

PREVALENCE AND SYMPTOMS OF DIGITAL EYE STRAIN AMONG MEDICAL STUDENTS DURING COVID-19 PANDEMIC

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INTRODUCTION

- Digital eyestrain is a group of eye and vision-related problems that result from prolonged computer, tablet, e-reader and cell phone use^[1]
- It is most common eye problem characterized by symptoms such as dry eyes, itching, foreign body sensation, watering, blurring of vision, and headaches.^[2]



- Medical institutions in India closed in March, 2020 after the Covid-19 pandemic hit
- Online classes started soon afterwards and all students were required to attend classes through various e-platforms



- In this study, we aim to assess the prevalence and symptomatology of Digital Eye Strain(DES) among medical students during the COVID-19 lockdown
- This is a descriptive cross-sectional questionnaire-based study



- The undergraduate medical students were asked to fill an electronic - questionnaire.
- The survey included questions regarding their hours of digital device usage during the curfew and various factors related to DES



- The use of computers and digital screens for more than three hours a day makes the person at high risk of developing DES.
- The common ocular symptoms experienced in DES are headache, dry eye sensation, blurred vision, tearing, burning, itching and photophobia ^[3]



- The prevalence of digital eye strain is estimated to range from 25% to 93%, as reported in various studies. [4][5][6]
- Reddy *et al.* reported DES in 89.9% of students in their questionnaire-based study.[6]
- Higher prevalence rates of DES were observed in adolescents using smartphones whose screen time exceeded 2 hrs daily [7]



AIMS & OBJECTIVES

- The aim of the study is to determine the prevalence and symptoms of digital eye strain among medical students during COVID-19 pandemic



- INCLUSION CRITERIA:
- Undergraduate medical students
- Students who attended online classes regularly during COVID-19 pandemic
- EXCLUSION CRITERIA:
- Students with pre-existing dry eyes
- Students with pre-existing ocular pathologies other than refractive errors
- Students with uncorrected refractive errors
- Students who underwent ocular surgery



METHODS

- This cross-sectional questionnaire-based study was conducted among 117 undergraduate medical students studying in KMCH, Guntur.
- The study participants were asked to fill an electronic Google forms based questionnaire
- It was used to collect data on eyecare history, screen time spent on different devices, time spent for e-learning and on social media



- Participants were asked to fill the questionnaire.
- Consent was taken to include them in the study
- A total of 117 complete responses were received and all responses were taken for the study



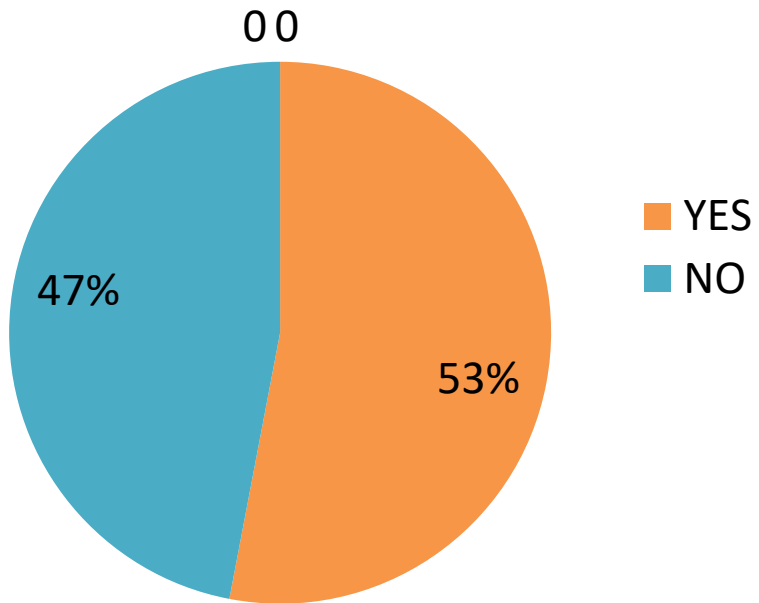
OBSERVATION AND RESULTS

- 117 students responded completely to the questionnaire
- Hours spent online

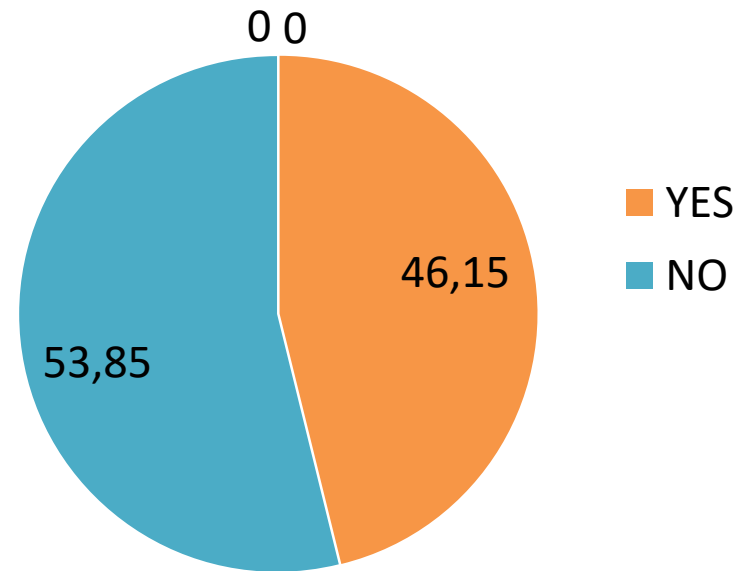
HOURS	%	NO OF STUDENTS
1-3	7.69	9
4-6	35.90	42
7-8	33.33	39
9-12	18.80	22
12-18	3.42	4
18-24	0.85	1



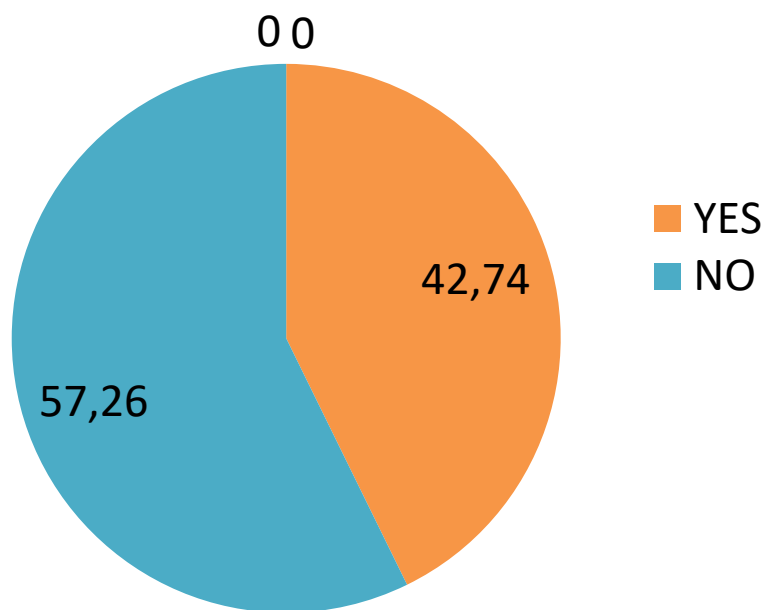
EYE FATIGUE



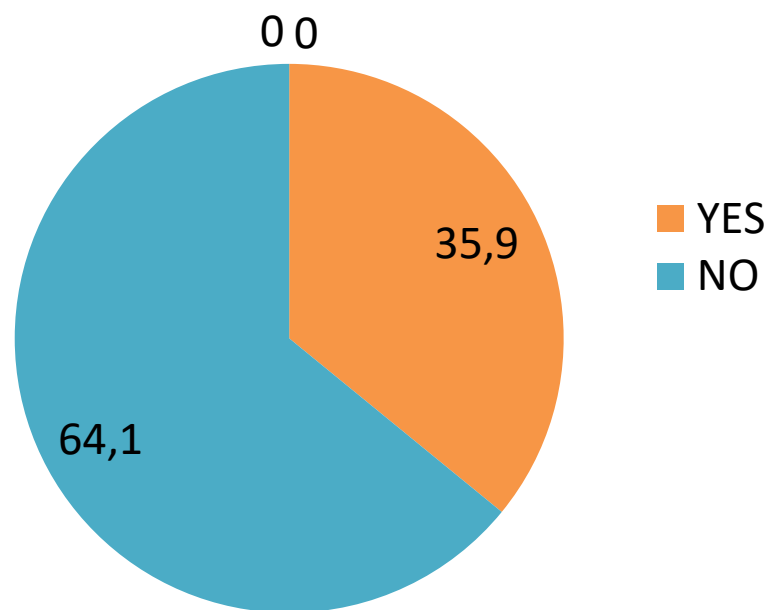
HEADACHE



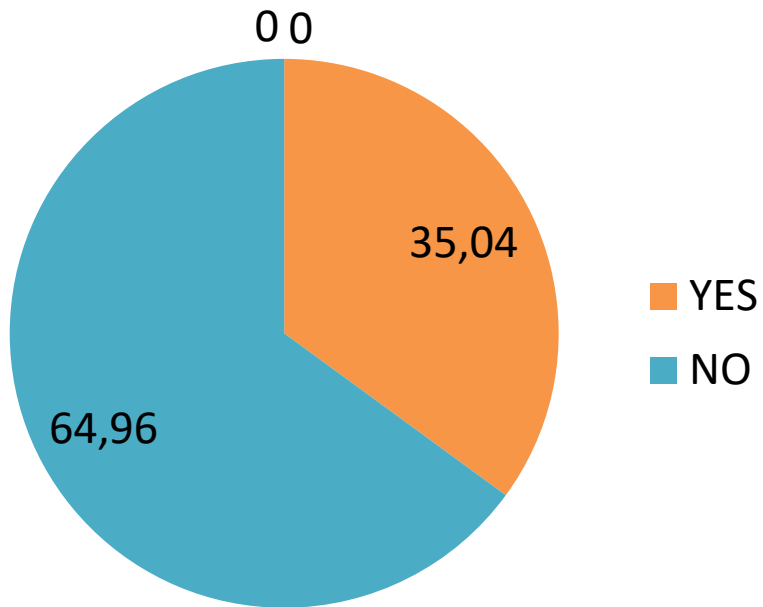
EYE PAIN



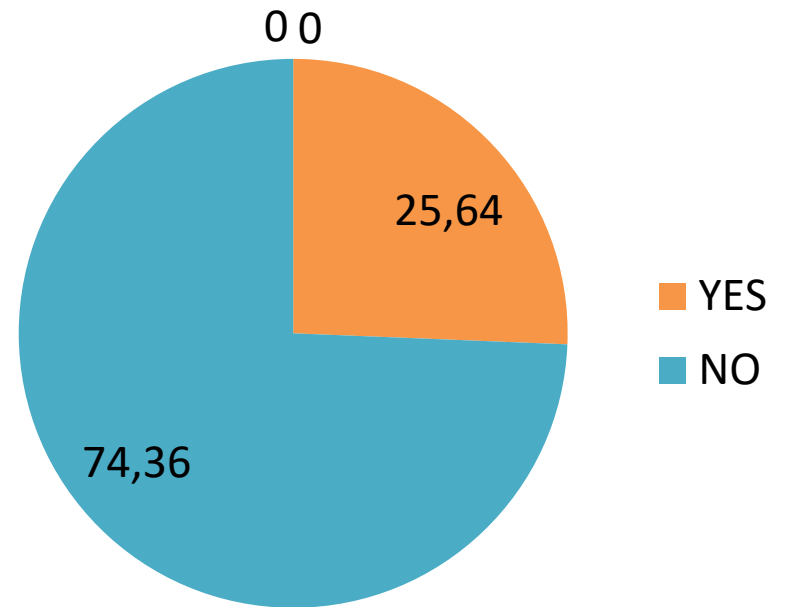
SENSITIVITY TO LIGHT



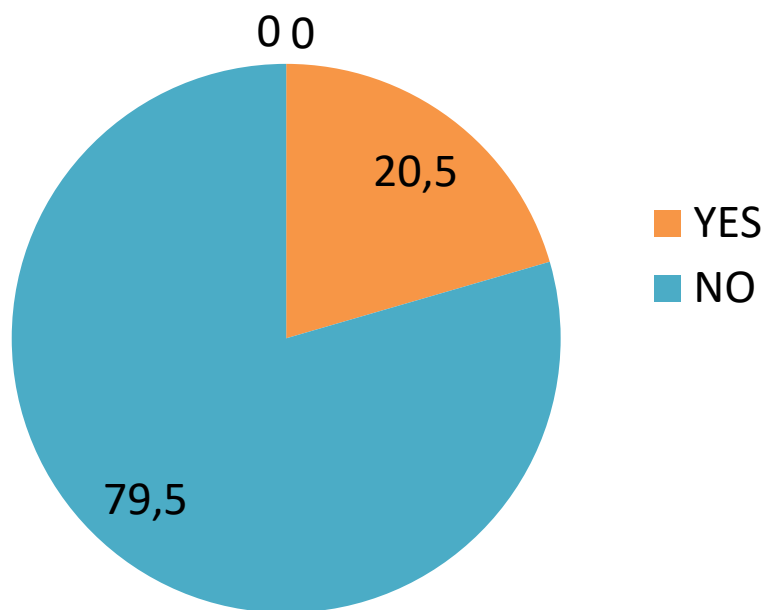
WATERING



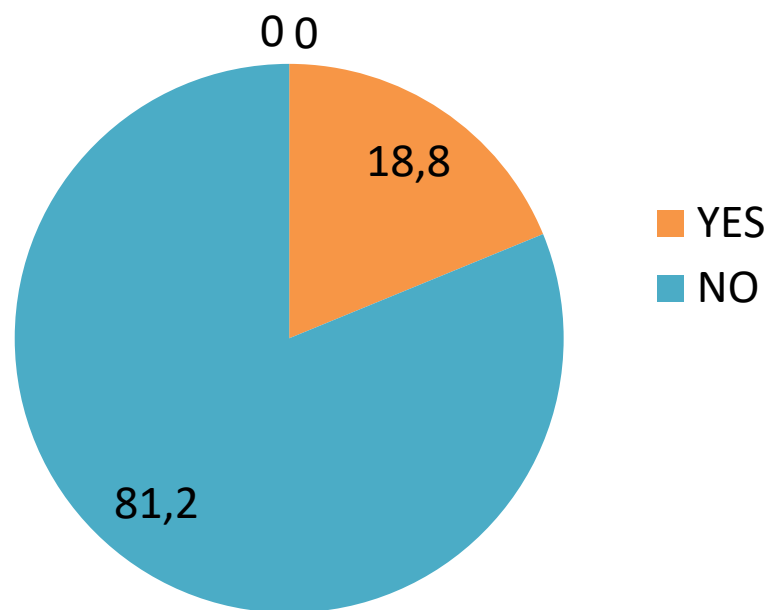
DRYNESS



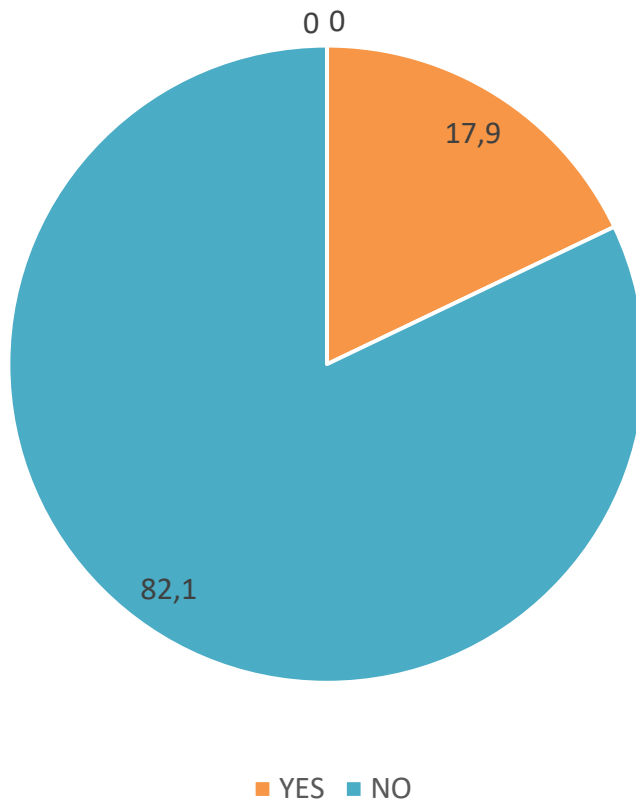
BLURRING OF VISION



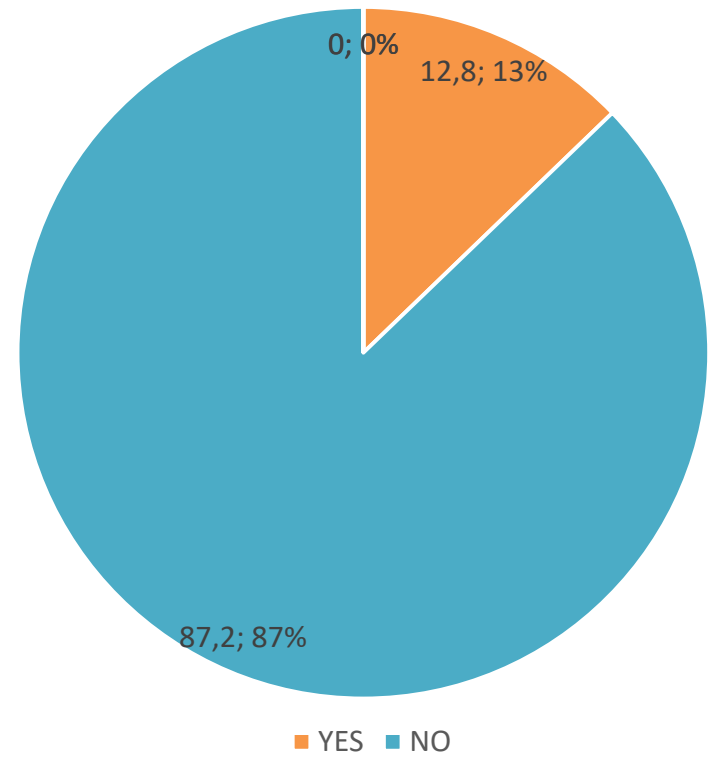
STINGING OF EYES



ITCHING



REDNESS



DISCUSSION

- Due to the spread of the COVID-19 pandemic worldwide, many states or central governments have decided to close schools in order to maintain social distancing, as means of halting the transmission of this deadly virus.
- However, the closure of schools has affected the education of more than 1.5 billion children and youth worldwide.^[8]



- In our research, most commonly reported symptom was eye strain trailed by headache
- Eye fatigue & Headache were the most common symptoms associated with digital eye strain according to American Optometric Association ^[9]



COMMON SYMPTOMS

- Eye ache
- Headaches
- Blurred vision
- Dry eyes
- Neck and shoulder pain

CAUSES

- Poor lighting
- Glare on a digital screen
- Improper viewing distances
- Poor seating posture
- Uncorrected vision problems



- 72.7% students complained of eye strain
- Of which, 66.7% were mild and 6% were moderate according to the students
- Solutions to digital screen-related vision problems are varied
- Eyeglasses or contact lenses prescribed for general use may not be adequate for computer work. Lenses prescribed to meet the unique visual demands of computer viewing may be needed. Special lens designs, lens powers or lens tints or coatings may help to maximize visual abilities and comfort



CONCLUSION

- This was a cross sectional study on 117 undergraduate medical students to assess the digital eye strain
- Limitation of this study was that digital eyestrain was assessed based on self reported symptoms and not by ophthalmic examination
- This study revealed that around three -fourth of the student population experienced at least one symptom of eyestrain
- Digital eye strain was seen in >50% of students and eye fatigue & headache were the most common symptoms reported.



- There is a need to provoke awareness among students concerning their health effects allied to prolonged usage of computers and mobiles for studying
- Intermittent exposure to digital screens with considerable refreshing breaks in-between online classes can be helpful



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Questionnaire

- Hours spent in e-learning per day
- Total hours spent including e-learning and other usage on phone or tablet or computer
 - 1 – 3
 - 4 – 6
 - 7 – 8
 - 8 – 12
 - >12 hrs



- DO YOU HAVE ANY OF THE SYMPTOMS BELOW

- ✓ STINGING OF EYES
- ✓ TEARINESS/WATERING
- ✓ ITCHING
- ✓ ACHING OF EYES
- ✓ DOUBLE VISION
- ✓ REDNESS
- ✓ BLURRING OF VISION
- ✓ SENSITIVITY TO LIGHT
- ✓ EYE FATGUE

YES
(or)
NO



- Any other associated symptoms? Do mention if any
- Refractive errors, if yes using corrected spectacles?
- HOW DO YOU RATE YOUR EYE HEALTH STATUS BEFORE AND AFTER USING E-LEARNING MODE
 - My eye health did not change
 - Mild deterioration in eye health
 - Moderate deterioration in eye health
 - Severe deterioration in eye health

