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A Study to Assess The Effectiveness of Eye Exercises on Asthenopic Symptoms And Level of Vision among Information Technology (IT) Professionals Working in Selected Settings, Tamil Nadu

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Research Article

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ABSTRACT

The main aim of the study was to assess the effectiveness of eye exercises on asthenopic symptoms and level of vision among information technology (IT) professionals working in selected settings, Tamil Nadu Quasi experimental pretest posttest design was adopted for the study. The sampling technique used was non probability purposive sampling, where the IT professionals randomly allotted 84 in experimental,72 in control group. Data collection was done for a period of one month, assessment of demographic variables and asthenopic symptoms by (Borsting etal) asthenopic symptoms questionnaire, level of vision by (Hermans) Snellen chart was done in pretest after performing the eye exercises for one month posttest done. The effectiveness of eye exercises on asthenopic symptoms and level of vision among IT professionals showing the mean value 21.60 with the SD 3.22 in the pretest level of asthenopic symptoms in study group and the mean value 4.83 and the SD 1.59 in the pretest level asthenopic symptoms in control group. The projected "t" value of 48.5 was statistically significant in study group with the "p" value is < 0.0001.

INTRODUCTION

As computers become part of our everyday life, more and more people are experiencing a variety of ocular symptoms related to computer use. These include eye tiredness, eye pain, headaches, increased lacrimation, burning sensation, Blurring of vision collectively referred to as asthenopic symptoms. More work needs to be done to specifically define the processes that causes asthenopic symptoms and to develop and improve effective treatments that successfully address these causes [1].

One of the best things about the computer is the fact that it can help us to save so much of manual power, cost, and time. By the use of a computer, tasks can be done automatically and that will lead to saving the countless hours that may otherwise have been spent on doing the job manually [2].

It has become a significant public health problem. With the change of lifestyle and the spread of personal computers, increasing rates of such complaints have been reported in various industries. These asthenopia symptoms can be severe enough to limit personal activities and further result in potentially speeding up the development of age-related eye diseases [3].

Asthenopic symptoms, a widely spreading but largely unknown epidemic among IT professionals and ordinary computer users and to call for behavioral research programs to help computer users address this visual epidemic [4].

As the 21st century looms ahead, it is clear to see that it has advancements that humanity may never have dreamed of and one of these shining developments is the well-recognized computer.

Statement of the problem

A study to assess the effectiveness of eye exercises on asthenopic symptoms and level of vision among information technology (IT) professionals working in selected settings, Tamil Nadu

OBJECTIVES

1. To determine the effectiveness of eye exercises on asthenopic symptoms and level of vision among IT professionals in study and control group.

2. To find the correlation between asthenopic symptoms and level of vision among IT professionals in study and control group.

3. To associate the posttest level of asthenopic symptoms and level of vision among IT professionals in study and control group with the selected demographic variables.

METHODOLOGY AND MATERIALS

Quasi experimental pretest posttest design was adopted for the study. 84 IT professionals were in experimental group, 72 were in control group. Permission was obtained from the dissertation committee of SRM College of Nursing, Director of Health Sciences, The Director of ITKM Department, Director of E & T Department and other concerned persons of SRM University SRM University, Kattankulathur, Tamil Nadu, India and the Executive engineer of ITKM Department, for SRM Corporate office vadapalani. Informed consent was obtained from the study participants, after explaining the nature and duration of the study. The ethical guidelines were followed throughout the study.

Development, description and interpretation of the tool

The tool for the data collection consists of three parts

Part A: Structured questionnaire for demographic variables

Part B: Asthenopic symptoms questionnaires

Part C: Snellen's chart

Part A: Structured questionnaire for demographic variables

It consists of structured questionnaires to elicit demographic variables such as age, sex, education, income in rupees.

Part B: Asthenopic symptoms questionnaires

Asthenopic symptoms questionnaires to assess the asthenopic symptoms ranging from 1-14. Scoring of the tool includes Normal : 0, Mild:1-4, Moderate : 5-9 , Severe : 10-14

Part C: Snellen's chart

Snellen's chart to assess the level of vision. Scoring of the tool includes 6 / 6 - Normal (5), 6 / 9 to 6 / 22 - Mild vision loss (4). 6 / 8 to 2 / 24 - Moderate vision loss (3), 6 / 36 - Severe vision loss (2), 6 / 60 Profound vision losses (1)

RESULTS AND DISCUSSIONS

The collected data was analyzed with SPSS 11.5.

Data pertaining to demographic variables of experimental group:

The result found that the maximum age of 52 (61.9) IT professionals were in the age group of 22-29 and minimum 3 (3.6) of IT professionals were in the age group of 38-50. With regards to gender the maximum of 32 (38.1) of IT professionals were the females and minimum of 52 (61.9) of IT professionals were the males. Regarding the educational status a maximum of 32 (38.1) of IT professionals are belongs to graduates. With respect to family income group a maximum of 41 (48.8%) of IT professionals have an income between 12000 - 20000 and a minimum of 6 (7.1%) of IT professionals have an income > 50000.

Data pertaining to demographic variables of control group:

The result found that the maximum age of 34 (47.2) of IT professionals are in the age group of 22- 29 and a minimum 2 (2.8) of IT professionals were in the age group of 38 - 50. With regards to gender the maximum of 20 (27.8) of IT professionals were the females and a minimum 52 (72.2) of IT professionals are the males. Regarding the educational status a maximum of 52 (61.9) of IT professionals were belongs to post graduates and a in the control group a minimum 52 (72.2).With respect to family income and 29 (40.3%) of IT professionals have an income between 12000 - 20000 and a minimum 4 (5.6%) of IT professionals have an income > 50000.

Table 1. Frequency and percentage distribution of the pretest and posttest level of asthenopic symptoms among IT professionals in study and control group (N=156).

Grades	Study group (n=84)				Control group (n=72)			
	Pretest		Posttest		Pretest		Posttest	
	F	%	F	%	F	%	F	%
Normal	0	0	9	10.7	0	0	0	0
Mild	48	57.1	63	75	39	54.1	36	50
Moderate	34	40.4	12	14.2	31	43	34	47.2
Severe	2	2.3	0	0	2	2.7	2	2.7

The analysis depicted that the pretest the grading of normal were 0 (0%),mild 48 (57.1%),moderate 34 (40.4),severe 2 (2.3) and in the posttest normal were 9 (10.7%),mild 63 (75%),moderate 12 (14.2),severe 0 (0%) in the study group also in the control group that the pretest the grading of normal were 0 (0%),mild 39 (54.1%),moderate 31 (43),severe 2 (2.7) and in the posttest normal were0 (0%),mild 3 (50%),moderate 3 (47.2),severe 2 (2.7%).

Table 2. Effectiveness of eye exercise in pretest and posttest level of asthenopic symptoms among IT professionals in study and control (N=156).

Groups	Statistics measurements	Pretest	Posttest	T-test
Study group	Mean value	21.6	2.61	t= 48.5
(n=84)	Standard deviation	3.22	1.95	$p < 0.0001$**
Control group	Mean value	4.83	4.87	t=0.155,
(n=72)	Standard deviation	1.59	1.5	P=0.87
t-test	-	T=0.177	t=5.77	-
		P=0.78	$p < 0.0001$**	

The analyzes depicted that the mean value 21.60 with the standard deviation 3.22 in the pretest level of asthenopic symptoms in study group and the mean value 4.83 and the standard deviation 1.59 in the pretest level asthenopic symptoms in control group. The projected "t" value of 48.5 was statistically significant in study group with the "p" value is < 0.0001.

Table 3. Frequency and percentage distribution of pretest and posttest level of vision among IT professionals in study and control group (N=156).

Grading	Study group (n=840								Control group (n=72)							
	Pretest				Posttest				Pretest				Posttest			
	RT		LT		RT		LT		RT		LT		RT		LT	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
5	46	54.7	45	53.5	46	54.7	46	54.7	40	55.5	41	56.9	39	54.1	41	56.9
4	20	23.8	18	21.4	20	23.8	18	21.4	10	13.8	8	11.1	10	13.8	8	11.1
3	9	10.7	11	13	8	9.5	8	9.5	7	9.7	7	9.7	7	9.7	7	9.7
2	3	3.5	5	5.9	3	3.5	6	7.14	7	9.7	9	12.5	8	11.1	2	2.7
1	6	7.1	5	5.9	7	8.3	5	5.9	8	11.1	7	9.7	8	11.1	7	9.7

The analysis depicted that the pretest level of vision for the study group the normal were RT 46 (54.7%) LT 45 (53.5), mild RT 20 (23.8%) LT 18 (21.4), moderate RT 9 (10.7%) LT 18 (21.4), severe RT 3 (3.5%) LT 5 (5.9), profound RT 6 (7.1%) LT 5 (5.9) and in the posttest normal were RT 46 (54.7%) LT 46 (54.5), mild RT 20 (23.8%) LT 18 (21.4), moderate RT 8 (9.5%) LT 8 (9.5), severe RT 3 (3.5%) LT 6 (7.1), profound RT 6 (7.1%) LT 5 (5.9).The analysis depicted that the pretest level of vision for the control group the normal were RT 39 (54.1%) LT 41 (56.9), mild RT 10 (13.8%) LT 8 (11.1%), moderate RT 7 (9.7%) LT 7 (9.7), severe RT 7 (9.7%) LT 9 (12.5%), profound RT 8 (11.1%) LT 7 (5.7) and in the posttest normal were RT 39 (54.7%) LT 41 (54.5), mild RT 10 (13.8%) LT 8 (11.1), moderate RT 7 (9.5%) LT 7 (9.5), severe RT 8 (11.1%) LT 2 (2.7), profound RT 8 (11.1%) LT 7 (9.7%).

Table 4. Effectiveness of eye exercise in pretest and posttest level of vision among IT professionals in study and control group (N=156).

		pre test		post test			
		R	L	R	L	r t test	l t test
Study Group	Mean	4.15	4.11	4.13	4.1	t=1.96, p=0.05	t=0.049 p=0.96
	Standard Deviation	1.2	1.2	1.24	1.22		
Control Group	Mean	3.89	3.93	3.89	3.93	–	–
	Standard Deviation	1.45	1.44	1.45	1.44		
	t-test	t=1.24 p=0.21	t=0.86 p=0.18	t=1.15 p=0.25	t=0.81 p=0.17		

The analysis depicted that the mean value (R) 4.15 (L) 4.11 with the standard deviation (R) 1.20 (L) 1.20 in the pretest level of vision in study group and the mean value (R) 3.89 (L) 3.93 and the standard deviation (R) 1.45 (L) 1.44 in the pretest level of

vision in control group. The projected "t" value of 48.5 was statistically not significant in study group with the "p" value is (R) 0.21 (L) 0.18 and the projected "t" value of (R) 1.24 (L) 0.86 was statistically not significant in control group with the "p" value is (R) 0.051 (L) 0.96 and the "t" value is (R) 1.96 (L) 0.049 was statistically not significant for the study group.

Table 5. Correlation between the asthenopic symptoms and level of vision among IT professionals in study and control group (N=156).

Group			Asthenopic symptoms Posttest	Level of vision posttest
Study Group (n=84)	Asthenopic symptoms Posttest	Pearson correlation	1	0.149
		Sig. (2-tailed)	-	0.176
	Vision Posttest	Pearson correlation	0.149	1
		Sig. (2-tailed)	0.176	-
Control Group (n=72)	Asthenopic symptoms Posttest	Pearson correlation	1	0.038
		Sig. (2-tailed)	-	0.753
	Vision Posttest	Pearson correlation	0.038	1
		Sig. (2-tailed)	0.753	-

There were positive correlation found between the asthenopic symptoms and level of vision in study group with the r value 0.149 and the p value 0.176 and in control group the r value 0.038 and the p value 0.753.

Association of the posttest level of asthenopic symptoms and level of vision among IT professionals in study and control group with the selected demographic variables. There were no significant association of posttest level of asthenopia symptoms and level of vision among IT professional in study and control groups with their demographic variables like age, sex, education, income in rupees [5-10].

CONCLUSION

The interventional study done to assess the effectiveness of eye exercises on asthenopic symptoms and level of vision among IT professionals in selected settings in Tamil Nadu analysis shows that the effectiveness of eye exercises on asthenopic symptoms and level of vision among IT professionals in experimental and control group showing the effectiveness has the mean value 21.60 with the SD 3.22 in study group and control group has the mean value 4.83 and the SD 1.59. The projected "t" value of 48.5 which statistically significant in study group with the "p" value is < 0.0001 and on level of vision the analyzes depicted that the mean value (R) 4.15 (L) 4.11 with the SD (R) 1.20 (L) 1.20 in study group and control group the mean value (R) 3.89 (L) 3.93 and the SD (R)1.45 (L) 1.44.. The projected "t" value of 48.5 which statistically not significant in study group with the "p" value is (R) 0.21 (L) 0.18 and the projected "t" value of (R) 1.24 (L) 0.86 which statistically not significant in control group with the "p" value is (R) 0.051 (L) 0.96 and the "t" value is (R) 1.96 (L) 0.049 was statistically not significant for the study.

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