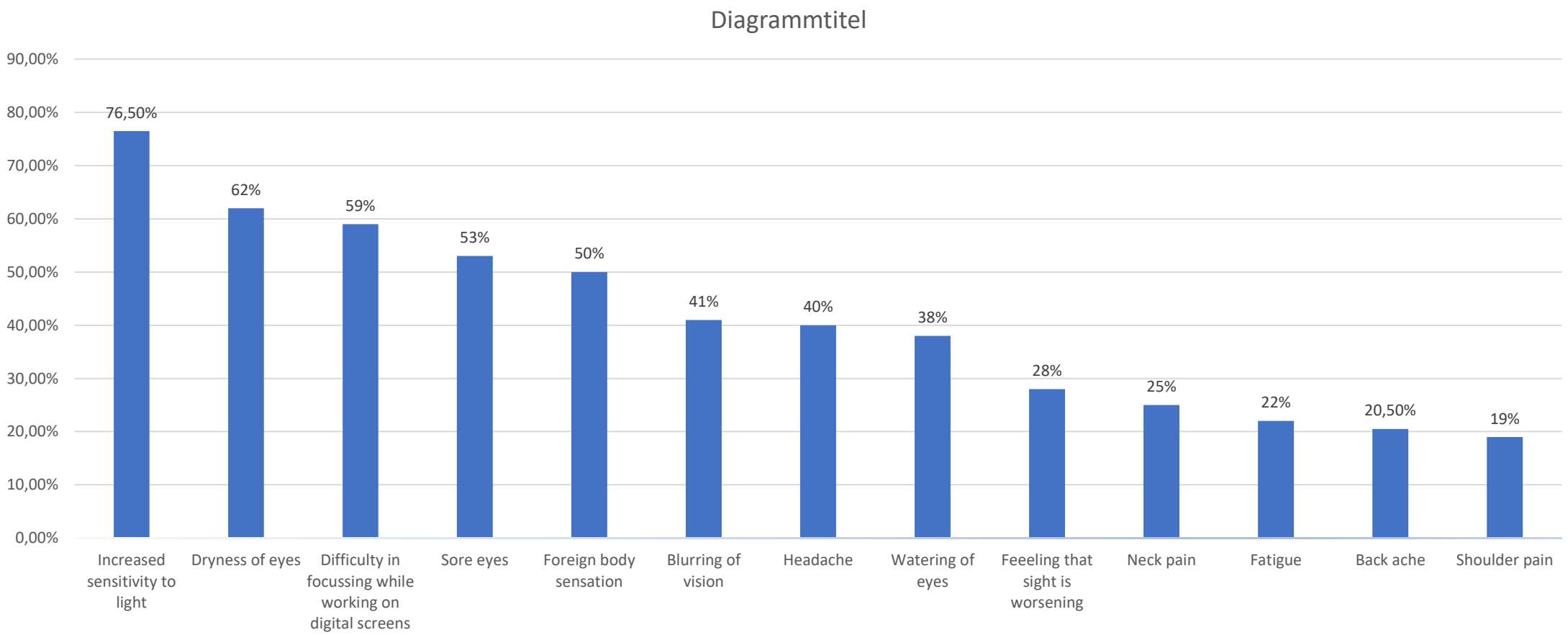
- Name:
- Age:
- Sex:
- Do you consent to this study?  Yes/No
- Are your eyes sensitive to light? Yes/No
- Do your eyes feel gritty? Yes/No
- Do you have painful or sore eyes? Yes/No
- Do you have blurring of vision? Yes/No
- Do you have poor vision? Yes/No
- Do you have problems with eyes while reading/ driving/ watching TV or working on a digital screen? Yes/ No
- Have eyes felt uncomfortable in windy conditions/ places with low humidity/ air conditioned rooms? Yes/ No
- Do you have the following symptoms? Headache/ Fatigue/ Neck pain/ Shoulder pain/ Back pain
- Do you have history of any ocular diseases/ ocular surgery? Yes/ No
- How many hours do you spend on digital devices-
- How well is your room illuminated- bright/dim/dark
- What is your average viewing distance- <40cms/40-75cms/>76cms
- What is your seating position while using digital devices? Sitting upright/ sitting with bending back/ lying down
- how often do you take breaks while using digital devices? Every 30mins/ every 1hour/ >1hour
- Are you aware of the 20-20-20 rule? Yes /No

# RESULTS

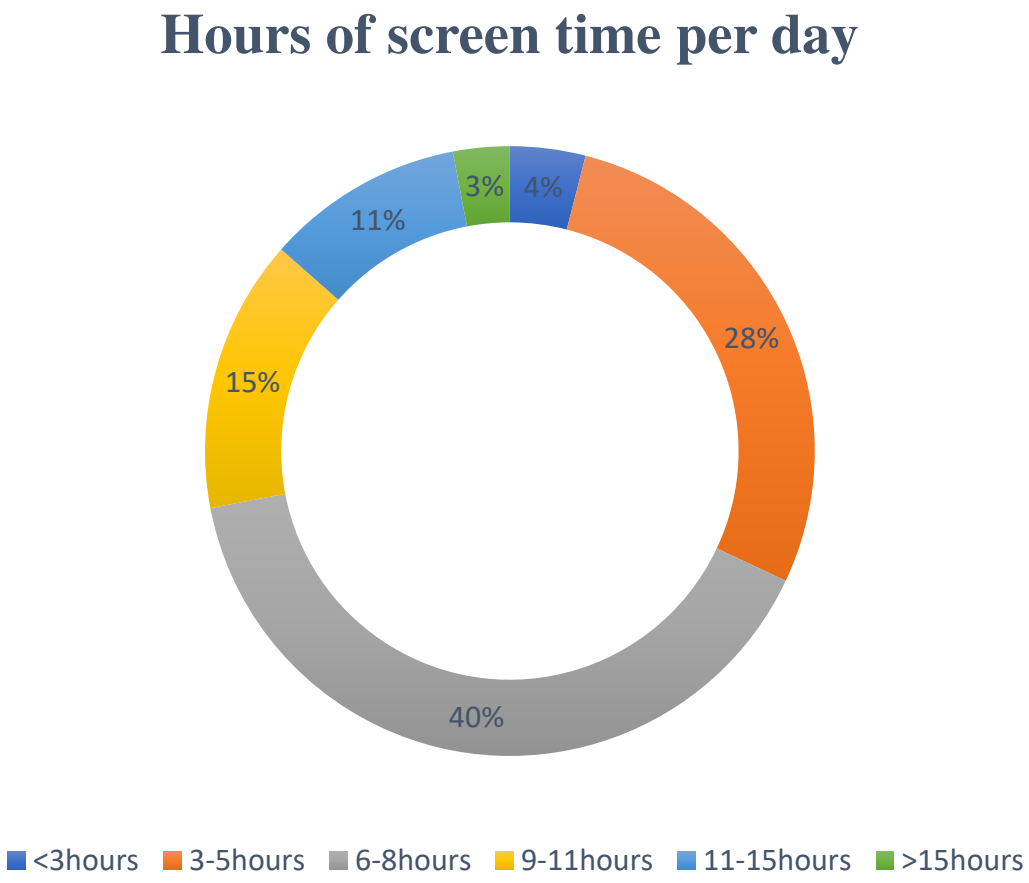
- **Demographic features:**
- The study included a total of 200 undergraduate students out of which 61%(122)were females & 39%(78) were males.
- The age ranged from 19-22 years.



# Prevalence of symptoms of digital eye strain-



# Behavioural trends of using digital screen




Only 23.5% of the study population had knowledge of 20-20-20 rule.

| Illumination of room | Bright | Dim | Dark |
|---|---|---|---|
| % of study population | 75% | 21% | 4% |

| Average viewing distance | <40 cms | 40-75cms | >76cms |
|---|---|---|---|
| % of study population | 57% | 39.5% | 3.5% |

| Seating position | Sitting upright | Sitting with bending back | Lying down |
|---|---|---|---|
| % of study population | 22% | 41% | 37% |

| how often breaks were taken | Every 30 mins | Every hour | >1hour |
|---|---|---|---|
| % of study population | 34% | 39.5% | 26.5% |

# DISCUSSION

- Due to the unavoidable usage of digital screens that had to be incorporated into our lifestyle, our eyes have become a major victim to fatigue & stress.
- In total, 93.5% of the study population experienced at least one symptom associated with digital device usage.
- In 2014, a study conducted in Chennai by Logaraj et al reported a prevalence of 78.6% among medical students. This significant shift can be explained by increase in duration of digital devices.

- The number of & the severity of symptoms became greater due to the increased screen time per day(avg of 8 hours/day).
- In this study, The most common symptom was increased sensitivity of eyes to light(76.50%) followed by feeling of dryness of eyes(62%).
- A study conducted in north India by Titiyal JS et al demonstrated nearly similar pattern of symptoms where individuals spending >4hours on digital devices were found to have dry eyes.
- In addition to ocular symptoms, systemic symptoms like headache, neck pain, back ache showed significant increase with digital use.
- Also, most of the study population do not practice good posture leading to an increase in asthenopic & systemic symptoms.

# CONCLUSION:

- Computer vision syndrome is a classic example of a preventable lifestyle induced health issue & measures should be taken to curb the symptoms.
- A rule of thumb is the **20-20-20 rule** i.e. after every 20 mins of screentime, a 20 second break should be taken to focus on an object 20 feet away should be implemented.
- A pair of prescription glasses with a small plus power that a person can wear while working with digital devices to alleviate the eye strain can be tried.
- In people with severe dry eye symptoms preservative free artificial tear drops can be prescribed.

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