

# Effect of electronic gadgets on the eyes of different age groups

## Abstract

Electronic devices like mobiles, computer systems, etc. have emerged as components and parcels of lifestyles. With numerous advances in technology, numerous progressive programs have made our lifestyles clean and smooth going however immoderate use of digital devices has a sure inadvertent impact on eyes. It additionally ends in numerous eye fitness problems. These devices have enslaved people and sadly even kids aren't any exception to this. High energy, short-wavelength, blue mild is scattered simpler than every other seen mild and isn't always without difficulty focused. This unfocused visible noise reduces assessment and traces the eye. Digital gadgets emit excessive tiers of blue mild and publicity to this may result in Refractive blunders withinside the lengthy run. This generation is pushed with the aid of using technology. So nowadays workplace work and laptop utilization have emerged as synonymous. Excessive use of laptop and non-stop gazing every other tool display/display screen purpose dry eye, eye strain, headache, blurred imaginative and prescient, trouble in refocusing, etc. This situation is referred to as Computer Vision Syndrome. Too stupid or too shiny display, direct air blow from AC/fan can get worse this situation. Electronic devices like smartphones and computer systems supply us the way to provide new approaches to have to interact and educate our kids. Children among the while of five to fifteen can spend nearly 6 hours of display screen time every day once they have interaction with their televisions or mobiles. Exposing younger kids to such a lot of virtual gadgets at an early age can result in a bunch of developmental problems. A number of refractive errors (Myopia, Hypermetropia, and Astigmatism) were objectively obtained with the aid of using this study. Dry eye, eye strain, headache, blurred imagination, and prescient and trouble in refocusing may also be identified, and the development of visible consolation can be found after the installation of sure methods.

**Keywords:** Myopia • Hypermetropia • Astigmatism • Dry eye • Computer vision syndrome

**Received:** 15-February-2022, Manuscript No. fmci-22-54554; **Editor assigned:** 17- February-2022, PreQC No. fmci-22-54554 (PQ); **Reviewed:** 2-March-2022, QC No. fmci-22-54554 (Q); **Revised:** 3-March-2022, Manuscript No. fmci-22-54554 (R); **Published:** 15-March-2022, DOI: 10.37532/2041-6792.2022.12(2).30-35

## Introduction

Electronic devices have a positive inadvertent impact on the eye and vision-associated signs and were an identified fitness trouble for over 20 years. The phrases Visible Fatigue (VF) and Digital Eye Strain (DES) also are used for the situation, reflecting the sort of virtual gadgets related to capacity problems [1,2]. These expressions can be greater suitable for verbal exchange with sufferers and the public, who might don't forget gadgets including capsules and clever telephones to be computers. Given the huge increase in virtual tool utilization in latest years, many hundreds of thousands of people of various age's corporations are prone to Digital Eye Strain (DES) [3]. This study is conducted to evaluate the various issues and diseases related to eyes in a group of the selected population where the patients of

various age groups are studied under. Nowadays the peoples of various age groups constantly and equally use electronic gadgets for the purpose of study, work, and Entertainment so the patients can easily be randomly selected from various age groups [4,5]. The following evaluation considers new findings on this energetic field. Recent facts and data on utilization of virtual gadgets, evaluation strategies, and control of the situation are presented. Furthermore, further to the greater typically defined subjective and goal strategies which might be used on this location of research. To take a look at the impact of digital devices on eye fitness of various age corporations with inside the shape of refractive errors, dry eye, asthenopia, etc [6-9]. This study is aimed to evaluate the various eye problems associated with various age groups and then the study is focused to identify and

Ravindra Kumar Manik<sup>1\*</sup>,  
Hiba Khan<sup>2</sup>,  
Anshu Kumar Singh<sup>2</sup>

<sup>1</sup>Department of Optometry, OPJS University, Churu, Rajasthan, India

<sup>2</sup>Department of Paramedical Sciences, Swami Vivekanand Subharti University, Meerut, Uttar Pradesh, India

\*Author for correspondence:  
rkmanik2008@gmail.com

treat the various eye problem in acute phases of diseases.

**Hypothesis of research**

- To decide the superiority of Refractive mistakes Symptoms, know-how, and practices of laptop use in exceptional age groups
- To examine the affiliation of different factors in Computer/cellular use with the incidence of Computer Vision symptoms
- To decide the sorts of Asthenopic Symptoms
- To decide the common time of making use of Electronic tool online with day
- To perceive the minor eye problems

**Materials and Methods**

The methodology for data collection is based on the various primary and secondary databases and various questionnaire surveys in which the family history of patients and their dietary habits are considered for the research.

Primary outcome based upon personal visits of patients to the Eye Clinic and Eye camps organized by various authorities.

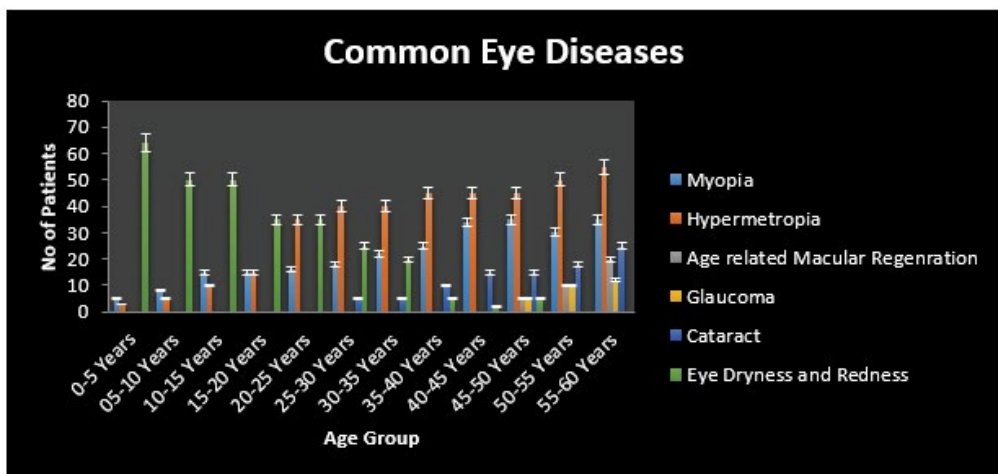
Secondary outcomes are based upon the information collected through a questionnaire survey in which various specific questions are prepared according to need and asked in the selected area with all patients.

**Methods**

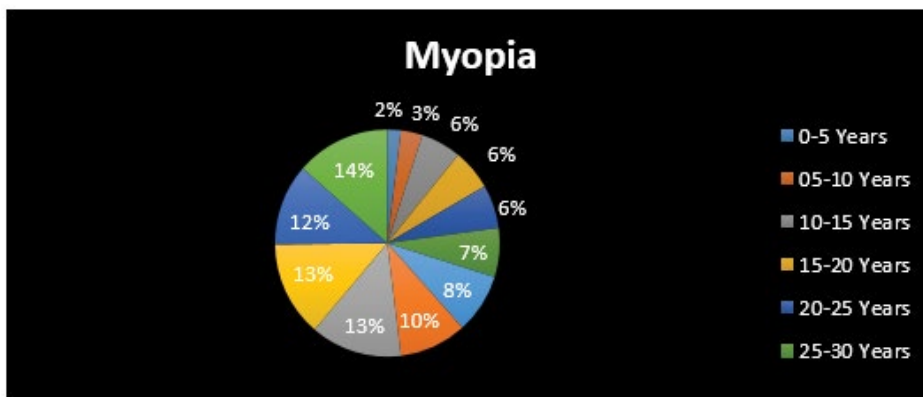
This is a transversal descriptive have a look at performed over three months from July 1<sup>st</sup> to September 30<sup>th</sup>, 2021, withinside the Eye Clinic and Eye Camp on a hundred sufferers of every age group [10-13]. A form of contraptions had been used to perceive Digital Eye Strain (DES) victim sufferers among the elderly of zero to 60 years who underwent cycloplegic refraction. A 10-object questionnaire created pertains to the extent of ocular pain skilled from the signs and symptoms listed [14]. Verbal knowledgeable consent turned into acquired in all sufferers (For children, it turned into the dad and mom who agreed). The entire sufferers covered benefited in step with a pre-hooked up protocol: an interrogation which specified: the age, the sex, the literacy, using the display (computer, mobile phone, television) the lifestyles of own circle of relative’s ametropia, an ophthalmological exam and Retinoscopy without and with cycloplegic [15].

**Table 1.** Number of patient for specific disease in selected age groups.

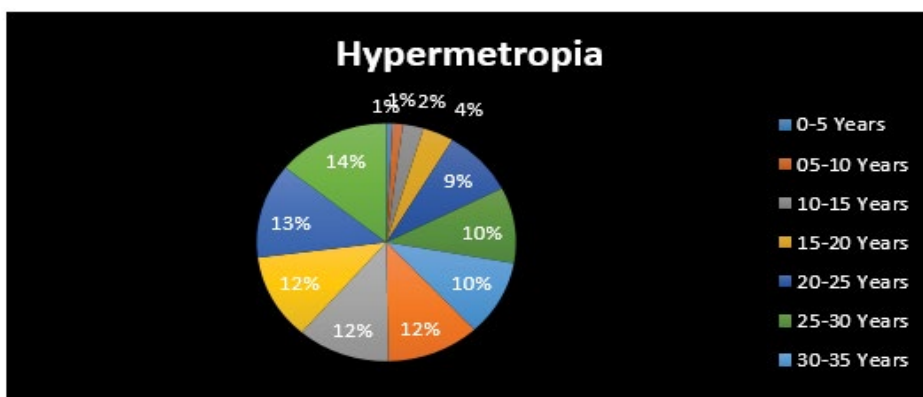
Age Groups (Years)	0-5 Years	05-10 Years	10-15 Years	15-20 Years	20-25 Years	25-30 Years	30-35 Years	35-40 Years	40-45 Years	45-50 Years	50-55 Years	55-60 Years
Myopia	5	8	15	15	16	18	22	25	34	35	30	35
Hypermetropia	3	5	10	15	35	40	40	45	45	45	50	55
Age related Macular Regeneration	0	0	0	0	0	0	0	0	0	5	10	20
Glaucoma	0	0	0	0	0	0	0	0	0	5	10	12
Cataract	0	0	0	0	0	5	5	10	15	15	18	25
Eye Dryness and Redness	64	50	50	35	35	25	20	19	24	22	25	36



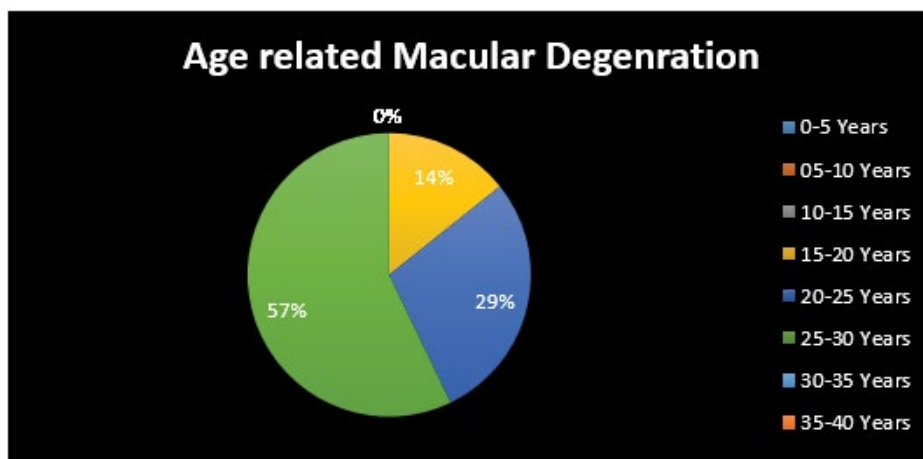
**Graph 1:** Various eye diseases that affect the various age groups.



Graph 2: Case of myopia that affects the various age groups.



Graph 3: Case of Hypermetropia that affects the various age groups.



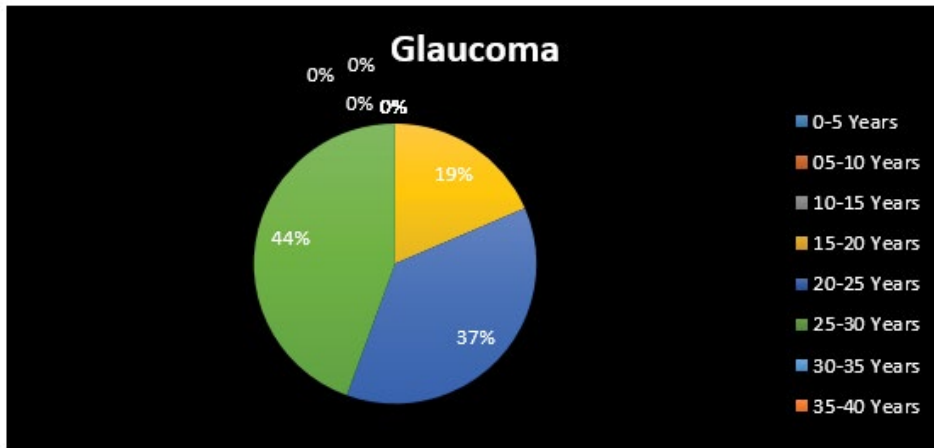
Graph 4: Case of Age related Macular regeneration that affects the various age groups.

### Results and Discussion

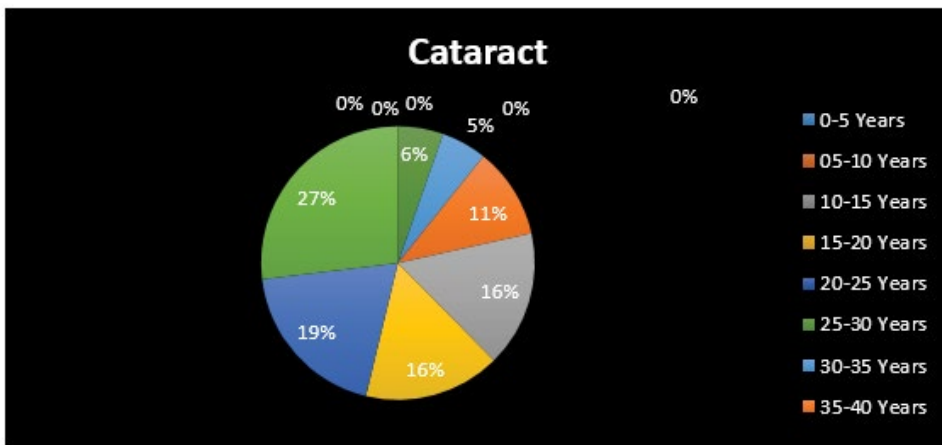
All the finding of this study is listed in table 1, graph 1, graph 2, graph 3, graph 4, graph 5, graph 6, and graph 7 are shown below.

### Conclusion

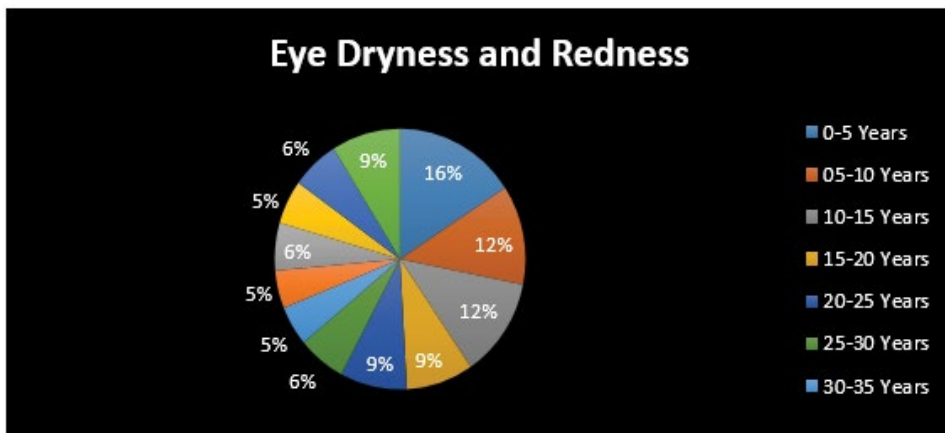
Usage of virtual gadgets for paintings and social purposes, regularly for plenty of hours every day, is now ordinary amongst people of various age groups. While there are demanding situations in figuring out the superiority of Digital Eye Strain (DES), suggested instances indicate that a huge percentage of the populace is at risk, and can search for recommendations and/or remedies of the condition. All of them replied to the questionnaire efficiently which suggests



**Graph 5:** Case of Glaucoma that affects the various age groups.



**Graph 6:** Case of Cataract that affects the various age groups.



**Graph 7:** Case of Eye dryness and Redness that affects the various age groups.

a maximum of had been aware of the terrible consequences of extended use of laptop at the eye.

- If possible, avoid the use of computer/mobile for

more than 4 hours continuously in a day

- If it is necessary to use computer/mobile many hours a day then preventive measures must be applied

continuously (For example taking a break, looking for far objects, using a radiation filter on screen)

- If there is a Refractive error (Myopia, Hypermetropia, and Astigmatism) present, spectacle correction should be given
- The total amount of error should be discovered under complete cycloplegics

- Use eye drops to reduce symptoms of dry eye

### **Acknowledgement**

We are thankful to our family members, friends and mentors who always enlighten us in every situation.

### **Author Contributions**

All authors listed have made a substantial, direct, intellectual contribution to the work and approved it for publication.

### **Conflict of Interest**

I declare that there is no conflict of interest.

## References

1. Venkataramanan S, Prabhat P, Choudhury SR, et al. Biomedical instrumentation based on electrooculogram (EOG) signal processing and application to a hospital alarm system. In Proceedings of 2005 International Conference on Intelligent Sensing and Information Processing, 2005. IEEE. 235-240 (2005).
2. Usakli AB, Gurkan S. Design of a novel efficient human computer interface: An electrooculogram based virtual keyboard. IEEE Transaction on Instrumentation and Measurement. 59:2099-2108 (2010).
3. Cuong NH, Hoang HT. Eye gaze detection with a single Webcam based on geometry features extraction. 2010 11<sup>th</sup> International Conference on Control, Automation, Robotics and vision, Singapore. 2507-2512 (2010).
4. Bali J, Navin N, Thakur BR. Computer vision syndrome: A study of the knowledge, attitudes and practices in Indian ophthalmologists. Indian J Ophthalmol. 55:289-294 (2007).
5. Garcia I, Bronte S, Bergasa LM, et al. Vision based drowsiness detector for a realistic driving simulator. 2010 13th International IEEE Annual Conference on Intelligent Transportation Systems. 887-894 (2010).
6. Fini MR, Kashani MA, Rahmati M. Eye detection and tracking in image with complex background. 2011 3rd International Conference on Electronics Computer Technology. IEEE. 6:57-61 (2011).
7. Drewes H. Eye gaze tracking for human computer interaction. A Dissertation submitted in the partial fulfilment of the Ph. D. Degree. 2010.
8. Lin M, Li B. A wireless EOG-based human computer interface. 2010 3rd International Conference on Biomedical Engineering and Informatics. IEEE. 5:1794-1796. (2010).
9. Vehkaoja AT, Verho JA, Puurtinen MM, et al. Wireless head cap for EOG and facial EMG measurements. Conf Proc IEEE Eng Med Biol Soc. 2005:5865-5868 (2005).
10. Bhandari DJ, Choudhary S, Doshi VG. A community-based study of asthenopia in computer operators. Indian J Ophthalmol. 56:51-55 (2008).
11. Sheedy JE. Vision problems at video display terminals: A survey of optometrists. J Am Optom Assoc. 63:687-692 (1992).
12. Phophalia A, Kansara B, Mitra SK. A hybrid approach for eye localization in video. 2011 National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics. 2011:98-101 (2011).
13. Kim EY, Kang SK, Jung K, et al. Eye mouse: Mouse implementation using eye tracking. In 2005 Digest of Technical Papers. International Conference on Consumer Electronics, 2005. ICCE. IEEE. 207-208 (2005).
14. Moravcik T. An approach to iris and pupil detection in eye image. 12 International Ph.D. Workshop OWD 2012. 239-242 (2010).
15. Hiley JB, Redekopp AH, Fazel-Rezai R. A low cost human computer interface based on eye tracking. Conf Proc IEEE Eng Med Biol Soc. 2006:3226-3229 (2006).