



## **Prevalence of visual disturbance among information technology professionals in software companies**

**Sridevi B**

Nursing Tutor, Department of Medical Surgical Nursing, Saveetha College of Nursing, SIMATS, Thandalam, Tamil Nadu, India

### **Abstract**

A computer is a device that processes, stores, and displays data. In recent years, digital gadget usage has steadily risen across all age groups, towards the point that noteworthy quality use for both social and professional purposes is now the norm. Digital eye strain (DES), also known as computer vision syndrome, is a collection of ocular and visual problems that affects 50 percent or more of computer users, according to estimates. Overuse injuries of the shoulder, arm, wrist, or hand, as well as eyestrain, can result from improper computer use. With the right furnishings, proper posture, and good behaviours like taking rest breaks and limiting time spent playing computer games, you can reduce or eliminate these dangers.

**Objectives:** To assess the prevalence of visual disturbance and to find out the association between the prevalence of visual disturbances among IT professionals with their selected demographic variables.

**Research Methodology:** A quantitative approach with non-experimental descriptive research design was adopted for the present study. A 100 IT professionals were recruited as study participants by using Convenient Sampling Technique. A self-structured questionnaire was administered to collect the data regarding the demographic information and prevalence of visual disturbances.

**Results:** The present study identified that, utmost equal number of IT professionals (54%) are unaffected, equal number of IT professionals (46%) are affected, so they are almost equally aware of visual disturbance and their preventive measures. The shift of work and age had shown statistically significant association with prevalence of visual disturbance among IT professionals at the level of  $p < 0.05$ . The statistical analysis revealed serious symptoms in the majority of study participants especially those who are permanent users of a computer for long hours.

**Keywords:** Prevalence, professionals, software, technology, visual disturbance

### **Introduction**

Technology has become an inextricable aspect of our lives and a requirement in practically every line of employment. With that said, it appears as if technical advances and advancements are occurring on a regular basis, with the eventual goal of making particular tasks fully reliant on technology. Of sure, it simplifies our life in certain ways and may even save us money, but it can also be aggravating. In this globalized and hi-tech era, the computer has become an integral part of daily life<sup>[1]</sup>. A computer is an electronic device used to manipulate data or information. It can store, retrieve, and analyse data. Computer used to type documents, send email, play games, and surf the Internet<sup>[2]</sup>. It also allows users to edit and create spread sheets, presentations, and multimedia. Computers have become an essential tool in any firm, especially in today's globalised world. The employees continue to have difficulty using computers as a result of frequent changes in computer applications<sup>[3]</sup>.

Computer screens are infamous for their bright lighting, glare, and flickering images, all of which can cause eye strain. Drying out eyes can occur, if constantly focusing on the screen and blinking slowly<sup>[4]</sup>. Computer users were more likely to participate in socio-physical activities and had more social support than nonusers. However, the

quantity of time spent on the computer each day was not linked to lifestyle among computer users. Instead, computer usage habits are more closely linked to lifestyle, with gender acting as a moderator<sup>[5]</sup>. Computer vision syndrome is a catch-all phrase for a variety of eye and environment-related illnesses that develop when job-related viewing demands exceed a user's visual capabilities. It is defined by visual symptoms that originate from working with a computer monitor and its settings. Itching, burning, eye dryness, blurred vision, double vision, and headache can arise during or immediately after a three- to four-hour computer session, and CVS can be prominent with symptoms of itching, burning, eye dryness, blurred vision, double vision, and headache<sup>[6-9]</sup>. Computer vision syndrome refers to eye disorders induced by computer use (CVS). There isn't a single issue. Rather, it refers to a variety of eye strain and pain. According to studies, between 50 and 90 percent of persons who work at a computer screen experience at least some symptoms. Adults in the workforce aren't the only ones who are affected. Kids who gaze at iPads or computers at school during the day can also have problems, especially if the lighting and posture aren't appropriate<sup>[10]</sup>.

Computer vision syndrome is the most common occupational hazard of the twenty-first century and one of the most serious public health issues. According to global

estimates, 60 million people are affected by CVS, with one million new cases occurring each year. Furthermore, nearly 70% of all computer users are affected by its symptoms [8, 11]. In October 2021, 4.88 billion individuals utilise the internet worldwide, accounting for about 62 percent of the global population. This number is continually rising, with our most recent data revealing that 222 million new users joined the internet in the last year [10]. The causes include screen glare, lighting, poor posture while using a computer, viewing a computer, wrong distance and angle, uncorrected vision problems. Different studies have found a vast variety of symptoms, including headaches, eye strain, double vision, wetness, dryness of the eyes, accommodation issues, weary eyes, and discomfort [12]. Computer Vision Syndrome symptoms lead people to put off work, which has an impact on their productivity, efficiency, and time management; severe symptoms can lower work productivity by up to 40%. Given the global burden of screen-induced visual discomfort, identifying and managing its underlying causes can help improve physical wellbeing and workplace productivity [12, 13]. In the treatment of computer vision syndrome, prevention is still the most effective technique. Preventing computer vision syndrome requires changes to the working environment's ergonomics, as well as patient education and good eye care [13]. The average American worker spends seven hours every day in front of a computer, whether at work or at home. Follow the 20-20-20 rule to reduce digital eye strain, take a 20-second break to view something 20 feet away every 20 minutes [14]. Taking steps to minimise lighting and glare on the device screen, set optimal working distances and posture for screen viewing, and ensure that even minor vision abnormalities are correctly treated are all part of preventing or reducing the vision problems associated with Digital Eye Strain [15]. The objectives of the present study were to assess the prevalence of visual disturbance among IT professionals and to find out the association between the prevalence of visual disturbances among IT professionals with their selected demographic variables.

### Methods and Materials

The quantitative approach with non-experimental descriptive research design was adopted for the present study. After obtaining an ethical clearance from the institutional ethical committee (IEC) of Saveetha Institute of Medical and Technical Sciences and a formal permission from the selected software organisation, the study was conducted. A total of 100 IT professionals who are working presently in the selected software company (n=100) and who met the inclusion criteria were recruited as study participants by using Convenience sampling technique. The inclusion criteria for the study participants were the professionals with both genders and between the age group of 20 to 45 years and above, working in different shift environment, willing to participate and are available during the study period, who can understand, speak and write Tamil or English. During the initial interview, the purpose of the study was explained by the investigator to each of the study participants and a written informed consent was obtained from them. The demographic data and the existing level of visual disturbance was exploited by using a self-structured questionnaire and the collected data were

tabulated and analysed by using descriptive and inferential statistics.

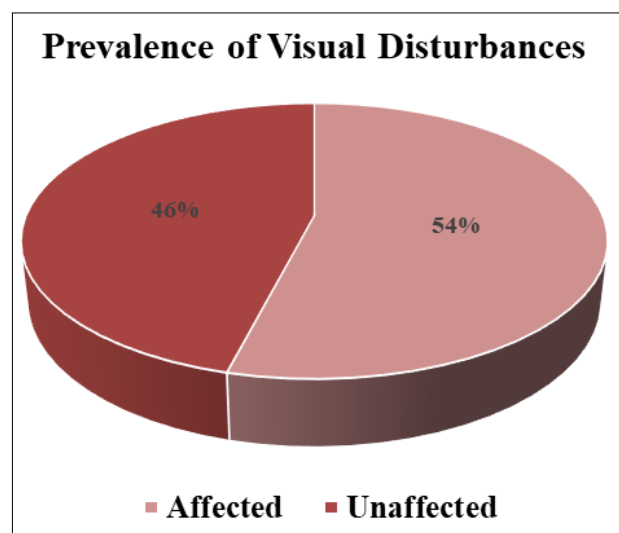
## Results and Discussion

### Section A: Demographic characteristics

With regards to age (76%) were between the age group 20-30 years, with regards to 34 (68%) were males, with regards to educational qualification 23 (46%) were completed IT, With regards to duration of working hours, 36 (72%) were working for about more than 10 hours per day, With regards to type of shift, 32 (76%) were in night shift, with regards to total years of experience, 31 (62%) had 10 years of experience, with regards to type of computer, 35 (70%) uses desktop for their official work.

### Section B: Prevalence of visual disturbance among it professionals

Among 100 IT professionals participated in the study, utmost equal number of IT professionals (54%) are unaffected, equal number of IT professionals (46%) are affected, so they are almost equally aware of visual disturbances. The statistical analysis revealed serious symptoms in the majority of study subjects especially those who are permanent users of a computer for long hours (Figure:1)



**Fig 1:** Prevalence of Visual Disturbance among IT Professionals

The present study results were supported by a cross sectional study conducted by Kushali, R, Brundha, M. P. (2020) among 100 IT professional aiming in assessing the awareness of symptoms of computer vision syndrome (CVS), the end results revealed that, 42% had visual disturbances. Similar study was conducted as a cross sectional study by Cantó-Sancho N, Sánchez-Brau M (2021) among 244 Spanish university students who responded to an anamnesis, a Video Display Terminal (VDT) exposure questionnaire and the Computer Vision Syndrome Questionnaire. The mean age was 20.7 years (SD = 2.1), 57% were women, 78.3% used Video Display Terminal (VDT)  $\geq 2$  hours/day to study. The prevalence of Computer Vision Syndrome was 76.6%, and the most frequent symptoms were headache and itching. In the crude analysis, being a woman, using glasses daily and to study, and a

longer Video Display Terminal (VDT) use to study and in total were associated with a higher prevalence of Computer Vision Syndrome; while in the older group, the prevalence was lower<sup>[17]</sup>. Hence the study results concluded that the prevalence of visual disturbance is high among IT professionals.

### Section C: Association between the prevalence of visual disturbances among it professionals with their selected demographic variables

None of the demographic variables had shown statistically significant association with the Visual Disturbances among IT professionals with their selected demographic variables.

### Limitations

The researcher could not generalize the study findings as the sample size is relatively small and limited to 100 clients. Only clients working in selected software companies were included into the study. Another limitation is selected Tambaram area used for data collection. Only the cognitive and social factors of IT professionals were considered. The current study has only few supportive studies in Indian Population due to paucity of literature.

### Conclusion

The present study suggests that the, utmost equal number of IT professionals (54%) are unaffected, equal number of IT professionals (46%) are affected, so they are almost equally aware of visual disturbance and their preventive measures. Computers and other visual display devices have definitely brought a tremendous change in the overall lifestyle but there is an alarmingly high incidence of serious visual problems associated with a prolonged use of such equipment. A serious attention is needed on this global problem. In addition to poor ergonomic office setup, spend several hours behind computer screens leading to the development of Computer Vision Syndrome. Increased awareness of Computer Vision Syndrome and adherence to recommended ergonomic practices are necessary to reduce the prevalence of Computer Vision Syndrome and ultimately enhance work satisfaction and productivity.

### Acknowledgement

The Researchers would like to extend their gratitude and thanks to the study participants.

### Financial Support and Sponsorship: Nil

### Conflict of Interest: Nil

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