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A STUDY TO ASSESS THE PREVALENCE OF COMPUTER VISION SYNDROME AMONG IT EMPLOYEES IN SELECTED IT COMPANIES, PUDUCHERRY.

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Abstract

We use our eyes in almost every activity we perform, whether reading, watching television, and in other countless ways. Now days, good vision is critical and essential for smooth running of activities of daily living because of prolonged exposure to digital medias includes computer,laptops,mobile screen.This results in eye related problem known as Computer Vision Syndrome.The objectives of the study were to assess the prevalence of computer vision syndrome among IT employees in selected IT companies, Puducherry.

Methodology: The study was conducted among 800 IT employees at Puducherry. Data such as age, gender, socioeconomic status and occupation related variables were collected. Sample were selected using non probability convenience sampling technique and data were collected by CVS-Q Scale. **Results:** Majority of the IT employees had excessive blinking(80.4%) and headache (73.6%)as the important symptoms of computer vision syndrome. Most of them (69.5%) were had felt that their sight was worsened and also felt increased sensitivity to lights. Nearly (68.9%) IT employees had dryness of the eyes and burning sensation while doing work in computer.

Conclusion: This present study concluded that the IT employees are found to be vulnerable occupational groups due to prolonged exposure to digital media working conditions, lack of education on prevention of Computer Vision Syndrome and lack of regular monitoring and inspections, unaware of computer ergonomics to safe guard them. Interventional plans like education awareness and teaching them about ophthalmic exercises need to be advocated for the workers.

Keywords: digital media, prevalence, IT employee, computer ergonomics

Introduction :

Computers play a pivotal role in every field of life. They are used in homes, business, educational institutions, research organizations, medical field, government offices and for entertainment. Everyone rely on technology for their work and personal life. If they have a job that requires using computers daily, it can be impossible to reduce its usage. . However, with it comes possible health concerns. Constant technology usage can create health problems with our arms, wrist, back and eyes. These issues can cause discomfort and even acute pain and have long term consequence like computer vision syndrome. Nearly 60 million people suffer from Computer Vision Syndrome globally, resulting in reduced productivity at work and reduced quality of life of the computer worker (Ranasinghe,2016). About 80 percent of American adults report using digital devices for more than two hours per day with nearly 67 percent using two or more devices simultaneously, and 59 percent report experiencing symptoms of digital eye strain. In India, more than 40 million people using computer and 80% have discomfort due to CVS such as Eye strain, headache, blurring of vision and dryness which were reported as the most common symptoms(Raja AM,2018)

Computer Vision Syndrome (CVS) is a complex of eye and vision problems related to near work which are experienced during or related to computer use. CVS is characterized by visual symptoms which result from interaction with a computer display or its environment. When the demand at near work exceeds the normal ability of the eye to perform the job comfortably, one develops discomfort and prolonged exposure to the discomfort leads to a cascade of reactions that can be put together as Computer Vision Syndrome (Sankaranethralaya, 2022).

The 2016 Digital Eye Strain(DES) report, which included survey responses from 10000 US adults, identified an overall self-reported DES symptom with prevalence rate of 65%, with females more commonly affected than males (69% vs 60% prevalence). DES was reported more frequently by individuals who used two or more devices simultaneously, compared with those using just one device at a time, with prevalences of 75% and 53%, respectively. The greater level of computer-related symptoms in females was in agreement with 2012 findings among a cohort of 520 office workers in New York City and may be linked to gender differences in dry eye prevalence (Portello et al,2013) .

A multi nation European study including England, Ireland and Maltova reported that by 3 years of age, 68% of children regularly use a computer and 54% undertake online activities.In 2016, it was estimated that UK adults typically spend 4 hours 45 min per day using

digital media, with a similar pattern in the USA, where approximately two-thirds of adults aged 30–49 years spend five or more hours on digital devices. (Sheppard AL, 2018).

Sridevi B (2022) conducted non-experimental descriptive research on Prevalence of visual disturbance among IT professionals in software companies in Thandalam, Tamil Nadu. The sample consists of 100 IT professionals were selected using Convenience sampling technique. The data were collected by self-structured questionnaire. The findings indicated that a roughly equal percentage of IT professionals (54%) are unaffected and similarly comparable amounts (46%) are harmed. The shift of work and age had demonstrated a statistically significant association ($p < 0.05$) with the prevalence of visual disturbance among IT workers. The study concluded that in order to decrease the prevalence of Computer Vision Syndrome and eventually raise job happiness and productivity, there needs to be a greater understanding of Computer Vision Syndrome and adherence to advised ergonomic procedures. Hence the early recognition of computer vision syndrome and preventive measures of susceptible employees with CVS need to adapt computer ergonomics in the work place before the chronic impairment develops will prove to be beneficial.

Aims and objectives:

The present study is aimed to assess the prevalence rate of computer vision syndrome among IT employees in selected IT companies in Puducherry. The objectives of the study was to assess the prevalence of computer vision syndrome among IT employees in selected IT companies, Puducherry.

Methods and Materials: A total of 800 IT employees were selected from IT companies at Puducherry. The study was conducted using non probability convenience sampling technique to select the subjects. After getting approval from Institutional Human Ethical Committee, Annamalai University researcher enrolled the subject after getting their informed consent and data were collected using CVS-Q Scale from the samples. Demographic variables, Occupational related variables, computer vision syndrome –questionnaire (CVS-Q) scale were administered to assess their Computer Vision Syndrome score. The reliability of the tool was assessed by test-retest method and it was found to be feasible ($r = 0.90$)

Discussion and Results:

Table 1: Frequency and Percentage Distribution of demographic Variables among IT employees N=800

S.No	Variables	Sub Variables	No.	%
1.	Age	21-25 years	90	11.3
		26-30 years	156	19.5
		31-35years	370	46.3
		35 years and above	184	23.0
2.	Gender	Male	584	73.0
		Female	216	27.0
3.	Marital status	Un married	370	46.2
		Married	419	52.3
		Divorced	11	1.3
3.	Educational status	Undergraduate	652	81.5
		Postgraduate	148	18.5
4.	Income	10,000-20,000	159	19.9
		30,000-40,000	278	34.8
		40,000-50,000	236	29.5
		Above 50000	127	15.9
5.	Family	Nuclear	483	60.4
		Joint	317	39.6
6.	Residence	Urban	500	62.5
		Rural	300	37.5

Table 1 shows the Demographic data of IT Employees. Among 800 IT employees, 46.3% of employee belonged to the age group of 31-35years, majority were males (73%) and 81.5% had completed post-graduation. Nearly Half of them were married (52.3%) and 34.8% were earned between 30,000-40,000 rupees per month. Regarding type of family 60.4% were belonged to nuclear family and 62.5% of employees hailed from rural area.

Table 2: Frequency and Percentage Distribution of Occupational Variables among IT employees

N=800

S.No	Variables	Sub Variables	No.	%
1.	Year of experience	a)1-5	79	9.9
		b)6-10	295	36.9
		c) 11-15	346	43.3
		above 15	80	10.0
2.	Hours of Daily Exposure to Computer Monitor	a) Less than 5 hrs/day,	294	36.8
		b) 5-7.5 hrs/day	271	33.9
		c) 7.5-10 hrs/day	235	29.4
		d)More than 10 hrs/day	0	0
3.	Type of Computer Used:	a) Desktop Computer	229	28.6
		(b) Laptop Computer	216	27.0

		c)both	355	44.4
4.	Nature of Work,	a) Computer Aided Design	248	31.0
		b) E -publishing	249	31.1
		c) Software Professional	215	26.9
		d) Graphic Designers	88	11.0
5.	Visual acuity	20/20-normal vision	193	24.1
		20/30-20/60-near vision	607	75.8
		20/70-20/160-moderate vision	0	0
		20/200-20/400-severe vision	0	0

Table 2. Shows the Occupational Variables of IT employees. Among 800 IT employees, about 43.3% of them had 11-15years of experience. Regarding hours of daily exposure to computer monitor 36.8% had exposure to screen for less than 5 hours per day and 33.9% had exposure to 5-7.5 hours per day. The type of computer used showed that 44.4% of employees used both desktop and laptop computer, 31.0% employees nature of work were Computer Aided Design and E –publishing work. About visual acuity, 75.8% had near normal vision and remaining (24.1%) had normal vision.

Table 3: Prevalence of computer vision syndrome among IT employees.
N=800

S.no	Variables	Absent		Present	
		No.	%	No.	%
1.	Burning	251	31.4	549	68.6
2.	Itching	299	37.4	501	62.6
3.	Feeling of a foreign Body	482	60.3	318	39.8
4.	Tearing	272	34.0	528	66.0
5.	Excessive blinking	157	19.6	643	80.4
6.	Eye redness	309	38.6	491	61.4
7.	Eye pain	289	36.1	511	63.9
8.	Heavy eyelids	352	44.0	448	56.0
9.	Dryness	249	31.1	551	68.9
10.	Blurred vision	399	49.9	401	50.1
11.	Double vision	385	48.1	415	51.9
12.	Difficulty focusing for near vision	306	38.3	494	61.8
13.	Increased sensitivity to light	244		556	69.5
14.	Coloured halos around objects	327	40.9	473	59.1
15.	Feeling that sight is worsening	244	30.5	556	69.5
16.	Headache	211	26.4	589	73.6

Table 3 shows the prevalence of computer vision syndrome among IT employees ,majority of the IT employees had excessive blinking(80.4%) and headache (73.6%)as the important symptoms of computer vision syndrome. Most of them (69.5%) were had the feeling that their sight was worsening and felt increased sensitivity to lights. Nearly 68.9% IT employees had dryness of the eyes and burning sensation while doing work in computer.

Among the 800 IT employees (66%) and (63.9%) had the tearing and eye pain complaints respectively, (61.4%)were experienced eye redness , (62.6%) IT employees had complained of itching in the eyes, (59.1%)had colored halos around the objects ,(56.0%) were affected with heavy eyelids. Remaining variables like double vision, blurred vision and felt presence of foreign body were reported below (50%) .

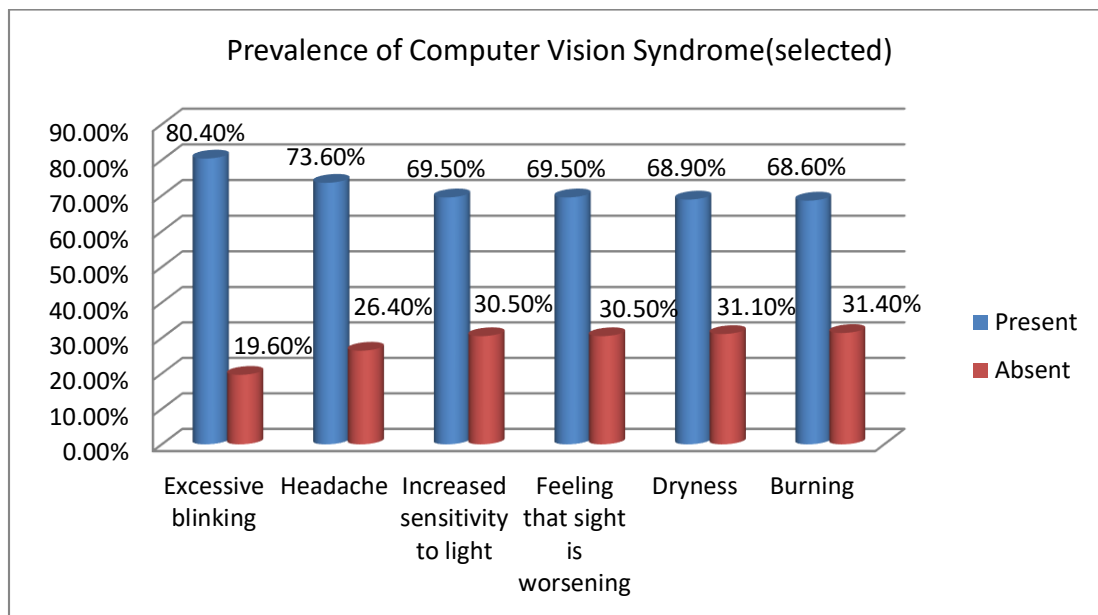


Figure 1 shows the prevalence rate of computer vision syndrome symptoms.

Discussion

The research study highlighted adverse effects of prolonged usage of computer among IT employees. The present study concluded that the prolonged exposure to computer are highly vulnerable for developing computer vision syndrome and the highest reported symptoms were excessive blinking(80.4%), headache (73.6%) and increased sensitivity to light(69.5%) among the IT employees.

This findings was supported by the cross-sectional study conducted by Bindu Thampi, Antony J, Ajith Mohan M and Varsha Vijayana (2020) on awareness and symptoms of Computer Vision Syndrome among (220) computer users in Kerala, India using a purposive sampling technique. The findings revealed that 79% of respondents agreed to have at least one symptom and headache was the most prevalent symptom (37.35%) followed by Eye strain (29.88%), dryness (15.51%), watering of the eyes (12.06%), and other symptoms like impaired vision and redness (5.2%) were the additional symptoms. They were all using computers with the eye level. The study concluded that CVS is a serious occupational danger for persons who use computer for an extended period of time and appropriate intervention was needed to reduce it.

Conclusion:

The IT employees are found to be vulnerable occupational groups due to prolonged exposure to digital media , its improper working conditions, lack of education on prevention of Computer Vision Syndrome and lack of regular monitoring and inspections, unaware of computer ergonomics to safe guard them. Interventional plans like educational awareness about the above factors and teaching them about ophthalmic exercises need to be advocated for the workers.

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