



Efficacy of Video Assisted Teaching Programme on Eye Care

¹**Sudhakar, A**

¹PhD Research Scholar

Meenakshi Academy of Higher Education and Research
Chennai
Tamil Nadu

Email: sudhakarsumith8@gmail.com

ORCID ID: <https://orcid.org/0000-0003-4159-6018>

²**Vaijayanthimala**

²PhD Research Guide

Meenakshi Academy of Higher Education and Research
Chennai
Tamil Nadu

Email: mvaijayanthimala@yahoo.in

³**Revathi**

³PhD Research Co-guide

Meenakshi Academy of Higher Education and Research
Chennai
Tamil Nadu

Email: reva63@rediffmail.com

⁴**Johnsy Rani**

⁴Professor cum Vice Principal

Popular College of Nursing
Varanasi

Uttar Pradesh

Email: johnsyrani20@gmail.com

Abstract— Mobile phone usage has been increasing tremendously and hence the screen time also increasing dramatically. This is leading to a lot of eye related issues in the recent times. Proper eye care management only can lead to a better future as eyesight is the most important sense. A quasi-experimental study was conducted to assess the efficacy of video assisted teaching programme on knowledge of eye care. It was conducted in Popular College of Nursing and Paramedical Institute, Varanasi, India. Permission was obtained from the head of the institution. 114 students were randomly selected and consent was obtained from them. The level of knowledge on eye care was assessed using the structured questionnaire schedule. Demographic variable proforma comprises of name of student, age, gender, father's occupation, mother's occupation, educational status, income, religion, locality, type of family and source of income. Questionnaire for knowledge schedule had totally 18 questions on the knowledge of eye care and its management. After organizing and analyzing the data, it was found that 58.8% of the samples had inadequate knowledge, 41.2% had moderate knowledge and no sample had adequate knowledge. The researchers found that the video assisted teaching programme had a positive impact in improving the knowledge of the nursing and paramedical students about eye care (t-

value was -5.424 with a p-value of 0.0001 and the result was significant at $p < 0.5$). The study deliberately concluded that there is a need to educate the young generation on the importance of eye care to make our future country free from an easily preventable disease.

Keywords: eye care, video assisted teaching, knowledge on eye care.

DOI:

I. INTRODUCTION

Eyes have been the inspiring authors and philosophers for thousands of years. Eyesight is the most important sense, and it is essential to keep it healthy. Several conditions and injuries cause changes in eyesight. Certain conditions can even lead to permanent vision loss. One of the important and common causes in the recent era is Digital Eye Strain (DES). Nowadays everyone either uses a computer screen or smartphone screen in their day to day life. The utilization of the smartphones has grown rapidly from the late 2000 and the global smartphone penetration had reached approximately 41.5% of the global population by 2019. Notably the number of smartphone users in China was around 700 million in 2012, accounting for half of the Chinese population. In the United Kingdom, more than 80% of people owned or had ready access to smartphone in 2019, showing a significant increase from 50% in 2012. It was found that that DES occurs in around 50% of computer users. Even though there is no evidence that strain makes the eyesight worse in the long run, it causes extreme discomfort. The symptoms vary slightly depending on whether using a computer or a smartphone. The American Optometric Association recognizes the most common symptoms of eye strain as headaches, blurred vision, dry eyes and in extreme cases, neck and shoulder pain. The incidence of ocular problems is also dramatically increasing. About 12 million adults in the United States have some type of impaired vision.¹

A large portion of the population currently suffers from visual impairment, especially in Asian countries. With a rapidly increasing prevalence and younger age of onset, it has been estimated that 49.8% (0.9 billion) of the global population will have myopia or high myopia by 2050. A recent study indicated that about 60 years ago, only 10% - 20% of the Chinese population was nearsighted, but the percentage reached up to 90% of teenager and young adults in 2015. A study assessed the prevalence of eyestrain in children by evaluating 1448 children, aged 6 years. It was estimated that there is a 12.6% prevalence of Asthenopia in the group, 82% of the children possessing typical eye fatigue symptoms had normal ocular examination. In a study by Abdi, it was evaluated that among 216 children between the ages of 6 & 16 years 23.1% was found to be asthenopic. They had symptoms like refractive errors, low visual acuity and accommodative insufficiency. Another study evaluated 72 children, aged 5 - 9 years and reported an estimated asthenopia prevalence of 26.4%. When looking at a high resolution screen, one subconsciously blink less; other pain responses can also decrease causing the body to not signal that something is wrong. This is common in computer users and is called "computer vision syndrome". This is harmful to the overall eye health. When working on a computer all day, these symptoms can arise after using a screen for prolonged periods of time.²

Protecting the eyes from computer screens and smartphones is more important. Effectively tackling the problem is by prevention rather than by treatment. It is essential to effectively care the eyes. Eye care can be done by blinking often, following the 20-20-20 rule, adjusting screen brightness, adjusting text size and contrast, maintaining a clear screen, maintaining proper distance and using adequate lighting. Wearing protective sunglasses, anti-glare glass, applying cucumber or cold patches on the eyes also helps. All these will relieve eyes from strain. Inclusion of Vitamin A in diet also maintains the vision. Reading distance affects the severity of symptoms of in digital devices users. The optimum focus distance for reading and

writing is 20-30 cm from the eyes fostering condition for digital eyestrain. It was also reported that as the viewing distances become shorter, eyestrain symptoms becomes more after reading for 60 minutes from smart phones. It is essential that this knowledge should be available for the users' so that they can be prevented from the ill effects on eyes. In a cross sectional study, a total of 142 school children in the age group of 9 to 16 years were included in the study. They and their parents were administered with the questionnaire. The children's mean age was 14.3. About 68.31% of school children were using smart phones with an average usage of 10.30 hours per week. 71.12% of children are not aware about the ocular effects of smart phones.³ So the researchers decided to impart knowledge on eye care to the youngsters and decided upon to do so for the nursing and paramedical students.

Statement of the Problem

A Quasi Experimental Study to Assess the Efficacy of Video Assisted Teaching Programme on Eye Care among the Selected Students of Nursing and Paramedical Institute, Varanasi, Uttar Pradesh, India.

Objectives

- To assess the knowledge on eye care among the study subjects
- To assess the effectiveness of video assisted teaching programme on eye care among the study subjects
- To associate the knowledge on eye care with demographic variables of the study subjects.

Null Hypothesis

H₀: There is no significant difference in the knowledge levels of the research participants before and after the video assisted teaching programme on eye care.

II. METHODOLOGY

The research approach used in the study was quantitative research approach. The research design used in the study was quasi experimental pretest posttest research design. The research study was conducted in Popular College of Nursing and Paramedical Institute, Bachchhao, Varanasi. The population comprises of nursing and paramedical students. Nursing and Paramedical students in Popular College of Nursing and Paramedical Institute, Bachchhao, Varanasi are the accessible population. Nursing and paramedical students in Popular College of Nursing and Paramedical Institute, Bachchhao, Varanasi fulfilling the selection criteria are the sample. Students who were willing to participate and who can read and write English and Hindi were included in the study. Students who were emotionally and psychologically disturbed and who were absent on the day of data collection were excluded. The sample size was calculated at a confidence interval of 95% and a margin of error at 5% with a population proportion of 15% which gave the sample size of 112. A total of 114 samples were selected for the study. A list of students studying in the Popular College of Nursing and Paramedical Institute was prepared. This sampling frame had 260 students in it. From the sampling frame, 114 subjects were selected by random sampling method.

Tool used was structured questionnaire. It consists of two sections: Demographic variable proforma comprises name of student, age, gender, father's occupation, mother's occupation, educational status, income, religion, locality, type of family and source of income. Structured Questionnaire regarding the knowledge of eye care had 18 questions on the knowledge of eye care. Correct answer carries one mark, wrong answer carries zero mark. Score was interpreted as Inadequate Knowledge: 0 – 6, Moderate Knowledge: 7 – 12, and Adequate Knowledge: 13 – 18. Permission was obtained from the Principal of

Popular College of Nursing and Paramedical Institute, Bachchhao, Varanasi, India. Sampling frame was prepared for all nursing and paramedical students following informed consent. Students fulfilling sampling criteria were selected using random sampling method from the sampling frame. They were explained about the purpose of the study. The questionnaire was distributed to subjects and the data was collected. A video assisted teaching programme was administered and after which the post test was conducted. Data was collected, coded and analyzed using descriptive and inferential statistics. The data was analyzed using appropriate statistical methods.

III. RESULTS AND DISCUSSION

Data were analysed according to objectives and organized under the following sections.

Section A : Distribution of samples according to the demographic variables

Section B : Distribution of samples according to the knowledge on eye care

Section C : Efficacy of video assisted teaching programme on eye care

Section D : Association of the knowledge level with the demographic variables

SECTION – A

Distribution of Samples according to the Demographic Variables

Table 1. Frequency and Percentage Distribution of Samples according to the Demographic Variables

n = 114

Sl. No.	Demographic Variables	Options	Frequency	Percentage (%)
1	Age	18 - 20 years	63	55.3
		21 - 23 years	33	29
		24 - 27 years	14	12.3
		More than 27 years	4	3.4
2	Gender	Male	21	18.5
		Female	93	81.5
		Others	0	0
3	Religion	Hindu	103	90.4
		Muslim	9	7.8
		Christian	2	1.8
		Other	0	0
4	Residence	Urban	30	26.3
		Rural	84	73.7
5	Father's occupation	Private	39	34.2
		Government	21	18.4
		Business	54	47.4
		Other	0	0
6	Mother's occupation	Private job	4	3.5
		Government job	7	6.1
		Home makers	103	90.4
		Other	0	0
7	Family income per month	Less than Rs. 7000	29	25.4
		Rs. 7000 - 15000	46	40.4
		Above Rs. 15000	39	34.2
8	Source of information on	Mother and other family member	23	20.2

	eye care	Health worker	32	28.1
		Media and social media	2	1.7
		All the above	57	50

Mobile phone usage is tremendously increasing and hence it is posing great problem to the health especially to the eyes. Eye care is essential to avoid unnecessary hazards being caused to the eyes. In this study, out of the 114 sample, 55.3% of the samples were in the age group of 18 – 20 years. Teenagers are very commonly using mobile phones. The study also found that maximum of them, i.e., 81.5% was females. In a study conducted by Tangmonkongvoragul et al (2022) on prevalence of symptomatic dry eye disease with associated risk factors among medical students at Chiang Mai University, 252 (47.4%) were males, and 276 (52.3%) were females. The mean (range) age was 20.48 (17 – 31) years⁴. Whereas in a study conducted by Olusola et al (2022) on Eye Care Practices, Knowledge and Attitude of Glaucoma Patients at Community Eye Screening Outreaches in Nigeria, there were more males (56.7%) than females (43.3%). Usually it is predicted that males are commonly using mobile phones than females. But these studies have shown that females are also using mobile phones as and more than that of males. The variations may be related to the settings also.

It was also found that 90.4% of the samples were belonging to Hindu religion. Hinduism is commonly practiced in Varanasi and hence most of the sample was Hindus. 73.7% of the samples came from rural area. Rural more are more commonly distributed near the selected setting. 47.4% of the sample's fathers were doing business and 90.4% of the sample's mothers were home makers. This depicts that most of the women are still not working and are at home. 40.4% of the samples monthly income is from 7000 to 15000 rupees; while in the study by Olawoye et al (2022), 40% of the patients had no personal earnings and depended solely on family, relations and friends, while 60 % had some personal earnings and about 36.5% of the patients were either retired or unemployed.⁵ The result also showed that 50% of the study sample said that the source of information on eye care is through all the given means like family members, health workers, and media. Nowadays media is playing a vital role in everyone's life and hence most of the information received is through it.

SECTION – B

Distribution of Samples According to the Level of Knowledge on Eye Care

n = 114

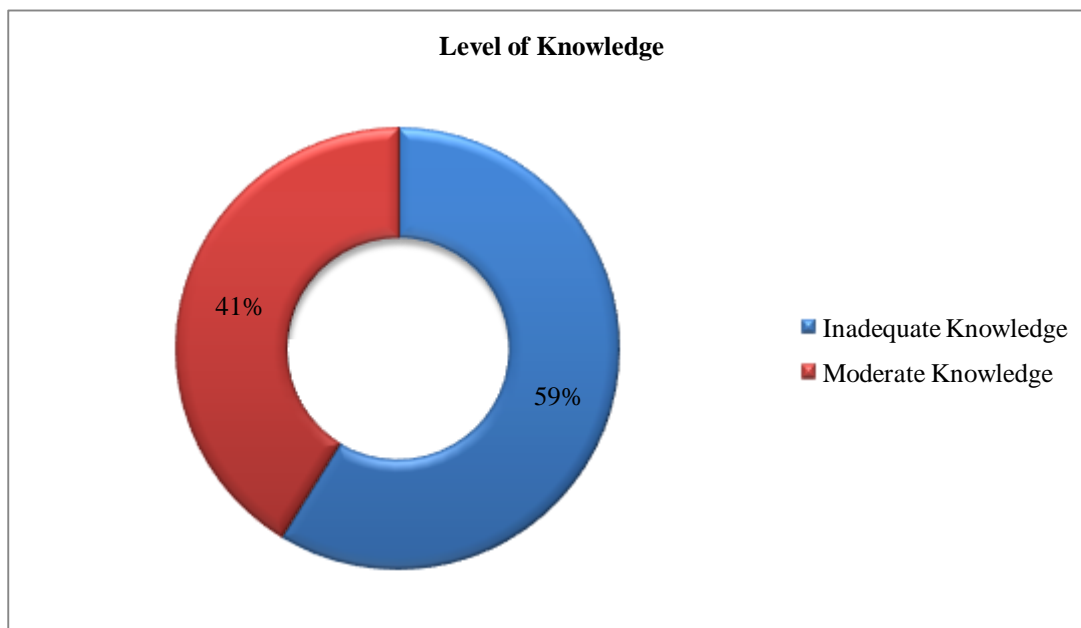


Figure 1. Percentage Distribution of Samples according to the Level of knowledge on Eye Care

On assessing the knowledge of the samples on eye care, the researchers understood that 58.8% of the samples had inadequate knowledge, 41.2% had moderate knowledge and no sample had adequate knowledge. Whereas in a study conducted by Xulu-Kasaba et al (2021) on Knowledge, Attitudes and Practices of Eye Health among Public Sector Eye Health Workers in South Africa and the result showed that most participants had adequate knowledge (81.6%).⁶ It may be because of the difference in the setting. Thus it made clearly evident that in the setting where researcher has conducted the study, the knowledge level is not adequate and it has to be promoted.

SECTION – C

Efficacy of Video Assisted Teaching Programme on Knowledge of Eye Care

Table 2. Frequency, percentage and t value of pretest and posttest knowledge level

n = 114

Sl. No.	Knowledge level	Pretest		Post test		Paired t-test value		
		Value	%	Value	%	t – value	p-value	Remarks
1	Inadequate	67	58.8	37	32.4	-5.424	0.0001	Significant at p<0.5
2	Moderate	47	41.2	67	58.8			
3	Adequate	0	0	10	8.8			

On comparing the pretest and the posttest, in pretest 58.8% of the samples were having inadequate knowledge, yet in posttest 32.4% had inadequate knowledge. About 41.2% were having moderate knowledge in pretest yet in posttest 58.8% had moderately adequate knowledge. In pretest, no samples were having adequate knowledge but after the administration of the video assisted teaching programme, the posttest values showed that about 8.8% were having adequate knowledge. Paired t-test showed that the t-value was -5.424 with a p-value of 0.0001 and the result is significant at p<0.5 proving that the video assisted teaching programme had an positive impact in improving the knowledge of the nursing and paramedical students on eye care. Thus the null H_0 is rejected which shows that the knowledge level of the research participants after the video assisted teaching programme is improved. A study to assess the knowledge and skills of Accredited Social Health Activists and its retention after training in community-based primary eye care showed that there was a significant increase in the knowledge score of ASHAs before (14.96) and after training (25.38) ($P < 0.001$) was noted. The knowledge score was sustained at 1 year (21.75) (Shukla et al, 2022).⁷ It is very obvious that when teaching or training is imparted it definitely

improves the knowledge level of the people.

SECTION – D

Association of Level of Knowledge on Eye Care with the Demographic Variables

Table 3. Frequency and Chi-square Values of Level of Knowledge on Eye Care and the Demographic Variables

n = 114

Sl. No.	Demographic Variable	Options	Inadequate	Moderate	χ^2 value	Result
1	Age	18 - 20 years	36	27	$\chi^2 = 4.060$ p=0.25	Not significant
		21 - 23 years	22	11		
		24 - 27 years	9	5		
		More than 27 years	0	4		
2	Gender	Male	14	7	$\chi^2 = 0.662$ p=0.41	Not significant
		Female	53	40		
		Others	0	0		
3	Religion	Hindu	61	42	$\chi^2 = 0.11$ p=0.946	Not significant
		Muslim	5	4		
		Christian	1	1		
		Other	0	0		
4	Residence	Urban	14	16	$\chi^2 = 2.17$ p=0.14	Not significant
		Rural	52	32		
5	Father occupation	Private	23	16	$\chi^2 = 3.009$ p=0.222	Not significant
		Government	9	12		
		Business	35	19		
		Other	0	0		
6	Mother occupation	Private job	1	3	$\chi^2 = 1.976$ p=0.372	Not significant
		Government job	4	3		
		House wife	62	41		
		Other	0	0		
7	Family income per month	Less than 7000 rupees	18	11	$\chi^2 = 0.226$ p=0.89	Not significant
		7000 - 15000 rupees	26	20		
		15000 rupees and above	23	16		
8	Sources of information on eye care	Mother and other family members	15	8	$\chi^2 = 1.63$ p=0.651	Not significant
		Health worker	16	16		
		Media and social media	1	1		
		All of the above	35	22		

On associating the knowledge level on the eye care and demographic variables of the nursing and

paramedical students, it shows that there is no significant relationship between the knowledge level and any of the demographic variables.

IV. CONCLUSION

The pandemic has shaken and have changed the face of education especially the new education system of on-line learning and e-learning which is in its peak, the students and the learners are being pushed to use the mobile phones and computers in the name of education. Though there are much technological advancement which has been focusing on reducing the risk of the mobile phone screens damaging the eye, the knowledge and practice of eye care is still a question among the young population. The study deliberately concludes that there is a need of an hour to educate the young generation on the importance of the eye care to make our future country from an easily preventable disease. As an administrator, a nurse could start focus group and peer discussion group in the community area and educate on the preventive methods of eye care problems. As a nurse educator, planning of curriculum could be done in such a way which imparts immense knowledge on eye care among the student nurses and training and workshops can be conducted to student nurses about organizing focus groups in a schools and colleges for educating about eye care. This study may be replicated on larger samples using experimental design. Similar study can be conducted for longer duration and on different population.

REFERENCES

1. Cleveland Clinic. Eyes. [https://my.clevelandclinic.org/health/body/21823-eyes #: ~:text=What%20are%20the%20eyes%3F,the%20sides%20\(peripheral%20vision\).](https://my.clevelandclinic.org/health/body/21823-eyes#:~:text=What%20are%20the%20eyes%3F,the%20sides%20(peripheral%20vision).)
2. Kraff, C. 2022. How to Protect Eyes from Mobile and Computer Screens. Kraff Eye Institute. <https://kraffeye.com/blog/how-to-protect-eyes-from-mobile-and-computer-screens>
3. Geetha P. Awareness about the ocular effects of smartphones: a study of knowledge and practice among school children. J. Evid. Based Med. Healthc. 2019; 6(21), 1559-1562. DOI: [10.18410/jebmh/2019/314](https://doi.org/10.18410/jebmh/2019/314)
4. Tangmonkongvoragul, C., Chokesuwattanaskul, S., Khankaew, C., Punyaseevee, R., Nakkara, L., Moolsan, S., & Unruan, O. (2022). Prevalence of symptomatic dry eye disease with associated risk factors among medical students at Chiang Mai University due to increased screen time and stress during COVID-19 pandemic. *PloS one*, 17(3), e0265733. <https://doi.org/10.1371/journal.pone.0265733>
5. Olawoye, O, & Fawole, O, & Ashaye, A. (2020). Eye Care Practices, Knowledge and Attitude of Glaucoma Patients at Community Eye Screening Outreaches in Nigeria. 2020; DOI:10.21203/rs.3.rs-60150/v1
6. Xulu-Kasaba, Z., Mashige, K., & Naidoo, K. (2021). Knowledge, Attitudes and Practices of Eye Health among Public Sector Eye Health Workers in South Africa. *International Journal of Environmental Research and Public Health*, 18(23). <https://doi.org/10.3390/ijerph182312513>
7. Shukla, Pallavi; Vashist, Praveen; Senjam, Suraj S; Gupta, Vivek; Gupta, Noopur. A study to assess the knowledge and skills of Accredited Social Health Activists and its retention after training in community-based primary eye care. *Indian Journal of Ophthalmology* 70(1):p 36-42, January 2022. | DOI: 10.4103/ijo.IJO_1020_21