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### RESEARCH ARTICLE

## EFFECTIVENESS OF E-MODULE REGARDING COMPUTER VISION SYNDROME AND ITS MANAGEMENT: AN EXPERIMENTAL STUDY

**Ms. Shikha Shrivastava**

Professor, Chirayu College Of Nursing.

### Manuscript Info

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#### Key words:-

E Module, Computer Vision Syndrome,  
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### Abstract

Computer vision syndrome (CVS) is a condition in which a person experiences one or more of eye symptoms as a result of prolonged working on a computer<sup>(1)</sup>. Effectiveness of e- module on knowledge regarding computer vision syndrome and its management among computer professionals, 200 samples were selected for the study. The design adopted for the study was one group pre testpost test design. The finding shows that there is a significant difference between pre test and post test result, Z test value was 37.4 which were significant at 0.05 level.

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### Introduction:-

Eye problems caused by computer use fall under the heading computer vision syndrome (CVS). It isn't one specific problem<sup>(2)</sup>. Instead, it includes a whole range of eye strain and discomfort. Research shows that between 50% and 90% of people who work at a computer screen have at least some symptoms<sup>(3)</sup>.

Working adults aren't the only ones affected. Kids who stare at tablets or use computers during the day at school can have issues too, especially if the lighting and their posture are less than ideal<sup>(4,5)</sup>.

An e-module is a 10 – 15 minute e-learning platform that has no more than one or two learning concepts and incorporates a blend of teaching and assessment tools that may include video clips, direct instruction, gaming elements and social media<sup>(6)</sup>.

### Research Methodology:-

1. Research design: pre experimental Design
2. Setting :Maulana Azad National Institute of Technology , Bhopal.
3. Research approach: Evaluative approach
4. Sampling technique: simple random technique. (Probability)
5. Sampling criteria: Computer professionals those who are interested to participate, Computer professionals who are working more than 6-9 hours at computer.
6. Sample size: 200.

### Description of the Tool:

The interview schedule consisted of 2 sections consisted of:-

**Corresponding Author:- Ms. Shikha Shrivastava**  
Address:- Professor, Chirayu College Of Nursing.

**Section A:****Socio demographic data.**

This section consist of 10 items pertinent to the demographic data of the computer professionals regarding the gender, age, education, area of residence, How many hours you use computer in a day?, Do you have any vision problem after using computer?, Professional education, Monthly Income, Occupation, Experience in computer field.

**Section B:**

Comprises of 45 question related to computer vision syndrome.

**Data collection procedure:**

Data collection was carried out from 10 – 05 – 2020 to 1 – 06 – 2020. Formal written permission was taken from research committee and college. Probability simple random technique was done and self structured questionnaire was adopted to approach the subject consent of the sample was taken for collection of data. Each day 10-12 samples were assessed 30-45 min were spent on each sample. Total 20 days were spent for data collection.

**Results:-****Section I - Finding related to socio – demographic data**

1. Distribution of subjects according to gender. Maximum subjects 71.66% (143) were male.
2. Distribution of subject according to age. Maximum subjects were under 66.5% (135) subjects were under 21-30 yrs.
3. Distribution of subject according to education. Maximum subjects were having 68.66% (137) subjects were having graduation.
4. Distribution of subject according to area of residence. Maximum subjects were living in urban area 72.5% (145).
5. Distribution of subject according to type of how many hours you use computer in a day? Maximum subjects were using 69% (138) subjects were using computer >6hrs in a day.
6. Distribution of subject according to do you have any vision problem after using computer? 69% (138) subjects were having vision problem after using computer.
7. Distribution of subject according to professional education. Maximum subjects 61.5% (123) have other course.
8. Distribution of subjects according to monthly income. Maximum subjects 63% (126) were having monthly income more than Rs. 10000.
9. Distribution of subjects according to occupation. Maximum subjects 68% (136) were doing other occupation.
10. Distribution of subjects according to experience in computer field. Maximum subjects 63.5% (127) were having above 4 yrs experience in computer field.

**Section II - Comparison of knowledge scores between pretest and post test by frequency, percentage and total score.**  
N=200.

Sl.No.	Score	Pre-test		Post test	
		Frequency	Percentage	Frequency	Percentage
1.	Good	23	11.5%	138	69%
2.	Average	53	26.5%	40	20%
3.	Poor	124	62%	22	11%

Table 1.1 depicts that comparison of knowledge scores between pretest and post test in which 11.5% (23) have good knowledge regarding computer vision syndrome and its management in the pre test. In the post test knowledge level, majority of computer professional 69% (138) has good knowledge regarding computer vision syndrome and its management.

**Section III:-** Analysis of pre test and post test knowledge score using frequency, percentage and total score. N=200.

Knowledge	Mean	Mean percentage	Standard deviation
Pretest	16.75	49.68%	15.0
Post test	39.2	92.96%	37.5

Table :1.2 depicts that distribution of aspect wise pre test mean knowledge score was 16.75 standard deviation of pre test knowledge score was 15, and mean percentage of pre test knowledge score was 49.68%. And post test mean

knowledge score was 39.2 standard deviation of post test knowledge score was 37.5 and mean percentage of post test knowledge score was 92.96%.

**Section IV:-**Evaluation of data related to effectiveness of e- module regarding knowledge regarding computer vision syndrome and its management using Z test  $N = 200$ .

S.N	Criteria (knowledge)	Mean	Mean difference	Standard deviation	Standard error	Z- value
1.	Pre- test	16.75	22.7	8.6	0.60	37.4
2.	Post- Test	39.2				

**Table 1.3:-** depicts the mean knowledge score of pre test 16.75 with combined standard deviation 8.6, mean knowledge score of post test 39, the mean difference is 22.7.

The statistical paired z- test implies that the difference in the pre test and post test knowledge score found highly statistically significant 37.4 which is higher than table value at  $>0.05$ , which proves the effectiveness of e- module. Hence  $H_1$  is accepted.

### Discussion:-

**On the basis of the findings of the study, the following Discussion was drawn:**

comparison of knowledge scores between pretest and post test in which 11.5% (23) have good knowledge regarding computer vision syndrome and its management in the pre test. In the post test knowledge level, majority of computer professional 69% (138) has good knowledge regarding computer vision syndrome and its management.

pre test mean knowledge score was 16.75 standard deviation of pre test knowledge score was 15, and mean percentage of pre test knowledge score was 49.68%. And post test mean knowledge score was 39.2 standard deviation of post test knowledge score was 37.5 and mean percentage of post test knowledge score was 92.96%.

Comparison of mean knowledge score of pre test 16.75 with combined standard deviation 8.6, mean knowledge score of post test 39, the mean difference is 22.7.

The statistical paired z- test implies that the difference in the pre test and post test knowledge score found highly statistically significant 37.4 which is higher than table value at  $>0.05$ , which proves the effectiveness of self instructional module. Hence  $H_1$  is accepted.

### Conclusion:-

From the data analysis and findings of the study it is concluded that the purpose of this study was to investigate the effect of E – Module on Computer Vision Syndrome and its management. The observations reported here support the following a significant issues were found in computer professionals. The statistical paired z- test implies that the difference in the pre test and post test knowledge score found highly statistically significant 37.4 which is higher than table value at  $>0.05$ , which proves the effectiveness of e- module.

### Significance of present work:

The researcher has drawn the following implication of work from the study which are of the field of Nursing Service, Nursing Administration, Nursing Education, Nursing Research.

The present study was conducted to evaluate the effectiveness of e-module on knowledge regarding computer vision syndrome and its Management among computer professionals in selected area of Bhopal MP. The findings of the present study were applicable in the field of Nursing Education, Nursing Practice, Nursing Administration and Nursing Research.

### Nursing Practice

1. The study has got a long term visionary implication in terms nursing practice.
2. Advanced nursing practice is one of the evolving trends in nursing practice which definite specified roles of nurse clinician, nurse practitioner etc are emerging. Studies like present one contribute to development of a new specialization itself in nursing of that of “nurse ergonomist” (Ergonomics is known as the science of human

factor engineering, it studies the relationship of the workplace and work practices and human well being)- a specialist role of nurse who tackles the ergonomic case management in all work settings.

3. Healthy computing can be followed by nurses them-selves.
4. Nurses as primary care givers have the supreme responsibility in prevention of work related health complications among computer professionals.

### **Nursing Administration**

1. Nursing administrators may involve in policy making and budgeting for health programmes and also formulate policies that will include all nursing staff to be actively involved in health education programmes in their respective hospital and community.
2. The necessity of an occupational health nurse is implicated not only in “environmentally clean” inclusive like Informatics Technology (IT).
3. Provide opportunity for nurse to get involved in client teaching programmes in IT industries.
4. Conduct occupational health checkups frequently in the work setting.
5. Vote for policies and legislations to protect the health of computer professionals.

### **Nursing Education**

1. The healthcare delivery system at present is giving more emphasis on preventive aspects and health promotion. The study also implies that computer professionals have to be trained well on how to make aware the computer professionals about computer vision syndrome and its prevention.
2. Although communication is included in the nursing curriculum more emphasis should be given to develop the skill so that they can impart the information to the clients effectively. Nurses need to be made aware that family participation is an important aspect of care. Continuing nursing education should be conducted for need awareness.
3. Nurse educator to give importance to currently involving work related like computer vision syndrome in nursing.
4. Specialization courses in office Ergonomics to be given.
5. In collaboration with the regulation bodies, educational institutions can arrange and conduct workshops and seminars on Computer Vision Syndrome as an evolving health problem health problem to be tackled.

### **Nursing Research**

1. Professional organizations in nursing are convinced of the importance of nursing research as a major contribution to meeting the health and welfare needs of the people. One of the aims of nursing research is to expand and broaden the scope of nursing. The expanded role of a professional nurse emphasizes those activities which promote health maintenance behaviour among the people. The present study is only an initial investigation in the area of teaching regarding computer vision syndrome and its prevention among computer professionals.
2. Promote more research in innovative areas like computer related health problems.
3. Long term longitudinal studies can be carried out as term collaborative research work, in prevention of Computer Vision Syndrome.
4. Effects can be made by nurse researchers to conduct interactive sessions with computer professionals for maintenance of healthy working practices and also to disseminate the finding of research on health problem related to prolonged computer use.

### **Suggestions for further research:-**

1. The following studies can be undertaken to strengthen occupational health nursing research.
2. A prevalence study can be carried out to assess the signs and symptoms among computer professionals.
3. The same study can be done as comparative study among different types of workers.
4. A long term longitudinal study can be carried out to assess the effects of long term exposure to video display terminal
5. A study can be done to assess the attitude and response of various managements towards preventive of computer vision syndrome.
6. A long term longitudinal study can be carried out to assess the effects of long term exposure to video display terminal
7. A study can be done to assess the attitude and response of various managements towards preventive of computer vision syndrome.

**Limitation**

1. Better generalization of the results could have been possible if the investigator had included other categories of computer professionals also.
2. The sample for the study was limited to 200 only.
3. The time span of the study was short.
4. The study was restricted to the selected area.

**Source of fund:**

The fund required for the study raised by the researcher

**Conflict of interest:**

None

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