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Prevalence of Myopia Among Schoolers in a Rural Area.

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ABSTRACT :

Abstract: A study to assess the prevalence of myopia and its risk factors among schoolers in a rural area in selected schools in Thiruvananthapuram district. The aim of the study was to find out the prevalence of myopia and its risk factors among schoolers in a rural area and also to find out the association between the prevalence of myopia and its risk factors with their selected demographic variables. A descriptive approach with a cross-sectional study design was selected for this study, and a stratified random sampling technique was used to select 125 samples between the 10–15 years. On analysis by using descriptive and inferential statistics, the prevalence of myopia and its risk factors shows 47 schoolers have myopic and 78 were non-myopic. The study shows that there was a significant association between myopia and its risk factors among schoolers.

Keywords: Assess, Prevalence of myopia and its risk factors, Schoolers

INTRODUCTION

Myopia (**near-sightedness**) is a common refractive error of the eye that is rapidly increasing in prevalence, particularly among school-aged children because the eye continues to grow during childhood, it typically progresses until about age 20, with the growing use of digital devices and increased academic pressures myopia has become a major public health concern globally. Early detection is crucial to prevent progressive visual impairment and related complications in later life. ². According to WHO the overall prevalence of myopia was found to be 55.3%, in that kindergarten, primary school, junior high school, and senior high school, were 5.8%, 34.9%, 74.2%, and 85%, respectively. In Kerala, studies show that myopia prevalence is significantly higher among school-aged children, particularly those between 10 and 15 years old. Specifically, In 2016 a study was conducted in Kollam, Kerala reported that the prevalence of myopia was found to be 44% and it was more for students who were at the age of 12 years ⁴

Overall, myopia prevalence tends to increase with age within the school-going population. Hence the present study is planned with the objective to determine, the prevalence of myopia and its associated risk factors among schoolers⁵.

STATEMENT OF THE STUDY

A descriptive study to estimate the prevalence of myopia among schoolers in rural area in Thiruvananthapuram District.

OBJECTIVES:

Primary objective : To estimate the prevalence of myopia among schoolers in rural area in Thiruvananthapuram District.

Secondary objective : To evaluate the association between prevalence of myopia among schoolers and their selected socio-demographic variables and associated risk factors.

Hypothesis

H: There is an association between prevalence of myopia among schoolers with their selected socio-demographic variables.

OPERATIONAL DEFINITION

Prevalence: In this study, Prevalence refers to the number of schoolers with myopia in selected schools in rural area.

Myopia : In this study, myopia is a condition where distant objects appear blurry while close objects can be seen clearly which is assessed using Snellen's chart.

Schoolers: In this study, schoolers refers to children between the age group of 10-15years who are studying in selected schools in rural area.

RESEARCH METHODOLOGY:

Study Approach: Quantitative research approach

Study Design: A cross sectional study design.

Setting: Students studying in classes from fifth to tenth standard in Govt. VHSS Kulathoor, Thiruvananthapuram District.

Study Population: Students aged 10–15 years enrolled in Govt. VHSS Kulathoor, Thiruvananthapuram District.

Sample Size:

The formula used for this study is: $n = \frac{Z^2 \cdot P \cdot (1-P)}{d^2}$

$$n = \frac{3.8416 \cdot 56 \cdot 44}{(8.8)^2}$$

The prevalence of previous study was **44%**

The sample size for this study is **125**.

Sampling Method: Stratified random sampling technique.

Tools and technique:

Section A: Structured questionnaire to assess socio-demographic variables

Section B: Vision screening using Snellen's chart.

Plan for data collection

After getting approval from the institutional research committee, and permission from the Headmaster of Govt. VHSS, kulathoor. A sum of 125 samples will be collected based on inclusion criteria by Stratified Random sampling technique and written assent will be obtained from the study subjects. Data will be collected using Snellen's chart and Structured questionnaire by interview method.

Plan for data analysis

Tables and diagrams will be used for describing data. Qualitative variables will be summarized as frequency and percentage. Quantitative variables will be expressed by mean and standard deviation. Association by using chi-square test.

RESULTS AND DISCUSSION

Figure 1 – Pravalence of myopia among schoolers

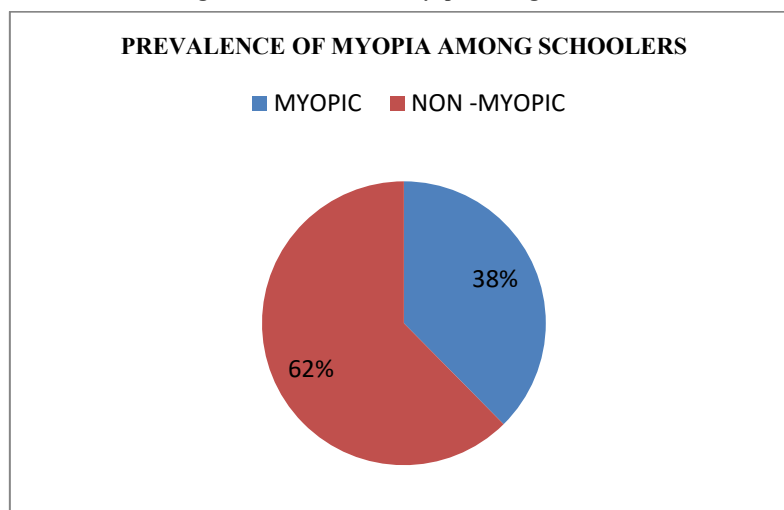


Table1 –Association between prevalence of myopia with their selected demographic variable

Sl.no	Demographic variables	Present		Not present		Chisquare	df	P value
		f	%	f	%			
1	Age					6.47	5	NS

	a)10 yrs	9	7.3	11	8.8			
	b)11 yrs	6	4.8	13	10.4			
	c)12 yrs	9	7.3	7	5.6			
	d)13 yrs	9	7.3	11	7.5			
	e)14 yrs	10	9	20	16			
	f)15 yrs	4	3.2	16	12.8			
2	Sex					0.78	2	NS
	a) Male	20	16	27	21.6			
	b) Female	27	21.6	51	40.8			
	c) Transgender	0	0	0	0			
3	Class					5.19	5	S
	a) 5 th	8	6.4	12	9.6			
	b) 6 th	7	5.6	13	10.4			
	c) 7 th	8	6.4	5	4			
	d) 8 th	8	6.4	10	8			
	e) 9 th	10	8	22	17.6			
	f) 10 th	6	4.8	16	12.8			
4	Education of mother					22.6	2	S
	a) High school	14	11.2	49	39.2			
	b) Higher secondary	10	8	20	16			
	c) Degree ad above	23	18.4	9	7.2			
5	Education of father					27.03	2	S
	a) High school	13	10.4	50	40			
	b) Higher secondary	10	8	20	16			
	c) Degree and above	24	19.2	8	6.4			
6)	Occupation of mother					7.36	4	NS
	a) Daily wages	12	9.6	7	5.6			
	b) Private	5	4	6	4.8			
	c) Government	3	2.4	6	4.8			
	d) Self	1	0.8	1	0.8			
	e) Home maker	26	20.8	58	46.4			
7	Occupation of father					2.88	4	NS
	a) Daily wages	30	24	49	39.2			
	b) Private	9	7.2	12	9.6			
	c) Government	3	2.4	12	9.6			
	d) Self	4	3.2	4	3.2			
	e) Unemployed	1	0.8	1	0.8			

8	Family monthly income				0.42	3	NS
	a) < Rs.15,000	17	13.6	26			
	b) Rs .15,000-24,200	21	16.8	39			
	c) Rs. > 24,200-1,00,000	5	4	8			
	d) >Rs 1,00,000	4	3.2	5			
9	Dietary preference				5.61	1	NS
	a) Vegetarian	5	4	1			
	b) Non-vegetarian	42	33.6	77			
10	Complaints of headache, watery eyes ,blurry vision				6.99	1	NS
	a) Yes	25	20	23			
	b) No	22	17.6	55			
11	Difficulty in seeing distant objects				6.65	1	NS
	a) Yes	19	15.2	15			
	b) No	28	22.4	63			
12	Aware of refractive errors				0.49	1	NS
	a) Yes	14	11.2	28			
	b) No	33	26.4	50			

P<0.05 NS = Not Significant, S= Significant

The table 1 shows there is an association between prevalence of myopia among schoolers with their socio demographic variables such as education of mother and education of father and all other socio demographic variable were not significant.

Table-2 Association between risk factors of myopia with their selected demographic variable

Sl no	Risk factors	Present		Not present		Chi square	df	P value
		F	%	F	%			
1	Family members wear glasses or contact lenses					6.35	1	NS
	a) Yes	29	23.2	30	24			
	b) No	18	14.4	48	38.4			
2	Hours spend for reading or writing					54.79	3	S
	a)< 1 hr	12	9.6	70	56			
	b)1-2 hr	18	14.4	6	4.8			
	c)3-4 hrs	13	10.4	1	0.8			
	d)>4 hrs	4	3.2	1	0.8			
3	Appropriate distance while reading					0.012	3	NS
	a) <30cm	27	21.6	45	36			
	b) 30- 40cm	12	9.6	20	16			
	c) 40- 50cm	6	4.8	10	8			
	d) >50cm	2	1.6	3	2.4			
4	Reading position					15.4	3	S
	a) Lying	3	2.4	15	12			
	b) Sitting upright	32	25.6	49	39.2			
	c) Sitting with book on the lap	11	8.8	4	3.2			
	d) walking	1	0.8	10	8			
5	Hours spend for smartphone/laptop					5.09	3	NS
	a) <1 hr	36	28.8	48	38.4			
	b) 1-2 hr	7	5.6	20	16			
	c) 3-4 hr	1	0.8	7	5.6			
	d) >4 hr	3	2.4	3	2.4			
6	Use screens in dark light							

	a) Never	20	16	44	35.2	8.37	3	NS
	b) Always	9	7.2	3	2.4			
	c) sometimes	13	10.4	21	16.8			
	d) Rarely	5	4	10	8			
7	Distance while watching TV/Phone					9.84	3	NS
	a) <30cm	13	10.4	15	12			
	b) 30-40 cm	23	18.4	24	19.2			
	c) 40-50cm	9	7.2	24	19.2			
	d) >50cm	2	1.6	15	12			
8	Break during study					25.15	3	S
	a) Never	16	12.8	8	6.4			
	b) Every 20 min	15	12	41	32.8			
	c) Every 30-45 min	8	6.4	28	22.4			
	d) Every 1-2 hrs	8	6.4	1	0.8			
9	Hours spend in outdoor activities					3.54	3	NS
	a) <1 hr	19	15.2	35	28			
	b) 1-2 hr	18	14.4	28	22.4			
	c) 3-4 hr	7	5.6	5	4			
	d) >4hr	3	2.4	10	8			
10	Read or study in well lighting conditions					1.89	3	NS
	a) Always	36	28.8	57	45.6			
	b) sometimes	7	5.6	16	12.8			
	c) Rarely	3	2.4	2	1.6			
	d) Never	1	0.8	3	2.4			
11	Time spend for homework					1.71	3	NS
	a) <1hr	18	14.4	33	26.4			
	b) 1-2 hr	19	15.2	23	18.4			
	c) 3-4 hr	5	4	11	8.8			
	d) >3 hr	5	4	11	8.8			
12	Extra online classes					0.33	3	NS
	a) Never	21	16.8	39	31.2			
	b) Always	18	14.4	27	21.6			
	c) Sometimes	6	4.8	9	7.2			
	d) Rarely	2	1.6	3	2.4			
13	Eye strain after prolonged screen use					5.20	3	NS
	a) Never	26	20.8	46	36.8			
	b) Always	9	7.2	5	4			
	c) Sometimes	10	8	20	16			
	d) rarely	2	1.6	7	5.6			
14	Include green leafy vegetables ,fruits ,fish, egg ,in your daily diet					0.65	3	NS
	a) Never	4	3.2	8	6.4			
	b) Always	21	16.8	39	31.2			
	c) Sometimes	18	14.4	26	20.8			
	d) rarely	4	3.2	5	4			
15	Eat junk food/fast food					1.65	3	NS
	a) Never	7	5.6	7	5.6			
	b) Daily	6	4.8	10	8			
	c) 1 or 2 times per week	29	23.2	48	38.4			
	d) More than 3 times per week	5	4	13	10.4			

P<0.05 NS = Not Significant, S= Significant

The table 2 shows there is an association between risk factors of myopia among schoolers with their socio demographic variables such as hours spend for reading or writing, reading position and break during reading or study and all other sociodemographic variable were not significant.

CONCLUSION

The present study highlighted the importance of assessing the prevalence of myopia and its risk factors among schoolers in a rural area. Among 125 samples 47 (37.6%) and 78 (62.4%) were myopic and non-myopic respectively. There is statistically significant association between the education of mother and education of father with their selected socio-demographic variables. There is an association between risk factors of myopia among schoolers with their socio demographic variables such as hours spend for reading or writing, reading position and break during reading or study. This research study suggests that periodic eye examinations among schoolchildren may be beneficial for the early detection of ocular conditions and the timely implementation of appropriate treatment modalities.

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