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A pre-experimental study to assess the effectiveness of eye exercise in improving the visual acuity among children with myopia in a selected school of Bhopal

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Abstract

The human eye is an organ of vision, and it plays a very important role in life and in the human body. This functional loss of vision is typically defined to manifest with: best corrected visual acuity of less than 20/60, or significant central field defect, significant peripheral field defect, including homonymous or heteronymous bilateral visual, field defect or generalized contraction or constriction of field, reduced peak contrast sensitivity with either of the above conditions.

Objective: To assess and compare the visual acuity among children with myopia before and after eye exercise.

Materials and Methods: The sample was selected through non-probability, purposive sampling technique. The sample consisted of 30 students with diagnosis of myopia and the research design adopted for the study was pre-experimental study.

Result: All the 30(100%) children were between the age group of 11 – 14years. Majority of the children 16(53.3%) were females. All of them 30 (100%) were using spectacles. Majority of the children 20(66.7%) were doing regular follow up. Most of the children 17(56.7%) were having the family history of myopia. All the children 30(100%) were having the habit of regular use of television, computer, videogame etc. 22(73.3%) children were having the habit of studying or doing works in dim-light. Majority of the children 20(66.7%) were non-vegetarians.

Conclusion: The present study attempted to find out the efficacy of eye exercise in improving the visual acuity of myopic school children. The sample consisted of 30 myopic schoolchildren. The results were analyzed in terms of the differences seen in the level of visual acuity after eye exercise. Results showed that there was a significant improvement on the visual acuity level of both the eyes after the exercise.

Keywords: Myopia, visual acuity, log MAR chart, eye

Introduction

Refractive errors constitute a sizable proportion of any large eye OPD in our country. The overall incidence has been reported to vary between 21% and 25% of the patients attending the eye OPD in India. About 13% of the Indian population is in the age group of 10-15 years. Poor vision in childhood affect's performance in school or at work and has a negative influence on the future life of the child. Moreover, planning a youth's career is very much dependent on visual acuity, especially in jobs for navy, military, railways and aviation. This warrant's early detection and treatment of refractive errors to prevent permanent disability. (Sonam S & Kartha G.P, 2010) [2].

Methodology

In the present study, the investigator has adopted a pre-

experimental research design to assess the effectiveness of eye exercise in improving the visual acuity among children with myopia. The pre-experimental research design was adopted for the present study.

Result

Raw data was collected and entered in a master sheet for the statistical analysis. It was interpreted using descriptive and inferential statistics. The collected data are organized and presented under the following sections:

Section I: Frequency and percentage distribution according to socio- demographic variables of the child.

Section II: Assessment of effectiveness of eye exercise

Table 1: Socio-demographic characteristics Frequency and percentage distribution and interpretation of tables according to demographic variables of children. N=30

S. No	Variables	Frequency(N)	Percentage (%)
1	Age in years		
	a) 11-14 years	30	100%
	b) 15-18 years	0	0%
2	Gender		
	a) Male	14	46.7%
	b) Female	16	53.3%
3	Use of spectacle		
	a) Yes	30	100%
	b) No	0	0%
4	Doing regular follow up annually		
	a) Yes	20	66.7%
	b) No	10	33.3%
5	Family history of myopia		
	a) Yes	17	56.7%
	b) No	13	43.3%
6	Regular use of Television, computer, video game etc.		
	a) Yes	30	100%
	b) No	0	0%
7	Habit of studying or doing work in dim light		
	a) Yes	8	26.7%
	b) No	22	73.3%
8	Food habits		
	a) Non-Vegetarian	20	66.7%
	b) Vegetarian	10	33.3%

The above table shows that all 30(100%) children were between the age group of 11 – 14 years of age and for the gender distribution majority of them were 16(53.3%) females and 14(46.7%) were males. All 30 (100%) samples were using spectacles and the majority of them 20(66.7%) were doing regular annual follow-up.

Section III: Assessment of effectiveness of eye exercise
 This section deals with analysis and interpretation of data in order to evaluate the effectiveness of eye exercise on improving the visual acuity among myopic school children.

Table 2: shows the mean score, mean difference, standard deviation, degree of freedom and “t” value of the right eye.

Visual Acuity	Mean Score	Mean Difference	SD	df	“t” Value
Pre - test	1.03				
Post-test	0.88	0.15	0.73	29	11.23
P≤0.05 P≤0.01 P≤0.001					

Table 3: Shows the mean score, mean difference, standard deviation, degree of freedom and “t” value of the left eye.

Visual Acuity	Mean Score	Mean Difference	SD	df	“t” Value
Pre - test	1.03				
Post-test	0.81	0.22	0.95	29	12.859
P≤0.05 P≤0.01 P≤0.001					

Conclusion

The present study concludes that eye exercise is a very useful method in improving visual acuity if done regularly as per proper instruction. It is economical as well as free of side effects but requires self- responsibility from the part of participants. It was a great experience of doing this research study. The constant help and support of the guide and co-guide provided a positive reinforcement for the successful completion of the study.

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