



## Association of Parental Myopia with Childhood Myopia

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### Abstract

Parental myopia is defined as having refractive error of distance by child's biological parents and childhood myopia is defined as having refractive error for distance which usually develops during childhood.

**Objective:** To evaluate the association of maternal and paternal with degree of myopia.

**Methods:** This cross-sectional study, total sample size was 300 patients from the age group of 0-15 years were selected by non-probability (purposive sampling). Cycloplegic and dry refraction has been done on patients. The all data were analyzed through SPSS software version 20.

**Results:** The frequency of myopia was 124 (41.3%) in male and 176 (58.7%) in female. Among the age group from 0-15 years, the highest grade of myopia involvement from age group was 11-15 years' category 155 (51.8%). According to the parental history involvement, maternal history of myopia was on highest ratio of 100(33.3%) The association of paternal myopia with the degree of childhood myopia was found to be non-significant; with P-value is 0.266.

**Conclusion:** The results of this study showed that progression of myopia is greater in females, in age group from (11-15) years and in positive maternal history of myopia. Therefore, early detection and management of myopia can reduce the frequency and progression of myopia among female and children.

**Keywords:** Refractive Error; Maternal Myopia and Paternal Myopia

### Introduction

Myopia is the refractive anomaly of the eye in which close objects appears clearly, while objects far away appear blurry. With myopia, light comes to focus in front of the retina instead of on the

retina [1]. Global prevalence of myopia is currently 28.3% and is dramatically increasing, in 2050, 49.8% of the world population will be myopic, and high myopia will increase significantly affecting 9.8% [2].

**Materials and Methods**

- **Study design:** Cross - sectional study
- **Study setting:** Pediatric department
- **Study duration:** Six month of study
- **Sample size:** 300 through Rao software
- **Sampling technique:** Non-Probability (purposive sampling)

**Sample selection**

**Inclusion criteria**

- Patient having childhood myopia.
- Patient with parental history of myopia and no parental history of myopia.
- Patient among the age group of birth to 15 year
- Myopic children >0.25 Ds

**Exclusion criteria**

- Patients having any anterior segment or posterior segment ocular pathology.
- Traumatic patients.
- Patients with ocular surgery

**Ethical consideration**

Permission was taken from the ethical committee, Permission was taken from the director of hospital, and Permission was taken from the academic director. Verbal informed consent was taken from all participants.

**Data collection procedure**

Ethical approval was taking from (IRBC) and the data was collected on specially designed Performa Firstly; we were taking written and verbal consent from the patients and in case of children from their parents. Distance and near visual acuity was measure by Cardiff cards, OKN drum, lea grading and Snellen chart. Cycloplegic and dry refraction has been performed with the help of streak Radioscopy to detect the present of myopia.

**Data analysis procedure**

Data analysis was using statically package for social science (SPSS) version 20. All quantitative variables were presented as

means +- standard deviation. All qualitative variables was shown as frequency and percentage, histogram, bar chart, and frequency curve for different variables.

**Results**

A total of 300 children were examined for the study, Out of 300 children male were found 124(41.3%) where is female were 176 (58.7%).

Gender	Frequency	Percent
Male	124	41.3
Female	176	58.7
Total	300	100.0

**Table 1:** Gender distribution of patients.

The age group from 0-5 were found to be 35 (11.7%), age group from 6-10 were found to be 110 (36.7%) and age group from 11-15 were found to be 155 (51.7%). most of the respond 155 (51.7) were lined between the age group 11-15 years.

Age	Frequency	Percent
0-5y	35	11.7
6-10y	110	36.7
11-15y	155	51.7
Total	300	100.0

**Table 2:** Age distribution of patients.

The both parental history respond were found to be 47 (15.7%), the history of maternal responds was found to be 100 (33.3%), the history of paternal responds was found to be 54 (18.0) and the responds without any parental history found to be 99 (33.0%), most of the respond 100 (33.3%) in maternal. The association of paternal myopia with the degree of childhood myopia were found to be non-significant with the P-value of 0.266.

Total 300 subjects were participated in our study, 59 mother, 29 father, 30 both and 63 non associated with mild myopia, 27 mother, 11 father, 11 both and 26 non associated with moderate Myopia, 14

Parental history	Frequency	Percent
Mother	100	33.3
Father	54	18.0
Both	47	15.7
Non	99	33.0
Total	300	100.0

**Table 3:** Parental history of patients.

mother, 14 father, 06 both and 10 non associated with high myopia. The P-value of between parental history and degree of myopia is 0.266.

Number of parents have myopia	Final prescription of eye			Total	P-value
	0.50-3.00DS	>3.00-5.00DS	>5.00DS		
Parent history					
Mother	59	27	14	100	0.266
Father	29	11	14	54	
Both	30	11	6	47	
Non	63	26	10	99	
Total	181	75	44	300	

**Table 4:** Association of parental history with degree of myopia.

**Discussion**

In this cross-sectional study, the frequency of myopia at Al-Ibrahim eye hospital in age group from 0-15 was determined. From the 300 patients, the estimated frequency of myopia within the age group of 0-5 years stood at 11.7%, which is equal to 35 patients, the age group from 6-10 years stood at 36.7%, which is equal to 110 patients and the age group from 11-15 years stood at 51.7%, which is equal to 155 patients.

The cross-sectional study was conducted in Markku from January 3<sup>rd</sup> 2019. Results of the study showed that the frequency of myopia in age group of 5-10 years shows 32% and the age group from 11-15 years shows 65% and our present study shows the frequency of myopia in the age group of 6-10 years were 36.8% and the age group of 11-15 years were 51.8%.

According to the gender wise distribution the 41.3% were male and 58.7% were female. Our study shows the myopia is more

common in females as compared to males, whereas the previous study which is conducted in Sarkar Koll Patti Salem from 20 June 2020 in this study 46% were male and 54% were females, this study also shows myopia is more common in females as compared to males.

According to the parental history, our study shows 15.7% were having both parental history of myopia, 18% were paternal history of myopia and 33.3% were maternal history of myopia and 33% were patients without any parental history of myopia. The present cross-sectional study shows the frequency of myopia is higher in maternal history of myopia, whereas the previous study which has been conducted in Paris, France from May 2012 to January 2014, which shows 21.3% without any parental history of myopia, 25.4% were maternal history of myopia and 16.5% were paternal history of myopia. The study also shows the frequency of myopia is more common in maternal history of myopia.

## Conclusion

Conclusion of the study is, heredity is the most important factor associated with childhood myopia, and therefore children from maternal side are more affected. However, the frequency of myopia shows higher grade in female than male. Whereas the age group from 11-15 years are concerned to have high progression myopia (Mild myopia, -0.5 to -3.00 DS). Children with high risk of myopia can be identified for early prevention based on parental myopic history.

Recommendations: Children of myopic parents are on high risk of developing myopia at early age, it is important to increase the awareness among parents for the eye examination of their children for early detection of myopia. Awareness should be provided for the Identification of modifiable risk factors associated with development of myopia. Parents should be counseled to guide their children to use prescribed glasses properly as well as have routine eye checkup.

## Bibliography

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