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BATES THERAPY ON EYE STRAIN

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ABSTRACT

Background: Eye strain, also called asthenopia or digital eye strain, is a common concern among college students who use smartphones, computers, tablets, and other digital devices for learning and recreation. Symptoms may include headache, dryness, burning, watering, blurred vision, and difficulty focusing.

Aim: To assess the prevalence of eye strain among college students in a selected college in Coimbatore.

Methods: A quantitative approach with a descriptive, non-experimental design was used. The study included 87 first-year physiotherapy students aged 18–23 years selected through purposive sampling. Data were collected using a researcher-developed questionnaire through Google Forms. Descriptive statistics, including frequency and percentage, were used.

Results: Of the 87 participants, 87.4% were aged 18–19 years and 70.1% were female. Headache was reported by 59.8%, blurred vision by 23%, repeated eye infection by 8%, and eye redness by 14.9%. Smartphones were the most used digital device. Screen-use duration varied across participants.

Conclusion: Eye-related complaints and digital-device exposure were notable among the students. Awareness, healthy screen habits, regular

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breaks, suitable lighting and posture, and timely eye examination may support eye health. The study describes prevalence-related findings; it does not establish the effectiveness of Bates Therapy.

Keywords: Eye strain, asthenopia, digital eye strain, college students, screen time, Computer Vision Syndrome, eye health.

INTRODUCTION

Digital devices have become an important part of college life. Students use smartphones, computers, and tablets for online learning, assignments, communication, and entertainment. Long periods of near work and screen exposure may be accompanied by eye fatigue, dryness, headache, blurred vision, and difficulty concentrating. These symptoms can cause discomfort and interfere with daily activities.

Bates Therapy refers to a set of historical relaxation practices associated with William Bates, including palming, blinking, shifting, and relaxation. Such practices may be discussed as complementary relaxation approaches, but this manuscript's descriptive design does not test whether Bates Therapy reduces eye strain. Persistent or worsening visual symptoms require appropriate assessment by an eye-care profession

Objectives

- To assess eye-strain-related symptoms among college students.
- To identify selected factors associated with eye strain, including screen use and reported visual symptoms.
- To provide an information pamphlet regarding the prevention of eye strain.

METHODOLOGY

3.1 Research Approach and Design: A quantitative research approach and a non-experimental descriptive design were used to assess the prevalence of eye-strain symptoms among first-year physiotherapy students at PPG College of Physiotherapy, Coimbatore.

3.2 Setting, Population and Sample: The study setting was PPG College of Physiotherapy, Coimbatore. The target population was college students, and the accessible population consisted of first-

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year physiotherapy students. The sample included 87 students aged 18–23 years with purposive sampling.

3.3 Criteria for sample selection:

Inclusion criteria: first-year physiotherapy students aged 18–23 years, of any gender, who were available during data collection and willing to participate.

Exclusion criteria:First-year physiotherapy students who were not available during data collection, unwilling to participate in the study, or unable to provide the required information were excluded from the study. Students who did not meet the specified age criteria of 18–23 years were also excluded

3.5Description of the tool:

Section I: Demographic variables, including age, gender, year and course of study, residence, family details, parental education, family income, residence status, and diet type.

Section II: Factors and history related to eye strain, including headache, blurred vision, eye infection, redness, neck or shoulder pain, photosensitivity, sleep disturbance, screen time, device use, spectacle use, reported eye problems, and selected health history.

Section III: Self-reported symptoms, including burning, itching, gritty sensation, watering, excessive blinking, redness, eye pain, heavy eyelids, dryness, blurred or double vision, difficulty focusing, light sensitivity, coloured halos, headache, and perceived worsening eyesight.

3.4 Data Collection

Data were collected using a researcher-developed questionnaire through Google Forms. The tool covered demographic information, factors related to eye strain, and self-reported symptoms such as burning, itching, dryness, redness, blurred vision, headache, and difficulty focusing.

Ethical Considerations

Approval was obtained from the principal of PPG College of Physiotherapy. Participants were informed about the study purpose, and

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oral consent was obtained before data collection. Confidentiality was maintained.

Technique of Data Analysis and Interpretation

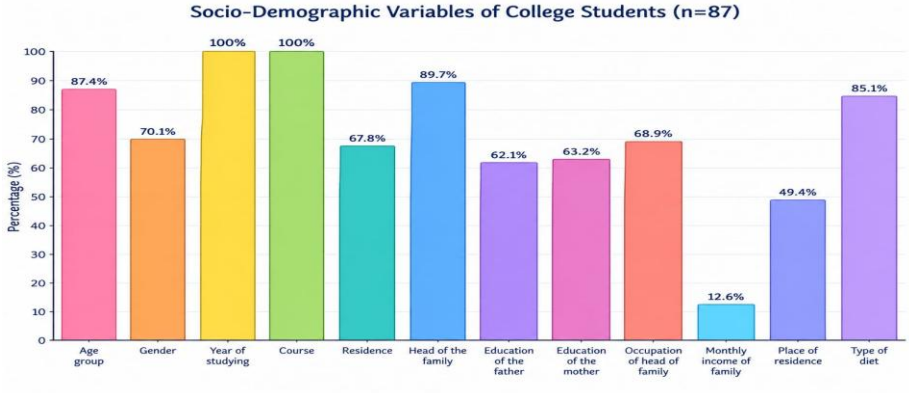
Responses from the 87 participants were organized, coded, tabulated, and analysed using descriptive statistics. Frequency and percentage were used to summarize demographic variables and self-reported eye-strain symptoms. Results were presented in tables and diagrams where appropriate.

Percentage was calculated using the formula: Percentage = (Frequency ÷ Total number of participants) × 100. Here, the total sample was 87. The frequency represents the number of participants in a category, and the percentage indicates the proportion of the sample represented by that category.

DATA ANALYSIS AND INTERPRETATION

SECTION 1: SOCIO DEMOGRAPHIC VARIABLES

Figure No:1: percentage distribution of socio demographic variables among students with eye strain

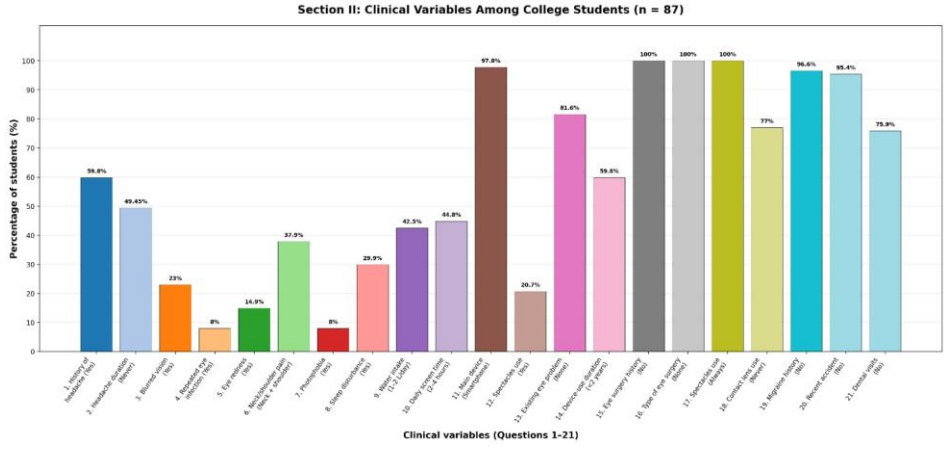


The major findings revealed that among 87 students, 76 (87.4%) were aged 18–19 years, 61 (70.1%) were female, and all 87 (100%) were first-year medical students. Regarding residence, 59 (67.8%) were from urban areas, and the father was the head of the family for 78 (89.7%) students. Concerning parental education, 54 (62.1%) fathers and 55 (63.2%)

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mothers had secondary education, while 27 (31.1%) of both fathers and mothers held degrees. Regarding occupation, 44 (50.6%) family heads worked in the private sector, while 60 (68.96%) students belonged to families with a monthly income of ₹10,000–₹50,000. Furthermore, 44 (50.6%) were hostellers, 43 (49.4%) were day scholars, 74 (85.1%) consumed a non-vegetarian diet, and 13 (14.9%) consumed a vegetarian diet.

Figure no:2 percentage distribution of clinical variables among students with eye strain

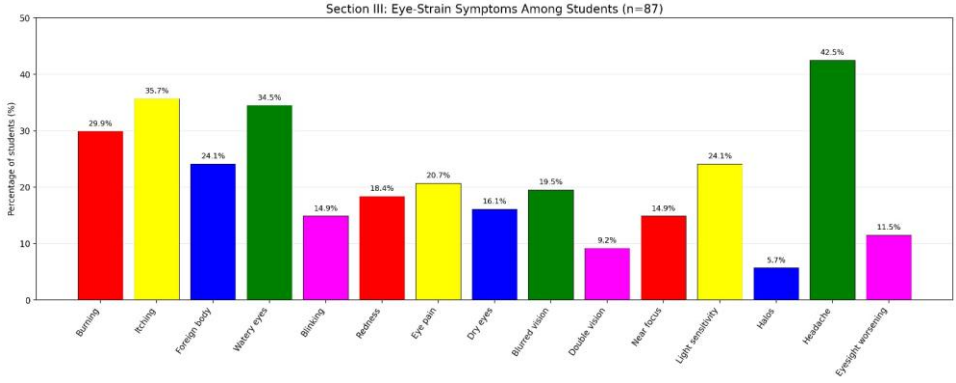


The major findings among 87 college students revealed that 59.8% had a history of headache, 49.45% experienced headaches occasionally, and 23% reported blurred vision. Repeated eye infection and photophobia were reported by 8% each, while 14.9% had eye redness; 37.9% experienced both neck and shoulder pain, and 29.9% had sleep disturbances. Regarding lifestyle, 42.5% consumed 1–2 litres of water daily, 44.8% used digital screens for 2–4 hours daily, and 97.8% primarily used smartphones. Additionally, 20.7% used spectacles, 13.8% had myopia, 4.6% had hyperopia, 59.8% had used digital devices for less than 2 years, and 100% had no history of eye surgery. Furthermore,

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96.6% did not use contact lenses, 73.6% had no history of migraine, 95.4% reported no recent accident, and 75.9% had not visited a dentist.

Figure no: 3 percentage distribution of variables among students with eye strain



The major findings among 87 college students revealed that 66.7% never experienced burning sensation in the eyes, 63.2% never had itching or watery eyes, and 73.6% never experienced a foreign-body sensation. Furthermore, 80.5% never experienced excessive blinking, 79.3% had no redness of eyes, 74.7% reported no eye pain, and 77% never experienced dry eyes. Regarding visual disturbances, 75.9% never experienced blurred vision, 89.7% had no double vision, and 82.8% had no difficulty focusing on near objects. Additionally, 73.6% never experienced sensitivity to light, 93.1% never observed coloured halos around objects, and 51.7% never experienced headaches, while 42.5% experienced headaches occasionally. Finally, 85% never felt that their eyesight was worsening, whereas 11.5% experienced this occasionally and 3.5% often or always.

DISCUSSION

Findings related to socio/demographic variables: The study sample compressed of 87 students. Out of 87 students according to the age in years, majority 76 (87.4%) belonged to the age category of 18- 19 years, 10 (11.5%) belonged to the age category of 20-21 years, 1 (1.1%)

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belonged to the age category of 22-23 years. With regarding to gender of the students, majority 71 (70.1%) were Female and 26 (29.9%) were Male. In the year of studying students 87 (100%) in First year. With regarding to student's course 87 (100%) were Medicine, 0 (0%) were Allied Health, Nursing, Arts and Science. In the residence of student's majority Urban 59 (67.8%) were Rural 28 (32.2%). According to the head of the family majority Father 78 (89.7%), were Mother 9 (10.8%). According to education of father 3 (3.4%) were Primary, 54 (62.0%) were Secondary 27 (31.0%) were Degree 3 (3.4%) were Illiterate. According to the education of mother 2 (2.2%) were Primary 55 (63.2%) were Secondary 27 (31.0%) were Degree 3 (3.4%) were Illiterate. With regarding to occupation of head of the family majority Private 44 (50.6%) were Government 11 (12.6%), Unemployment 2 (2.3%) Other 30 (34.5%). According to monthly income of students 10 (11.4%) belonged 10000, 60 (68.96%) were 10000-50000, 11 (12.64%) were 50000-100000, 6 (7%) were above 100000.With regarding to the hosteller or day scholar of the students 44 (50.6%) were Hosteller, 43 (49.4%) were Day Scholar. According to type of diet majority non-Veg 74 (85.1%) were Veg 13 (14.9%).

Findings related to clinical variables: Regarding the clinical variables among the 87 college students, the findings revealed that 52 (59.8%) students had a history of headaches, whereas 35 (40.2%) did not. Regarding the duration of headaches, 43 (49.45%) students never experienced headaches, 43 (49.45%) experienced headaches occasionally, and 1 (1.1%) experienced headaches often or always. Concerning the history of blurred vision, 20 (23%) students reported blurred vision, while 67 (77%) did not. Regarding the history of repeated eye infections, 7 (8%) students reported eye infections, whereas 80 (92%) did not. In relation to eye redness, 13 (14.9%) students experienced redness of the eyes, while 74 (85.1%) did not. Regarding neck and shoulder pain, 12 (13.8%) students experienced neck pain, 10 (11.5%) experienced shoulder pain, 33 (37.9%) experienced both neck and shoulder pain, and

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32 (36.8%) reported no pain. Concerning photophobia, 7 (8%) students reported sensitivity to light, whereas 80 (92%) did not. Regarding sleep disturbance, 26 (29.9%) students experienced sleep disturbances, while 61 (70.1%) did not. In relation to daily water intake, 12 (13.8%) students consumed less than 1 litre, 37 (42.5%) consumed 1–2 litres, 18 (20.7%) consumed 2–3 litres, and 20 (23%) consumed 3–4 litres of water daily. Regarding daily screen time, 3 (3.4%) students used digital devices for less than 2 hours, 39 (44.8%) for 2–4 hours, 41 (47.1%) for 4–6 hours, and 4 (4.6%) for more than 6 hours.

Regarding the most frequently used digital device, 85 (97.8%) students used smartphones, 1 (1.1%) used a laptop, none (0%) used a tablet, and 1 (1.1%) used a desktop computer. Concerning the use of spectacles, 18 (20.7%) students wore spectacles, whereas 69 (79.3%) did not. Regarding existing eye problems, 12 (13.8%) students had myopia, 4 (4.6%) had hyperopia, none (0%) had astigmatism, and 71 (81.6%) reported no existing eye problems. In relation to the duration of digital device use, 52 (59.8%) students had used digital devices for less than 2 years, 19 (21.8%) for 2–5 years, and 16 (18.4%) for more than 5 years. Regarding the history of eye surgery, none (0%) of the students had undergone eye surgery, while all 87 (100%) had no history of eye surgery. Similarly, concerning the type of eye surgery, none (0%) had undergone cataract surgery, refractive surgery, or retinal surgery, and 87 (100%) had not undergone any eye surgery. Regarding the pattern of spectacle use, 12 (13.8%) students always wore spectacles, 3 (3.4%) wore them only while reading or using screens, 5 (5.7%) wore them occasionally, and 67 (77%) never wore spectacles. Concerning contact lens usage, 1 (1.1%) student used contact lenses daily, 1 (1.1%) used them occasionally, 84 (96.6%) did not use contact lenses, and 1 (1.1%) had used contact lenses previously but did not use them currently.46Regarding the history of migraine, 5 (5.7%) students experienced migraine frequently, 16 (18.4%) experienced it occasionally, 64 (73.6%) reported no migraine, and 2 (2.3%) had not been diagnosed. Concerning recent accidents, none (0%)

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of the students reported accidents involving the eyes and head, while 4 (4.6%) reported other bodily injuries and 83 (95.4%) reported no recent accidents. Regarding dental visits, 3 (3.4%) students were undergoing dental treatment, 11 (12.6%) had completed dental treatment, 66 (75.9%) had not visited for dental treatment, and 7 (8%) were unsure. These findings indicate that headache, blurred vision, eye redness, neck and shoulder pain, photophobia, sleep disturbance, and prolonged digital device use were reported by varying proportions of students. Most students used smartphones as their primary digital device, and many reported several hours of daily screen exposure. These findings highlight the importance of creating awareness among students regarding eye strain, its associated symptoms, and appropriate preventive measures. Bates Therapy consists of eye-relaxation practices intended to promote relaxation of the eyes; however, its effectiveness in improving vision is not well established scientifically. Providing education about healthy eye-care habits, appropriate screen use, regular breaks, adequate lighting, and timely eye examinations may help students manage eye discomfort and improve awareness of digital eye strain.

Findings related to self-reported questionnaire on eye strain: With regarding the students have any burning sensation in the eyes 5.8 (66.7%) were Never, 26 (29.9%) were Occasionally, 3 (3.4%) were Often or Always. According to the students do have itching in the eyes 55 (63.2%) were Never, 31 (35.6%) were Occasionally, 1 (1.1%) were Often or Always. With regarding to the students have any feelings of a foreign body (gritty sensation) 64 (73.6%) were Never, 21 (24.15) were Occasionally, 2 (2.3%) were Often or Always. According to the students have felt any watery eyes (tearing) 55 (63.2%) were Never, 30 (34.5%) were Occasionally, 2 (2.3%) were Often or Always. With regarding to the students experiencing excessive blinking 70 (80.5%) were Never 13 (14.9%) were Occasionally, 4 (4.6%) were Often or Always. According to the students felt any redness of eye 69 (79.3%) were Never, 16 (18.4%) were Occasionally, 2 (2.3%) were Often or Always.

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With regarding the students experiencing eye pain 65 (74.7%) were Never, 18 (20.7%) were Occasionally, 4 (4.6%) were Often or Always. According to the 47students experiencing dry eyes 67 (77%) were Never 17 (16.1%) were Occasionally, 4 (6.9%) were Often or Always. With regarding the students experiencing blurred vision 66 (75.9%) were Never, 17 (19.5%) were Occasionally, 4 (4.6%) were Often or Always. According to the students experiencing double vision 78 (89.7%) were Never, 8 (9.2%) were Occasionally, 1 (1.1%) were Often or Always. With regarding the students experiencing any difficult focusing for near vision 72 (82.8%) were Never, 13 (14.9%) were Occasionally, 2 (2.3%) were Often or Always. According to the students experiencing sensitivity to light 64 (73.6%) were Never, 21 (24.1%) were Occasionally, 2 (2.3%) were Often or Always. With regarding to the students experiencing coloured halos around object 81 (93.1%) were Never, 5 (5.7%) were Occasionally, 1 (1.1%) were Often or Always. According to the students experiencing headache 45 (51.7%) were Never, 37 (42.5%) were Occasionally,5 (5.7%) was Often or Always. With regarding to the students experienced feeling that eyesight is worsening 74 (85%) were Never, 10 (11.5%) were Occasionally, 3 (3.4%) were Often or Always.

CONCLUSION

The study identified eye-related complaints, particularly headache and blurred vision, among a sample of college students who commonly used digital devices. The findings highlight the importance of awareness, healthy screen habits, regular breaks, suitable lighting and posture, and timely eye examination. An educational pamphlet was provided, and a Bates Therapy routine schedule was developed as described in the manuscript. Since the design was descriptive and non-experimental, the study does not establish the effectiveness of Bates Therapy.

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