

## Prevalence of Computer Vision Syndrome among Information Technology Professionals Working in Chennai

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**Abstract:** *Background:* Twenty years ago, the advent of computers revolutionized the workplace. Until that time, office work had involved a range of activities including typing, filing, reading and writing. Each activity was adequately varied in the requirements of posture and vision, posing a natural “break” from the previous activity. The introduction of computers, however, has combined these tasks to where most can be performed without moving from the desktop, thereby improving quality, production and efficiency. As computers become part of our everyday life, more and more people are experiencing a variety of ocular symptoms related to computer use. *Objectives:* To identify the prevalence of computer vision syndrome among Information technology professionals. *Materials and methods:* A cross sectional study was carried among information technology professionals in Chennai and self administered questionnaire was used to identify the prevalence. Sample was selected by simple random sampling Data was appropriately analyzed using spss version 21. *Result:* The prevalence in this study was found to be 69.3%. *Conclusion:* Continuing education would keep the computer professionals working in the software companies to update with necessary knowledge with regards to the recent trends in the preventive aspects of Computer Vision Syndrome.

**Key words:** Computer vision syndrome(CVS) • IT professionals • Software companies

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### INTRODUCTION

Nearly half of the working population in the India currently uses a computer at work. Although Computers continue to effectively improve productivity in the work place. Computers have made things so much fast and simple but have brought with them new problems related to health. Using computers for long hours put repetitive stress on body muscles and joints especially to eyes. Problems related to eyes affect all those who spend a significant time working on the computer everyday [1]. As computers become part of our everyday life, more and more people are experiencing a variety of ocular symptoms related to computer use. On an average, more than 50% of the work force now uses a computer on the job and nearly 60 million people experience vision problems as a result. These include eyestrain, tired eyes, irritation, redness, blurred vision and double vision, collectively referred to as Computer Vision Syndrome [2]. American Optometric Association reports that approximately 14% of patients schedule eye exams

because of Computer Vision Syndrome, many individuals who suffer from Computer Vision Syndrome are not even aware that they have the condition [1]. Dhaliwal N. *et al.* [3] says that, Computer Vision Syndrome affects mental and physical well-being and impairs productivity. Computer Vision Syndrome can be virtually eliminated by taking a few simple, inexpensive precautions. With a large number of people using computers daily and the number growing each day, such steps are well worth [3].

### MATERIALS AND METHODS

This is a cross sectional study done in two selected software companies who falls in the inclusion criteria. The study was conducted for a period of three months. A sample of 179 persons (calculated by taking prevalence as 76%) were interviewed by pretested self administered questionnaire. Inclusion criteria includes persons working in current job for past 6months and who use computer for more than 3hrs per day or 15hrs per week. Based on the objective of the study a structured

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questionnaire has been developed, the questionnaire contains two sections regarding demographic data and assessment questionnaire. From the assessment questionnaire the prevalence of computer vision syndrome can be identified using 18 questions categorized as low, moderate, high.

**RESULTS**

The prevalence of computer vision syndrome (CVS) found in this study was 69.3%(moderate (62%) high(7.3%))Table 1. A Chi-square test was done to find out the association between the incidence of Computer Vision Syndrome and age of the computer professionals. As the calculated value of the Chi-square (4.086) was lower than the Chi-square table value (9.49) with degree of freedom 6 at 5% level of significance there was no significant association between the incidence of Computer Vision Syndrome and age of the computer professionals (Table 2).

The Table 2 reveals that there was a significant association between the prevalence of Computer Vision Syndrome and number of years working on computer.

At 5% level of significance with 4 degree of freedom the calculated Chi-square value i.e.4.628, which was lower than the table value of Chi-square (9.49). Hence there was no significant association between the incidence of Computer Vision Syndrome and number of years working on computer. To find out the association between the incidence of Computer Vision Syndrome and total hours of working on computer per day, a Chi-square test was done. The calculated Chi-square value (0.342) was lower than the Chi-square table value (9.49) with degree of freedom 2, there was no significant association between the incidence of Computer Vision Syndrome and total number of hours of working on computer per day.

The Table 2 reveals that there was no significant association between the incidence of Computer Vision Syndrome and total number of hours of working on computer at a stretch in a day. At 5% level of significance with 6 degree of freedom the calculated Chi-square value i.e. 7.080, was lower than the table value of Chi-square (9.49). Hence there was no significant association between the incidence of Computer Vision Syndrome and total number of hours of working on computer at a stretch in a day.

Table 1: Prevalence of Computer Vision Syndrome

Sl. NO.	Overall incidence	No.	Percentage
1	Low (<50%)	55	30.7
2	Moderate (50-75%)	111	62
3	High (>75%)	13	7.3
Total		179	100

Table 2: Association between CVS and various demographic factors:

Sl. No.	Demographic Variables	Low		Moderate		High		Chi square Value	P Value	Infer- ence	
		No.	%	No.	%	No.	%				
1	Age in years	< 30 yrs	42	30.2	85	61.2	12	8.7	4.086 6 df	0.665	NS
		31-40 yrs	10	31.3	21	65.6	1	3.1			
		41- 50 yrs	2	28.6	5	71.4	0	0			
		> 50 yrs	1	100	0	0	0	0			
2	No. of years working on computer	=3 years	45	33.1	79	58.1	12	8.8	4.628 4 df	0.328	NS
		4-6 years	10	23.8	31	73.8	1	2.4			
		7-10 years	0	0	0	0	0	0			
		>10Years	0	0	1	100	0	0			
3	Total hours of working on computer per day	< 3 hrs	0	0	0	0	0	0	0.342 2 df	0.843	NS
		4-6 hrs	0	0	0	0	0	0			
		7-10 hrs	38	31.9	72	60.5	9	7.6			
		> 10 hrs	17	28.3	39	65	4	6.7			
4	Total hours of working on computer at a stretch in a day	< 1hr	1	33.3	2	66.7	0	0	7.080 6 df 10.2	0.314	NS
		1-2 hrs	7	43.8	9	56.2	0	0			
		3-4 hrs	35	27.6	79	62.2	13	10.2			
		> 5 hrs	12	36.4	21	63.6	0	0			

## DISCUSSION

The prevalence of computer vision syndrome (cvs) found in this study was 69.3%(moderate (62%) high(7.3%)

The findings of the study was supported by Rajgopal *et al*<sup>[4]</sup>who did a study on prevalence of Computer Vision Syndrome among 600 call center employees working in different software companies in Bangalore

Out of 179 computer professionals, maximum of them (77.6%) were in the age group of <30yrs which is similar to a study done in Malaysia by A.Sen *et al*.<sup>[5]</sup> A Study of upper limb discomfort and computer vision syndrome were 71% respondents were < 30 yrs.

Regarding the total number of hours working on computer per day, maximum (66.5%) of computer professionals were working more 7-10 hours, 33.5% were working for more than 10 hours, no one were working for 4-6 hours and less than 3 hours.

Jack R *et al*<sup>[6]</sup>who conducted a study relating to work and vision supported the findings of the study. The researcher found that the major cause of Computer Vision Syndrome was due to prolonged use of computer without precaution.

## CONCLUSION

Present study showed that there is moderate prevalence of Computer Vision Syndrome among computer professionals. There was no significant association between the incidence of Computer Vision Syndrome and age of the computer professionals, number of years working on computer, total hours of working on computer per day and total hours of working on computer at a stretch in a day.

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