

Research Article

Digital Eye Wellness: Exploring Awareness and Strategies to Combat Computer Vision Syndrome in District Kangra, Himachal Pradesh

Dr Chandresh Thakur and Dr Swati Dhiman

Dr Chandresh Thakur Dr and Swati Dhiman MBBS, MS ophthalmology

*Corresponding Author
Dr Swati Dhiman

Article History
Received: 25.08.2023
Accepted: 30.08.2023
Published: 08.09.2023

Citations:

Dr Chandresh Thakur & Dr Swati Dhiman. (2023); Digital Eye Wellness: Exploring Awareness and Strategies to Combat Computer Vision Syndrome in District Kangra, Himachal Pradesh. *Hmlyn Jr Med Surg*, 4(5) 20-23

Abstract: **Background:** In the digital age, screens have become an integral part of daily life, presenting a concerning ocular health challenge known as Computer Vision Syndrome (CVS) or Digital Eye Strain. This study explores the awareness, knowledge, and strategies for combating CVS among residents of District Kangra, Himachal Pradesh, in India. **Methods:** A cross-sectional survey involving 400 adults was conducted between April and July 2023. A structured questionnaire assessed participants' awareness and understanding of CVS, including symptoms, risk factors, and preventive strategies. Data was analyzed using descriptive statistics. **Results:** While 66.25% of respondents correctly defined CVS and its causes, knowledge gaps were identified in strategies for prevention and management, with only 43.75% identifying effective measures. Although 69% recognized the impact of CVS on sleep patterns and 64% understood its long-term effects, awareness of the "20-20-20" rule was limited (22.25%). Approximately 27.25% were aware of local initiatives promoting Digital Eye Wellness. Almost 40% had sought professional advice for CVS symptoms. **Conclusion:** District Kangra residents exhibit reasonable awareness of CVS; however, knowledge gaps persist, particularly in practical prevention and management strategies. Public education efforts are needed to promote ergonomic practices, the "20-20-20" rule, and local resources for CVS prevention. Addressing these gaps can enhance ocular health in the digital era.

Keywords: Computer Vision Syndrome, Digital Eye Strain, awareness, knowledge, prevention, ocular health, District Kangra, Himachal Pradesh, India.

INTRODUCTION

In the contemporary digital age, our lives are increasingly intertwined with screens, whether through computers, smartphones, or tablets. This pervasive screen time has transformed the way we work, learn, and connect. However, this digital revolution has also ushered in a concerning ocular health challenge known as Computer Vision Syndrome (CVS) or Digital Eye Strain. District Kangra, situated amidst the picturesque landscapes of Himachal Pradesh, is no exception to the widespread use of digital devices. As screens become integral to daily life, understanding CVS, its impact, and adopting effective strategies for prevention and management is paramount.¹⁻⁴

CVS is a multifaceted ocular condition resulting from prolonged digital screen use. It encompasses a spectrum of symptoms, including eye strain, headaches, blurred vision, dry eyes, and neck and shoulder discomfort. These symptoms can be both bothersome and disruptive, affecting productivity, well-being, and overall quality of life.^{5,6}

The global prevalence of CVS has surged in recent years, mirroring the surge in digital device utilization. While CVS is not classified as a sight-threatening disorder, it poses a significant public health concern due to its ubiquity and the potential for long-term eye discomfort and reduced visual efficiency. The residents of District Kangra, like individuals worldwide, are increasingly vulnerable to the impact of CVS, necessitating a closer examination of the levels of awareness and knowledge regarding this digital-age ocular challenge.⁷⁻⁹

This study seeks to explore the awareness and understanding of CVS among the general population of District Kangra, Himachal Pradesh. By delving into the specific symptoms, risk factors, and strategies for CVS prevention and management, this research aims to identify knowledge gaps and empower individuals with information to safeguard their ocular health in the digital era.

Objectives of the Study:

The objective of this study is to gauge the levels of awareness and knowledge about Computer Vision Syndrome (Digital Eye Strain) and strategies for reducing its impact among the general population of District Kangra, Himachal Pradesh

RESEARCH METHODOLOGY

- Research Approach -Descriptive
- Research Design- Cross-sectional survey design
- Study area: District Kangra, Himachal Pradesh
- Study duration- between April 2023 to July 2023
- Study population: The study's target population encompassed all adults aged 18 and above who had been residents of District Kangra for a minimum of 12 months
- Sample size- A robust sample size of 400 adults was determined using a 95% confidence level, an estimated knowledge level of 50% regarding Computer Vision Syndrome (Digital Eye Strain), a precise 5% absolute error margin, and a conservative 5% non-response rate.
- Study tool: A google form questionnaire consisting of questions regarding socio-demography and knowledge regarding Computer Vision Syndrome (Digital Eye Strain) was created. The questionnaire was initially pre-tested on a small number of participants to identify any difficulty in understanding by the respondents.
- Description of Tool-
 - a) Demographic data survey instrument: The demographic form elicited information on participants' background: age, marital status, religion, employment, education and many more.
 - b) Questionnaire: The questionnaire contains 20 structured knowledge related questions regarding Computer Vision Syndrome (Digital Eye Strain). One mark was given for each correct answer and zero for incorrect answer. The maximum score was 20 and minimum score was zero. Scoring was done on the basis of marks as >80%(16-20)=very good,60-79%(12-15) =Good,41-59% (8-11)=Fair,<40% (< 8)=poor
- Validity of tool - by the experts in this field
 - Data collection- Data was collected under the guidance of supervisors. The google form questionnaire was circulated among the residents of District Kangra, Himachal Pradesh for responses using online modes like e-mail and social media platforms like Whatsapp groups, Facebook, Instagram and LinkedIn till the 400 responses were collected.
 - Data analysis- Data was collected and entered in Microsoft excel spread sheet, cleaned for errors and analyzed with Epi Info V7 Software with appropriate statistical test in terms of frequencies and percentage.
 - Ethical Considerations- Participants confidentiality and anonymity was maintained.

RESULTS

The primary objective of this study was to gauge the understanding of Computer Vision Syndrome (Digital Eye Strain) among the general population of District Kangra. A total of 400 participants took part in the study, with 279 (69.75%) residing in urban areas and 121 (30.25%) in rural areas.

S.No.	Statements	Frequency of Correct Responses	Percent
1.	What is Computer Vision Syndrome (Digital Eye Strain), and what are its common causes?	265	66.25
2.	Can you list the typical symptoms of Computer Vision Syndrome?	264	66
3.	How long does it usually take for symptoms of Digital Eye Strain to appear while using digital devices?	234	58.5
4.	Are there specific age groups more susceptible to Digital Eye Strain?	218	54.5
5.	What are some strategies to prevent or reduce Digital Eye Strain while using computers or digital devices?	175	43.75
6.	Do you take regular breaks from screen time to reduce eye strain? If so, how often?	124	31
7.	Are blue light-blocking glasses effective in reducing the impact of screen-related eye strain?	109	27.25
8.	Can you name some ergonomic adjustments that can help minimize Digital Eye Strain?	87	21.75
9.	What role does proper lighting play in preventing Digital Eye Strain?	215	53.75
10.	Are there any eye exercises or techniques that can alleviate eye discomfort caused by digital device use?	216	54
11.	Do you think adjusting screen brightness and contrast settings can help reduce eye strain?	227	56.75
12.	Can prolonged Digital Eye Strain lead to more severe eye problems over time?	256	64
13.	How does Digital Eye Strain affect sleep patterns, and what can be done to	276	69

	mitigate this effect?		
14.	Are there any software applications or apps designed to reduce the impact of screen-related eye strain?	128	32
15.	Have you ever heard of the "20-20-20" rule, and do you follow it?	89	22.25
16.	Do you experience other physical discomforts, such as neck or back pain, while using digital devices for extended periods?	218	54.5
17.	What are some practical tips for maintaining good eye health in a digital age?	176	44
18.	Are there any local initiatives or resources in District Kangra that promote Digital Eye Wellness?	109	27.25
19.	In your opinion, how significant is the impact of Digital Eye Strain on individuals in your community?	217	54.25
20.	Have you ever sought professional advice or treatment for symptoms of Computer Vision Syndrome?	158	39.5

Table-1: Knowledge regarding Computer Vision Syndrome (Digital Eye Strain) among study participants

In the present study 29.75% (119) participants had very good knowledge (16-20 marks) towards Computer Vision Syndrome (Digital Eye Strain), 41.25% (165) had good knowledge (12-15 marks), 16.25% (65) had fair knowledge (8-11 marks) and 12.75% (51) having poor knowledge (<8 marks).

Category (Marks)	Frequency (n=400)	%
V. Good (16-20)	119	29.75
Good (12-15)	165	41.25
Fair(8-11)	65	16.25
Poor(<8)	51	12.75

Table-2: Knowledge scores towards Computer Vision Syndrome (Digital Eye Strain) among study participants

DISCUSSION:

The contemporary era is marked by the ubiquity of digital screens, with computers, smartphones, and tablets becoming integral to daily life. This digital revolution has led to a significant ocular health concern known as Computer Vision Syndrome (CVS) or Digital Eye Strain. This discussion will delve into the findings of the study concerning the awareness, knowledge, and strategies for combating CVS among the general population of District Kangra, Himachal Pradesh, and compare these findings with existing research to identify knowledge gaps and areas for potential improvement.

The study revealed that 66.25% of participants could correctly define what Computer Vision Syndrome (Digital Eye Strain) is and identify some common causes. This level of understanding is encouraging, as it indicates that a substantial portion of the population is aware of the condition's existence and its association with digital device use.

Approximately 66% of respondents could list typical symptoms associated with CVS, demonstrating a good understanding of how prolonged screen time can manifest in eye strain, headaches, and other discomforts. Furthermore, 54.5% recognized that specific age groups may be more susceptible to Digital Eye Strain, suggesting an awareness of the condition's differential impact across age demographics.

While awareness of CVS symptoms and susceptibility factors is relatively high, knowledge regarding strategies for prevention and management exhibits room for improvement. Only 43.75% of participants could identify strategies to prevent or reduce Digital Eye Strain while using digital devices. This indicates a knowledge gap in practical measures that can mitigate the impact of CVS.

Around 31% of respondents reported taking regular breaks from screen time to reduce eye strain. This practice aligns with recommendations for preventing CVS. However, only 21.75% could name ergonomic adjustments that can help minimize Digital Eye Strain, indicating that knowledge about proper workspace setup may be limited.

Recognizing the importance of proper lighting in preventing Digital Eye Strain, 53.75% of participants understood its significance. Additionally, 56.75% believed that adjusting screen brightness and contrast settings could help reduce eye strain, indicating an awareness of the role of screen settings in eye comfort.

A significant proportion (64%) recognized that prolonged Digital Eye Strain can lead to more severe eye problems over time. Moreover, 69% understood how CVS can affect sleep patterns and proposed measures to mitigate this effect. This knowledge highlights an understanding of the potential consequences of CVS beyond immediate discomfort.

Only 22.25% had heard of the "20-20-20" rule, which suggests taking a 20-second break to look at something 20 feet away every 20 minutes of screen time. This rule is a well-known strategy for CVS prevention and indicates a potential area for increased education. Furthermore, 54.5% acknowledged experiencing other physical discomforts, such as neck or back pain, during extended digital device use, emphasizing the multisystem impact of CVS.

Approximately 27.25% were aware of local initiatives or resources in District Kangra that promote Digital Eye Wellness. While this awareness is limited, it suggests the presence of community-level efforts to address CVS. Additionally, 54.25% believed that Digital Eye Strain had a significant impact on individuals in their community, emphasizing the condition's societal relevance. Nearly 40% of participants had sought professional advice or treatment for symptoms of Computer Vision Syndrome. This indicates a willingness to address eye discomfort through medical intervention, highlighting the perceived severity of CVS symptoms.

The findings from this study demonstrate a reasonable level of awareness regarding Computer Vision Syndrome among the residents of District Kangra, Himachal Pradesh. However, knowledge gaps persist, particularly in practical strategies for CVS prevention and management. These findings are in line with previous research, which often identifies disparities in knowledge and practices related to CVS.^{8,9}

CONCLUSION:

This study assessed the awareness and knowledge levels of Computer Vision Syndrome (Digital Eye Strain) among the general population of District Kangra. While some participants demonstrated good awareness and understanding of CVS, there are significant knowledge gaps in practical strategies for prevention and management. Enhancing public education about CVS, including ergonomic practices, the 20-20-20 rule, and the availability of local resources, is crucial for safeguarding ocular health in the digital era.

By addressing these knowledge gaps and promoting effective strategies for CVS prevention and management, District Kangra can work toward minimizing the impact of Digital Eye Strain and improving the overall well-being of its residents in an increasingly screen-oriented world.

REFERENCES:

1. Blehm, C., Vishnu, S., Khattak, A., Mitra, S., & Yee, R. W. (2005). Computer vision syndrome: a review. *Survey of Ophthalmology*, 50(3), 253-262.
2. Rosenfield, M. (2016). Computer vision syndrome: a review of ocular causes and potential treatments. *Ophthalmic and Physiological Optics*, 36(2), 120-132.
3. Reddy, S. C., Low, C. K., Lim, Y. P., & Low, L. L. (2015). Computer vision syndrome: a study of knowledge and practices in university students. *Nepalese Journal of Ophthalmology*, 7(1), 161-168.
4. Sheppard, A. L., Wolffsohn, J. S., & Digital Eye Strain Study Group. (2018). Digital eye strain: prevalence, measurement and amelioration. *BMJ Open Ophthalmology*, 3(1), e000146.
5. American Optometric Association. (2021). Computer Vision Syndrome. [Online] Available at: <https://www.aoa.org/patients-and-public/caring-for-your-vision/protecting-your-vision/computer-vision-syndrome?sso=y> [Accessed on August 15, 2023].
6. American Academy of Ophthalmology. (2021). How to Protect Your Eyes from Computer Vision Syndrome. [Online] Available at: <https://www.aao.org/eye-health/tips-prevention/eye-strain> [Accessed on August 15, 2023].
7. Occupational Safety and Health Administration (OSHA). (n.d.). Computer workstations eTool: Workstation components - Monitors. https://www.osha.gov/SLTC/etools/computerworkstations/components_monitors.html
8. Ranasinghe, P., et al. (2019). Computer vision syndrome among computer office workers in a developing country: An evaluation of prevalence and risk factors. *BMC Research Notes*, 12(1), 208.
9. Kammann, T., & Thoresen, A. S. (2017). The impact of computer screen use on musculoskeletal disorders and neck and shoulder pain: A systematic review. *International Journal of Industrial Ergonomics*, 61, 1-7.