



## INVESTIGATION OF PARENTAL MYOPIA AND TYPES OF MYOPIA IN CHILDREN OF 6-12 YEARS

VORA HET ASHISHBHAI<sup>1</sup>, PANKAJ MADHUKAR GAJBHIYE<sup>2</sup>

<sup>1,2</sup> Department of Optometry, Sunrise University, Alwar, Rajasthan

### ABSTRACT

Myopia affects a significant number of individuals worldwide, irrespective of their age, gender, or ethnicity. Consequently, visual impairment is a significant public health concern among young pupils in India. In methodology, the study was carried out in various locations throughout Delhi, with a particular emphasis on the children's population. Snellen's chart is used for measuring visual acuity at distance and near. The investigation was conducted from August 2020 to 2022. All statistical tests were conducted using SPSS version 28.0. Out of 575, 257 one parental types are the highest low myopia among the low, moderate and high myopia. According to the percentage of age within the types of Myopia, 88.6% of the 290 children are low myopic, 12.5% are moderate myopic, and 2.2% are high myopic. Early identification of children at a high risk of myopia can be achieved through the use of parental myopia information to facilitate early prevention.

**Keywords:** Myopia, Children, Parental, Types

### INTRODUCTION

Myopia is a defect in the eye's ability to focus light. Blurry vision is a common occurrence in individuals with refractive error (1). The degree of defect is determined through the use of optical instruments during the testing of lenses of varying thicknesses (2). In addition to the socioeconomic and health factors that must be taken into account when managing the disease, there are also three potentially debilitating complications that are associated with high levels of errors: macular degeneration, retinal detachment, and glaucoma (3). The measurement of myopia can be accurately determined using both objective and subjective methods. The analyst assesses the nature and extent of refractive error without requiring the patient's active involvement (4). It involves the use of a retinoscope or auto-refractor (with or without cycloplegics), photorefractometry, and keratometry, and may or may not be followed by subjective refraction (5). This provides an explanation and continuation of the process by which subjective refraction values are refined by requesting that the patient respond to changes in vision that occur as lenses are changed in front of them until they report the lens or lenses that optimize their vision (5).

An increase in myopia was observed in the age range of 7-8 years at the time of school entry and 11-14 years at the time of pubertal growth phase (6). Screening programs are specifically designed to

target these age groups in school health screening programs, particularly in resource-poor countries (8). Reducing the obstacles that children face in obtaining and wearing spectacles on a regular basis is a significant challenge (9). This investigation is to explore the potential impact of parental myopia and types of myopia in children of 6-12 years on the development of myopia in children.

### MATERIAL AND METHOD

The study was carried out in various locations throughout Delhi, with a particular emphasis on the children's population. A box of trial lenses, occlude, modified trial frame, ophthalmometer, retinoscope with self-illumination, ruler for measurement, and torch with cells. Additionally, Snellen's chart is included for measuring visual acuity at distance and near. The investigation was conducted from August 2020 to 2022. In this representation, the sample was randomly selected, and each article in the population had an equal chance of being included in the sample.

The statistical methodologies implemented in this investigation are deemed suitable for the field of optometry. All statistical tests were conducted using SPSS version 28.0 (SPSS Inc.). The quantitative data was subjected to descriptive statistics computation, including the standard deviation and mean. The application of quantitative tools in qualitative research can always add additional potentiality and substantiate statistically tested

outcomes with the assistance of data analysis techniques.

The informed consent forms were endorsed by the children's parents or custodians, and the children themselves provided their written, straightforward consent to participate in the study. The Ethics Committee of the hospital authorised the research protocol.

## RESULT AND DISCUSSION

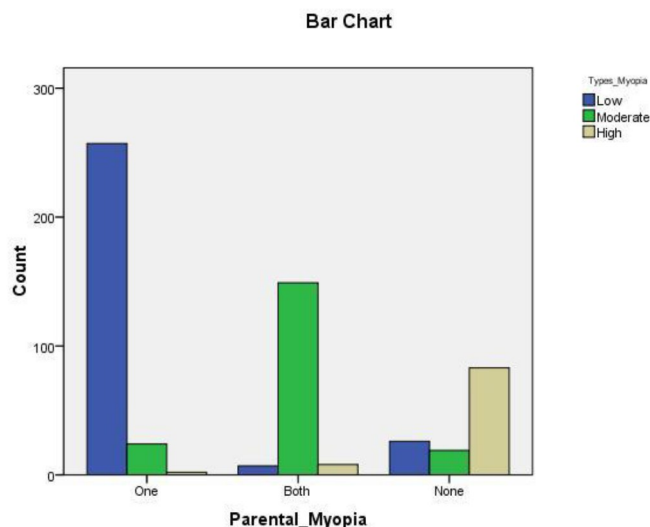
### Parental Myopia Wise Types of Myopia:

After evaluating the Parental Myopia and types of myopia and we got the interesting results which have been shown in the following table and Bar Chart:

**Table: 1 Parental Myopia & Types of Myopia:**

Parental		Types Myopia			Total
		Low	Moderate	High	
One	Count	257	24	2	283
	% within age	90.8	8.5	0.7	100
	% within types myopia	88.6	12.5	2.2	49.2
	%Total	44.7	4.2	0.3	49.2
Both	Count	7	149	8	164
	% within age	4.3	90.9	4.9	100
	% within types myopia	2.4	77.6	8.6	28.5
	%Total	1.2	25.9	1.4	28.5
None	Count	26	19	83	128
	% within age	20.3	14.8	64.8	100
	% within types myopia	9.0	9.9	89.2	22.3
	%Total	4.5	3.3	14.4	22.3
Total	Count	290	192	93	575
	% within age	50.4	33.4	16.2	100

	% within types myopia	100	100	100	100
	%Total	50.4	33.4	16.2	100



**Fig 1: Types of Myopia, Parental Myopia wise in Bar Chart**

### Parental Myopia (One) & Types of Myopia:

It has been determined that 257 of the 283 young adults with one parental involvement have a low degree of myopia, 24 have a moderate degree of myopia, and 2 have a high degree of myopia after the cross-tabulation between Parental Myopia (One) and types of myopia.

This is also represented in percentile form. If we examine the percentage of young adults within parental myopia, we can observe that 90.8% of them are low myopic, 8.5% are moderate myopic, and 0.7% are high myopic. Additionally, the percentage of young adults who are low myopic (44.7%), moderate myopic (4.2%), and high myopic (0.3%) is observed when the total age is taken into account.

### Parental Myopia (Both) & Types of Myopia:

It has been determined that 7 of the 164 young adults with one parental involvement have a low degree of myopia, 149 have a moderate degree of myopia, and 8 have a high degree of myopia after the cross-tabulation between Parental Myopia (Both) and categories of myopia. This is also represented in percentile form. When we examine the percentage of young adults within parental myopia, we observe that 4.3% of them are low myopic, 90.9% are moderate myopic, and 4.9% are high myopic.

According to the percentage of age within the Types of Myopia, 2.4% of the 192 young adults are low myopic, 77.6% are moderate myopic, and 8.6% are high myopic.

Again, if we examine the percentage of the total population that is under the age of 25, we can observe that 1.2 percent of young adults have a low degree of myopia, 25.9 percent have a moderate degree of myopia, and 1.4 percent have a high degree of myopia.

#### **Parental Myopia (None) & Types of Myopia:**

It has been determined that 26 of the 128 young adults with one parental involvement have a low degree of myopia, 19 have a moderate degree of myopia, and 83 have a high degree of myopia after the cross-tabulation between Parental Myopia (None) and categories of myopia. This is also represented in percentile form. Upon examining the percentage of young adults within parental myopia, it is evident that 20.3% of them are low myopic, 14.8% are moderate myopic, and 64.8% are high myopic.

If we examine the percentage of the population within the various types of myopia, we can see that out of 93 young adults, 9% are low myopic, 9.9% are moderate myopic, and 89.2% are high myopic.

Once more, the percentage of the total population that is under the age of 12 indicates that 4.5% of young adults have a low degree of myopia, 3.3% have a moderate degree of myopia, and 14.4% have a high degree of myopia.

#### **CONCLUSION**

Consequently, our investigation prioritized the occurrence of myopia in children and the significance of prompt diagnosis, which will facilitate the monitoring of myopia's further progression.

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