



## Effectiveness of Self Instructional Module on Knowledge on Prevention of Computer Vision Syndrome for Computer Professionals Working in A Selected Software Enterprise at Bangalore, Karnataka

### KEYWORDS

Self Instructional Module, Prevention, Computer Vision Syndrome.

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**ABSTRACT** As more and more work, education and recreation involves computers, everyone needs to be aware of the hazards of computer related health disorders like Carpal Tunnel Syndrome, Repetitive stress injuries, Computer Vision syndrome, Cyber addiction etc. These conditions can be serious and painful and if neglected can cause young and physically fit individuals leave computer dependent careers or be permanently disabled. These conditions are far easier to prevent than to cure once contracted, by having a healthy lifestyle and work habits and working at ergonomically good work station. In the present study the researcher investigated the effectiveness of self instructional module on knowledge on prevention of computer vision syndrome. In an effort to meet the objectives, the study was conducted in a selected software enterprise in Bangalore city. Data pertaining to this study was gathered from 100 software professionals before and after the administration of self instructional module on knowledge on prevention of computer vision syndrome by using a structured knowledge questionnaire. The collected data was tabulated and analyzed using frequency distribution, percentage, mean, standard deviation, chi-square test, paired 't' test and Fisher's exact probability test.

### INTRODUCTION

Computers have become a permanent part of our lives. It is a vital tool in many different jobs and activities, for adults and children. Although computers have certainly made our work lives easier and more efficient, they place an unusual strain on our physical well being. The most widespread problem Computer Vision Syndrome (CVS) is marked by such symptoms as eye strain, burning eyes, headache, blurred vision, neck and backache and muscle spasms. The condition affects computer users from all walks of life.-the programmers, graphic artists, teachers, students, journalists, accountants. It affects those who work at a computer as much as ten hours a day and those who spend as little as two hours a day. Today computer vision syndrome is known as the number one occupational hazard of 21<sup>st</sup> century.

The U.S Bureau of labor statistics reports that more than 75 million workers sit at a computer everyday. More than 143 million Americans work on a computer each day, with 88% of them suffering from computer eye strain, according to estimates. In addition nearly 54 million children work at a computer each day either at home or at school. Currently, there are 135 million visually disabled in the world and 90% of these live in developing countries. The present rate is likely to double by 2020<sup>1</sup>. This prompted WHO and it's member states to launch a global initiative in 1999 called "VISION 2020-The Right to Sight" The programme aims at eliminating the preventable causes of visual impairment and in this context, prevention of computer related eye strain receives major attention. The National Institute of Occupational Safety and Health (NIOSH) reports that nearly 88% of all computer professionals will develop CVS at some time in their lives<sup>2</sup>. Eye strain is the number one complaints of office workers. The more time you spend working at a computer, the more likely you are to report problem with eye strain.

In spite of such a majority of population involved in computer related jobs, no significant research in computer related health problems has been carried out in India as compared to Western countries. The CVS remain under-

estimated and poorly understood issue at the work place. The general public, health professionals, the government and private industries need to be educated about this CVS. Therefore the researcher has done a comprehensive study on the subject in order to create awareness and mitigate the risk factors in the industry.

### Objectives of the study

- To assess the existing knowledge of computer professionals on prevention of computer vision syndrome.
- To evaluate the effectiveness of self-instructional module on prevention of computer vision syndrome.
- To associate post test knowledge of computer professionals on prevention of computer vision syndrome with selected demographic variables.

### REVIEW OF RELATED LITERATURE

The investigator explored the literature related to the health problems faced by computer professionals with an aim of developing better teaching strategy. A cross sectional study was conducted on the computer related health problems among information technology professionals revealed that out of 200 subjects, 76% of them were having visual problems, while 77.5% had musculoskeletal problems and 35% of them had stress related problems. This study also brought into focus, the factors contributing to the occurrence of health problems in these professionals<sup>3</sup>.

A survey was conducted among members of American optometrists association regarding the prevalence and treatment of visual stress symptoms related to VDT use. Out of 7000 study subjects 18.5% of the subjects responded and the responses were analyzed. The study report revealed that on average, 17.3% of the optometrists were treating symptoms related to use of VDT monitors and LCD screens. The study concluded saying that computer vision syndrome affects millions of office workers, students and even retired people.<sup>4</sup>

An article on the health hazards of being an IT professional emphasized on the importance of adopting various preventive measures like, compulsory annual health check up

for the professionals as well as ergonomically designed furniture and importance of exercise programme<sup>5</sup>.

A survey was conducted among 125 professional graphic designers. It was observed that even though there is high prevalence of visual discomfort, the subjects were highly unaware of the relationship of the symptoms to prolonged exposure to computer monitor. This study suggested the need for educational programmes for the professionals on prevention of work related health problems.<sup>6</sup>

**METHODOLOGY**

In order to accomplish the main objectives of the study, an evaluative approach was selected for the study. It was used to assess the knowledge of computer professionals on prevention of computer vision syndrome and to test the effectiveness of self instructional module prepared on prevention of computer vision syndrome. Pre Experimental -One group pre test –post test design was adopted for the study. In one group pre testpost testdesign, the investigator introduced base measure before and after planned exposure which is depicted as O1and O2 respectively. In this study the base measure was structured knowledge questionnaire used to assess the knowledge of computer professionals. The administration of SIM is depicted as X.

Group	Pre-test (O1)	Intervention (X)	Post-test (O2)
Computer Professionals	Assessment of knowledge on prevention of computer vision syndrome on 1 <sup>st</sup> day	Administration of self instructional module on prevention of computer vision syndrome on 1 <sup>st</sup> day	Assessment of knowledge on prevention of computer vision syndrome after 7 days.

**Figure 1: Schematic representation of study design**

The setting was chosen on the basis of feasibility in terms of availability of the subjects who are computer professionals and who work exclusively on computers during their working hours. The investigator selected the following fields of the software enterprise such as software programming division, graphic designing, computer aided designing, customer service and financial consulting department for the study. Non probability convenient sampling technique was used to select the samples.A structured knowledge questionnaire was used to collect the dataReliability and validity of the tool was established by conducting a pilot study before proceeding the main study.

**Results**

Demographic variables of the computer professionals described in terms of the frequency and percentage distribution showed that majority 38 (38%) of the computer professionals were in the age group of 20-24 years and 71(71% )of them were males. With regard to their professional qualification 70(70%) of them were degree holders and majority 51 (51%) of the subjects were with 1-5 years of experience,97(97%) of the subjects had daily exposure of about 7.5-10 hrs to computer monitor, majority 29 (29%) of the subjects were software professionals and 94(94% )of the subjects were using desktop computers.

Findings regarding assessment of pretest and posttest level of knowledge of computer professionals on prevention of computer vision syndrome showed that in the pretest, out of 100 subjects majority of them 68 (68%) had inadequate knowledge with a mean score of 11.34 (SD 2.31). But in the post test majority of computer professionals 94

(94%) reported adequate knowledge regarding prevention of computer vision syndrome after the administration of self-instructional module with a overall mean score of 21.97( SD 1.99).

Regarding the effectiveness of self instructional module the findings of the study showed that the overall knowledge score obtained by the computer professionals in the pre test was 11.34 and in the post test 21.97.The overall improvement mean score was 10.63 with t' value 80.34 which was highly significant at P<0.001 level. The study findings also revealed that there was significant association between the post test knowledge of the computer professionals and the selected demographic variables such as age, educational status and years of experience.

Computer Vision Syndrome is a very real problem and there are solutions to the problem .Studies show that 50% to 90% of computer users experience computer vision syndrome, and most are not even aware they have the condition. This study finding reveals that a mass preventive education programme to be given to all computer professionals for their health promotion .This will contribute to healthy family and thereby a healthy community.

**LIMITATIONS**

- The investigator could not include control group in this study.
- The study was limited to one selected software enterprise and among selected fields of the computer professionals hence the possibility for wider generalization is limited.

**RECOMMENDATIONS**

On the basis of the study that had been conducted, certain suggestions are given for future studies.

- A similar study can be done on a large sample.
- A prevalence study can be carried out to assess the signs and symptoms among computer professionals.
- A long term longitudinal study can be carried out to assess the effects of long term exposure to video display terminals (VDT).
- Regular inservice educational programmes should be conducted for the computer professionals regarding the prevention of various computer work related health problems.

**CONCLUSION**

Using computer is a necessity nowadays. Too much of everything is, however, bad, and computers can cause a lot of health problems unless one is careful. All computer based workers may face health hazards, especially those who spend long hours in front of the computers. Problems like eyestrain, blurred vision, headache, and neck ache are multiplying rapidly among computer users. Most of the problems arise due to improper working with the computers or its overuse. But most of these computer users are unaware of the health problems and also the preventive aspects of these problems.Computer Vision Syndrome is a very real problem and there are solutions to the problem .Studies show that 50% to 90% of computer users experience computer vision syndrome, and most are not even aware they have the condition. This study finding reveals that a mass preventive education programme to be given to all computer professionals for their health promotion .This will contribute to healthy family and thereby a healthy community.

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