

(RESEARCH ARTICLE)



A study to assess the effectiveness of video assisted teaching program regarding knowledge of ocular exercise on visual discomfort among children in selected school of the city

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Abstract

Objectives:

- To assess the pre-test knowledge regarding ocular exercise on visual discomfort.
- To assess the post-test knowledge regarding ocular exercise on visual discomfort. 3. To evaluate the effectiveness of video assisted teaching regarding ocular exercise on visual discomfort. 4. To associate the post-test knowledge score with selected demographic variable.

Methodology: A quantitative research approach with pre-test and post-test experimental design was used. Non probability Purposive sampling technique was adopted to select 60 school going children from selected school of the city.

Results: Assessment was done by using self-structured checklist on knowledge of ocular exercise on visual discomfort among children in selected school of the city. Analysis show that Minimum knowledge score in pre-test was 2 and maximum knowledge score in pre-test was 11. Mean knowledge score in pre-test was 6.56 ± 1.80 and mean percentage of knowledge score in pre-test was 32.83 ± 9.03 . Minimum knowledge score in post-test was 12 and maximum knowledge score in posttest was 20. Mean knowledge score in post-test was 16.96 ± 1.50 and mean percentage of knowledge score in post-test was 84.83 ± 7.53 .

Conclusion: Analysis reveal that there is association of knowledge score with age, standard and rest of other were not associated with the knowledge score of ocular exercise on visual discomfort.

Keywords: Video assisted teaching; Ocular exercise; Visual discomfort

1. Introduction

Eye are one of the vital sense organs, on which an individual day-to-day living activities are directly or indirectly dependent. If sleep duration is disregarded, a substantial range of visual perception and information is perceived by an individual through his/her eyes, both at home and workplace. Eye sight is the most evolutionarily advantageous sense for human beings. It allows for simultaneous, rapid, and efficient processing of information from the environment. In today's dynamic world, need for near and intermediate visual tasks has been dramatically increased, requiring prolonged computer and gazette related work and reading books. It demands excessive working of the extra ocular muscle (EOMS) and ciliary muscle (accommodation) which may cause eye fatigue which turn may lead to other

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associated asthenopic symptoms. Based on the immense reliance we have upon our vision, it is no wonder that many clinical techniques have been developed to assess and treat a multitude of eye and eye related problems. Globally eye fatigue and asthenopic symptoms are the most commonly reported conditions in a non presbyopic population and are highly significant. Most of the people complain of ocular visual discomfort such as asthenopia, headache, tired eyes, eye strain, dry eyes, eye irritation, blurring of vision, burning sensation, redness, and diplopia that impair the efficiency of near and intermediate tasks. As per the records of little flower hospital's ophthalmology department 1,915 children below the age of 15 years have consulted doctors in May, and 60 percent of them suffered from short – sightedness excessive strain is the reason for reduction in eye power, weakening of the eye muscle and dry eyes. Eye exercise are often prescribed in vision therapy to resolve issue relating to vergence , ocular motility disorder, accommodative dysfunction, amblyopia, learning disabilities, dyslexia, asthenopia, myopia, motion sickness, sports performance, stereopsis visual field defects and visual acuity. Eye exercises also practiced to enhance sports performance and used during yoga to promote general wellbeing. Yogic eye exercise also called eye yoga, are movements that claim to strengthen and condition the muscles in your eye structure, people who practice eye yoga are often hoping to improve their vision, treat symptoms of dry eye, and decrease eye strain.

Vision is a complex perceptual process that is often mistakenly believed to be purely mechanical. The complexity of human vision means that almost a fifth of the brain is devoted to visual processing cells. Eye discomfort is a common health problem experienced by computer users. Often, people are unaware of existing visual problems that may only come to light when they begin using computers because the demand on the visual system of this work can be very high. It may cause eye fatigue and other associated asthenopic symptoms. Globally, eye fatigue is one of the most commonly reported condition in non presbyopic population with asthenopic symptoms. It is necessary to get relief from eye fatigue for better near and intermediate tasks. Poor vision accounts for nearly half of all disability among children in the developing world. The most common and easily treated cause of visual impairment (visual acuity < 6/18) is refractive error, which affects 12.8 million children between the ages of 5 and 15 globally. Approximately one half of these children reside in India, spectacles provide safe and inexpensive correction for refractive error, but among children requiring correction in rural and urban migrant populations in India, spectacles wear is as low as 15%. The situation is due in part to wide spread perception among parents, teachers and even some healthcare providers that eye glasses wear harms children's vision by worsening myopia. Eye exercises are meant to be done in all schools throughout the country according to a nationally designated protocol. Students are supposed to carry out the exercises at least once each school day (that is 5 times per week). Each eye exercise session is 5 min long, and these are generally not overseen by school instructors. The some exercises are recommended for all students, regardless of the presence or absence of refractive error.

1.1. Need of the study

According to an article in new Indian express, Kochi, parents says that children spending up to five hours for online classes which causes long- term effect on their eye-sights. However with the education system itself shifting to digital mode, parents are stuck between the demands of the their children and need to take care of their wellbeing. In the recent studies shown that about 85% children suffer from vision syndrome and eye strain. In the children major symptoms related to digital and continue mobile used reported by ophthalmologist were eye strain, headache, tiredness, burning sensation, dry and irritated eye etc. According to Dr. Shirole (2010), about in the 5 year of the incidence of CVS (computer vision syndrome) was just 8-15%. And now a days every 1 of 4 patient visiting ophthalmic OPD because of CVS. The CVS cases have been witnessed among children addicted to video games and TV or mobiles. Hence in accordance with many cited studies, investigator felt that, there are many studies on ocular exercise but still there is a dearth of information that how ocular exercises will help school going children to reduce visual discomfort. Hence educating children regarding ocular exercise will help students to gain knowledge regarding ocular exercise and relief stress from the eye problems.

1.2. Title

A study to assess the effectiveness of video assisted teaching program regarding knowledge of ocular exercise on visual discomfort among children in selected school of the city.

Objectives

- Primary objectives

To evaluate the effectiveness of video assisted teaching program regarding ocular exercise on visual discomfort among children on selected school of the city.

- Secondary objectives
 - To assess the pre-test knowledge regarding ocular exercise on visual discomfort.
 - To assess the post-test knowledge regarding ocular exercise on visual discomfort.
 - To evaluate the effectiveness of video assisted teaching regarding ocular exercise on visual discomfort.
 - To associate the post-test knowledge score with selected demographic variable.

1.3. Operational definitions

- Assess

In this study, it refers to the perception of the children regarding ocular exercise.

- Effectiveness

In this study effectiveness of means, the desired changes brought about by the video teaching programs on knowledge regarding ocular exercise on visual discomfort.

- Video assisted teaching

In this study video assisted teaching means, to provide information through video in more engaging to senses, to convey more information.

- Knowledge

In this study knowledge means, response obtain from the students of 5th, 6th, 7th, class regarding ocular exercises.

- Ocular exercise

In this study exercises refers to the instructions given to students to reduce eye discomfort and certain eye exercises to overcome eye fatigue.

- Visual discomfort

In this study, visual discomfort means pain in or around the eyes, often associated with headache and sometimes accompanied by signs such as red, itchy or watering eyes.

- Children

In this study, children refer to the boys or girls who are studying in 5th, 6th, 7th, standard and are in the age group 11-14 years.

- School

In this study, school refer to the place where children go to be educated.

1.4. Hypothesis

Hypothesis will be tested at 0.05 level of significance

- H0 = there will be no significant difference between pre-test and post-test knowledge score regarding ocular exercise on visual discomfort.
- H1 = There will be significant difference between pre-test and post-test knowledge score regarding ocular exercise on visual discomfort.

1.5. Ethical aspects

The study proposal was accepted by the ethical committee of the institution. Permission was obtained by the concerned authorities before conducting the study. Consent letter will be obtained by individual samples and their parents after explaining them the research process in their own language. Confidentiality regarding the samples information will be maintained by using code numbers by the investigator.

2. Review of literature

In the presence study the literature review has been organized into the following categories:

- Literature related to visual discomfort among children.
- Literature related to ocular exercise.
- Literature related to effectiveness of ocular exercise on visual discomfort.

2.1. Conceptual framework

The conceptual framework of the study was derived from American nurses association published “standard of nursing practice” which describe the five steps nursing process model (ANA 2003).

3. Material and method

- Research approach: In this study, Quantitative approach is used.
- Research design: In this study, experimental research design are used to assess the knowledge of ocular exercise on visual discomfort.
- Setting: The study was conducted in selected school of the city.

3.1. Variables

- Dependent variable: Knowledge regarding ocular exercise on visual discomfort.
- Independent variable: Effectiveness of video assisted teaching program.
- Demographic variable: Age (in year), gender, standard, type of diet, area of residence, occupation of parents, monthly family income, and are you using spectacles.

3.2. Population

Population selected for present study is all school going children.

- Target population: All school going children of selected school with age group between 11-14 years.
- Accessible population: All school going children of selected school with age group between 11-14 years and who are available at the time of data collection.

3.3. Sample

In this study sample consisted of 60 school going children.

- Sample size: 60 school going children.
- Sampling technique: Non probability purposive sampling technique

3.4. Sampling criteria

- It is the criteria that specify the population characteristics.

3.4.1. Inclusion criteria

Children who are

- In the age group between 11-14 years Studying in 5th, 6th, 7th standard.
- Willing to participate.

3.4.2. Exclusion criteria

Children who are –

- Studying in special schools.
- Not available at the time of data collection.
- Not willing to participate.

3.5. Description of the tools

The tool used in this study consist of two major section:

- Section A - self structured questionnaire on Demographic data.
- Section B – self structured checklist on ocular exercise on visual discomfort.

3.6. Validity

The content and construct validity of the tool was done by 5 experts. Hence the tool was valid for the study.

3.7. Reliability

The reliability for checklist was calculated by parallel method, the reliability of tool is 0.949.

3.8. Pilot study:

The pilot study was conducted in selected school from 05/04/2023 to 30/04/2023.

3.9. Data collection

Data are the observable and measurable facts that provide information about the phenomenon under study. It is a precise systematic gathering of information relevant to the research purpose or the specific objective, or hypothesis of the study. The procedure for collecting data is not a mechanical process that can be carefully planned prior to initiation. The investigator as a whole person should be totally involved in the perceiving, reacting, interacting, reflecting, and attaching meaning and recording. In this data collection done between 05/04/2023 to 30/04/2023.

4. Result

4.1. Section A

Distribution of children with regards to demographic variables.

Table 1 Percentage wise distribution of Children according to their demographic characteristics. **n=60**

Demographic Variables	No. of children	Percentage (%)
Age(years)		
11 years	19	31.7
12 years	21	35.0
13 years	20	33.3
14 years	0	0
Gender		
Male	30	50.0
Female	30	50.0
Standard		
5 th class	16	26.7

6 th class	26	43.3
7 th class	18	30.0
Diet		
Vegetarian	23	38.3
Non Vegetarian	4	6.7
Mixed Diet	33	55.0
Area of residence		
Urban	17	28.3
Rural	26	43.3
Semi Urban	17	28.3
Occupation of parents		
Labour	5	8.3
Private Job	29	48.3
Government Job	11	18.3
Other	15	25.0
Monthly family income(Rs)		
<10000 Rs	9	15.0
11000-20000 Rs	20	33.3
21000-30000 Rs	14	23.3
>31000 Rs	17	28.3
Using Spectacles		
Yes	6	10.0
No	54	90.0

4.2. Section B

Assessment of level of pre-test and post-test knowledge regarding ocular exercise on visual discomfort among children in selected schools of the city.

Table 2 Assessment with level of pre-test knowledge n=60

Level of pre-test knowledge	Score Range	Level of Pre-test Knowledge Score	
		No of children	Percentage
Poor	0-20%(1-5)	16	26.67
Average	21-40%(6-10)	43	71.67
Good	41-60%(11-15)	1	1.67
Very Good	61-80%(16-20)	0	0
Minimum score		2	
Maximum score		11	
Mean knowledge score		6.56 ± 1.80	
Mean % Knowledge Score		32.83 ± 9.03	

Table 3 Assessment with level of post-test knowledge n=60

Level of post-test knowledge	Score Range	Level of Post-test Knowledge Score	
		No of children	Percentage
Poor	0-20%(1-5)	0	0
Average	21-40%(6-10)	0	0
Good	41-60%(11-15)	11	18.33
Very Good	61-80%(16-20)	49	81.67
Minimum score		12	
Maximum score		20	
Mean knowledge score		16.96 ± 1.50	
Mean % Knowledge Score		84.83 ± 7.53	

4.3. Section C

Assessment of effectiveness of Video Assisted Teaching Programme on knowledge regarding ocular exercise on visual discomfort among children in selected schools of the city.

Table 4 Significance of difference between knowledge score in pre-test and post-test of Children n=60

Test	Mean	SD	Mean Difference	t-value	p-value
Pre Test	6.56	1.80	10.40±2.35	31.14	0.0001 S,p<0.05
Post Test	16.96	1.50			

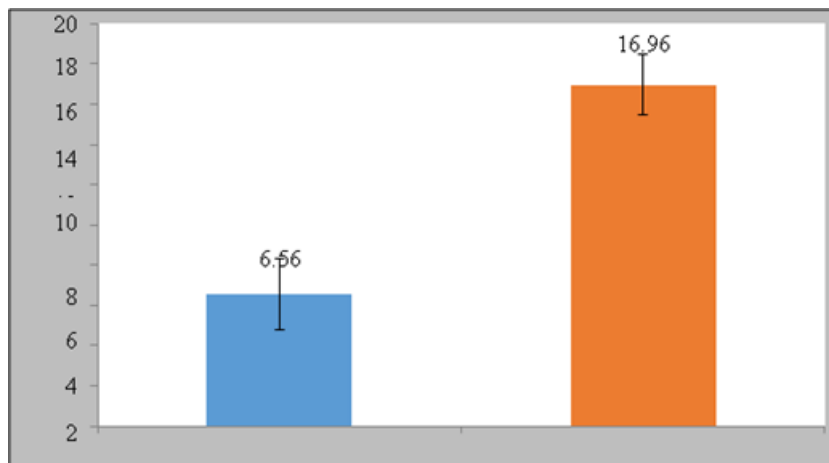


Figure 1 Significance of difference between knowledge score in pre-test and post-test of Children

4.4. Section D

Association of post-test knowledge score regarding ocular exercise on visual discomfort among children in selected schools of the city with their selected demographic variables.

Table 5 Table showing association of level of knowledge regarding ocular exercise on visual discomfort among children from selected schools of the city in relation to demographic variables n=60

SR NO	Demographic variables	Calculated value			Df	Table value	Level of value significance	significance
		t-value	F- value	P-value				
1.	Age(in years)	-	16.43	0.0001	2,57	3.15	<0.05	S
2.	Gender	0.85	-	0.39	58	2.00	>0.05	NS
3.	Standard	-	3.19	0.048	2,57	3.15	<0.05	S
4.	Types of diet	-	0.08	0.92	2,57	3.15	>0.05	NS
5.	Area of residence	-	1.05	0.35	2,57	3.15	>0.05	NS
6.	Occupation of parents	-	1.84	0.14	3,56	2.76	>0.05	NS
7.	Monthly Family income	-	1.08	0.36	3,56	2.76	>0.05	NS
8.	Using spectacles	0.34	-	0.73	58	2.00	>0.05	NS

5. Discussion

The quasi experimental research design study conducted in the Bangalore city on topic 'a study to assess effectiveness of ophthalmic exercise on visual discomfort among computer workers in selected company, Bangalore', as a partial fulfillment of the requirements for the award of the degree of master of science in nursing was done by Annai J. K. K. sampoorani Ammal college of nursing kosarapalayam, under the Tamilnadu Dr. M. G. R. medical university, Chennai April 2010-2011. At the end of study findings revealed that visual discomfort of computer worker were high compared of 0.05 level of significance. The computer worker had significant reduction in the mean visual discomfort score after ophthalmic exercise in the experimental group +=385 (p=.001).

In our study we research on the assess the effectiveness of video assisted teaching program regarding knowledge on ocular exercise on visual discomfort among children on selected school of the city. In this study we use experimental research design. For data collection 60 sample used by purposive sampling technique. At the end we finding the pre-test and post-test knowledge score after ophthalmic exercise.

6. Conclusion

After the detailed analysis, this study leads to the following conclusion The finding shows that 26.67% of the children had poor level of knowledge score, 71.67% of them had average and 1.67% of children had good level of knowledge score. Minimum knowledge score in pre-test was 2 and maximum knowledge score in pre-test was 11. Mean knowledge score in pre-test was 6.56 ± 1.80 and mean percentage of knowledge score in pre-test was 32.8 ± 39.03 . And 18.33% of the children had good level of knowledge score and 81.67% of children had very good level of knowledge score. Minimum knowledge score in post-test was 12 and maximum knowledge score in posttest was 20. Mean knowledge score in post-test was 16.96 ± 1.50 and mean percentage of knowledge score in post-test was 84.83 ± 7.53 . The findings reveal that there is association of knowledge score with age, standard and rest of other were not associated with the knowledge score of ocular exercise on visual discomfort.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

Ethical approval has been taken from the subject which are the human being subject in the present research work.

Statement of informed consent

Consent letter has been taken from students as well as their parents.

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