

# Incidence of Refractive Errors in patients presented to eye OPD of Islam Teaching Hospital, Sialkot

SABA ANWAR, MUHAMMAD NAWAZ CHEEMA, MUHAMMAD TARIQ BANGASH, MONEEB NAWAZ

## ABSTRACT

**Aim:** To determine the incidence of various refractive errors in patients presented to eye OPD of Islam teaching hospital Sialkot.

**Methods:** Patients visited to eye OPD of Islam teaching hospital Sialkot were collected on designed proforma where they were assessed for visual acuity and refraction was done by Snellen chart, Autorefractometer and retinoscope. Prescription of glasses was advised for various refractive errors like myopia, hypermetropia and astigmatism

**Results:** Out of 150 patients there were 40% males and 60% females. There were 27.3% myopes, 12.6% hypermetropes and 60% astigmatism were recorded. 13% amblyopia and 4.6% strabismus were recorded from total sample.

**Conclusion:** The incidence of various refractive errors was high like astigmatism and myopia that was most prevalent in this region of Sialkot. So, it is suggested that the incidence of low vision is highly common due to various refractive errors which can be corrected by various methods like spectacles, contacts and Eximer laser etc and can be prevented to develop amblyopia and squint.

**Keywords:** Refractive error, Snellen chart, myopia, amblyopia, squint

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## INTRODUCTION

Refractive errors are the most common cause of visual impairment irrespective of age, gender and race among the patients presented in eye OPD<sup>1</sup>. Various types of refractive errors are myopia, hypermetropia, and astigmatism which can be corrected by spectacles, contact lenses and by laser remedies like PRK, LASIK to obtain best corrected vision. Without the help of these modalities of treatment the patients may have impaired vision<sup>2</sup>. It is estimated that about 12 million children have impaired vision without correction between ages 5-15 years<sup>3</sup>. Refractive errors are a public health problem which can cause heavy financial load on the society<sup>4</sup>. Uncorrected refractive errors in students may cause negative impact on their learning abilities as well as the development of their mental and physical health<sup>5</sup>. A refractive error is defined as the parallel rays are unable to focus on fovea in non-accommodative state of eye. A study conducted in New Delhi, revealed that vision impairment in 81.7% eyes is due to refractive errors<sup>6</sup>. In a study 12.3% total blindness was due to uncorrected refractive errors<sup>7</sup>. World Health Organization WHO started a program vision 2020 the right to sight for the purpose to correct refractive errors to reduce the visual disability and blindness<sup>8</sup>. 80% of visual impairment in persons of older than 12 years is due to refractive errors in USA<sup>9</sup>. Prevalence of myopia < hypermetropia while 1.6 billion people are more myopic and expected rise of myopic patients is 2.6 billion up to year 2020.

## MATERIALS AND METHODS

The patients visited to eye OPD of Islam teaching hospital Sialkot were recorded on designed Proforma which included name, age, gender, address, visual acuity and detailed eye examination with cycloplegic drops where

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Department of Ophthalmology, Islam Medical College, Sialkot  
Correspondence to Dr. Saba Anwar Email: nadeemmansoor@hotmail.com Cell: 0333-4377909

needed. Visual acuity of Patients was tested with help of Snellen chart after recording visual acuity pinhole test was done. The criteria of vision recording obeyed as less than 6/18 are visually impaired while <6/60 as blindness and visual acuity of patients 6/12 is not considered as visual impairment in international literature. In case of children of age upto 14 years Cycloplegic refraction was performed with the help of cycloplegic eye drops. After recording visual acuity refraction of the patients was done with the help of cannon Autorefractometer and streak retinoscope. Results obtained from Autorefractometer and retinoscopy was checked subjectively by trial lenses and final prescription was advised to patients. Exclusion criteria was all systemic and various ocular diseases like cataract, glaucoma, pseudophakia, aphakia, retinal diseases and any surgical procedure on eye in past or medications for ophthalmic diseases. Different types of refractive errors were recorded as myopia, hypermetropia and various types of astigmatism with best corrected vision at the same time in these patients having squint and amblyopia were recorded and analyzed.

## RESULTS

Statistical analysis was carried out by using the Microsoft excel 2007. Categorical data was represented by frequency, percentage and cross tabulation.

Table 1 shows the gender distribution of data which includes 60 male (40%) and 90 female (60%) and total number of patients were 150.

Table 2 shows the frequency distribution of 150 patients regarding refractive errors is as follows the percentage of myopia is 27.3% (total 41), the percentage of hypermetropia is 12.66% (total 19) and percentage of astigmatism is 60% (total 90).

Table 3 shows the different types of astigmatism in which myopic astigmatism is 61.11 %, hyperopic astigmatism 27.77% and mix astigmatism is 11.11%.

In table 5 the frequency of amblyopia is 13.3% in which bilateral amblyopia is 7.3% and incidence of unilateral amblyopia is just 6%

Table 6 shows that frequency of strabismus is 4.6% in which esotropia is 2% while exotropia is 2.6%.

Table 1: Gender distribution

Gender	Number	%age
Male	60	40%
Female	90	60%
Total	150	100%

Table 2: Different types of refractive error (n=150)

Refractive error	Frequency	%age
Myopia	41	27.33
Hypermetropia	19	12.66
Astigmatism	90	60
Total	150	100.0

Table 3: Types of Astigmatism

Refractive error	Frequency	%age
Myopic Astigmatism	55	61.11
Hyperopic Astigmatism	25	27.77
Mix Astigmatism	10	11.11
Total	90	100.0

Table 4: Age groups

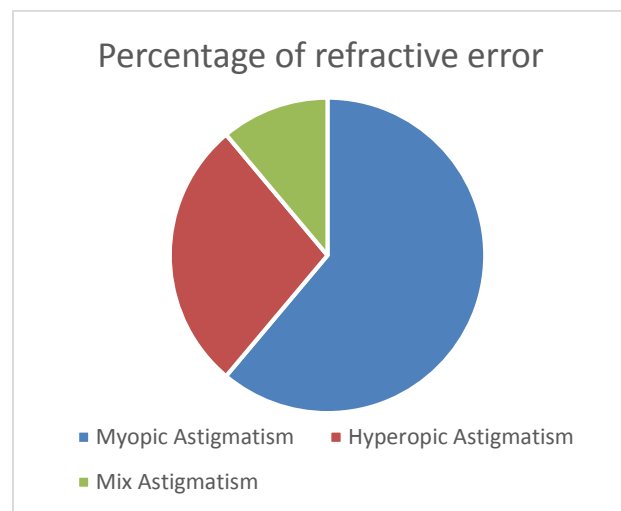
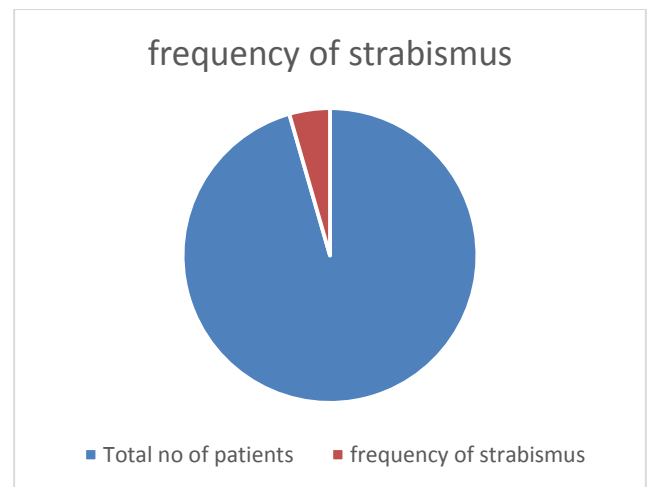
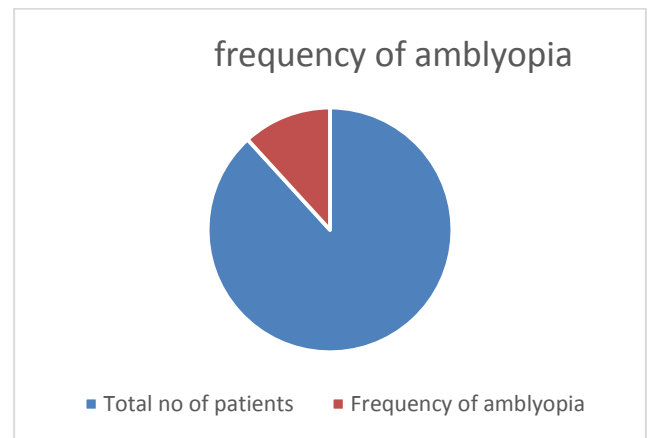
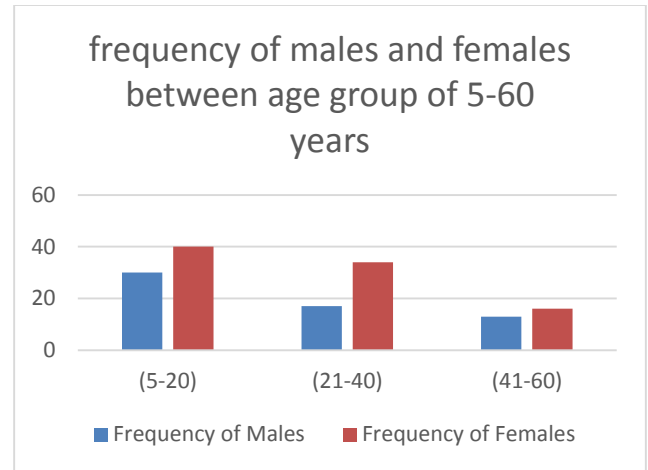
Age group	Frequency	%age
5-20	30	40
21-40	17	34
41-60	13	16
Total	60	90

Table 5: Frequency of Amblyopia

Total no. of patients	Frequency of amblyopia	%age
150	20	13.3
Bilateral amblyopia	11	7.3
Unilateral amblyopia	09	6

Table 6: Types off strabismus

Total no of patients	strabismus	%age
150	7	4.6
Estropia	3	2
Exotropia	4	2.6



## DISCUSSION

Data analysis of refractive error study showed that myopia is most common in Europe that prevalence of myopia was 30.6% while hyperopia was 25.20% and astigmatism was 23.9% [9]. Prevalence of myopia was rising in the age group of late teens and found to be at peak between 25-29 years of age. The prevalence of refractive errors varies in different geographical areas as study conducted in 2006-

2007 in MashhadIran showed that myopia and hyperopia was 2.4% and 87.9% respectively which is entirely different from other countries [10]. In our study astigmatism was frequently present in patients presented to eye OPD of Islam teaching hospital that was 60% while myopia is 27.3% and hypermetropia is 12.6%.the prevalence of astigmatism in various countries and races are variable as in Iranastigmatism was found as low as 3.4% only so the race and geographical factors are important in regard to astigmatism also<sup>[10,11,12]</sup>. In our study myopic astigmatism is most common among all types of astigmatism that is nearly similar to different studies conducted in Europe as frequency of refractive errors varies region to region. it is found in different studies that refractive errors in females are higher as compared to males in different countries like Iran Saudi Arabia Qatar and Ghana<sup>[10,13,14]</sup>. In our study the result was same as conducted in middle east that refractive errors are more common in females than males that was 60% in females and 40% in males. In above study which was conducted in eye OPD it was found that frequency of different refractive errors in various age groups was as 5 to 20 years 20% was male and 26.66 % were females while in age group 21-40 years 11.33%were males and 22.66% were females and in41-60 years of age group 8.66 % were males and 10.66% were females. it was studied that the frequency of amblyopia with reference to refractive errors was 13.3% in which there was 7.3% bilateral amblyopia and 6% unilateral amblyopia. In above study the incidence of strabismus was 4.6% in which esotropia was 2%and exotropia was 2.6%.

## CONCLUSION

In above study the incidence of various refractive errors was high like astigmatism and myopia that was most prevalent in this region of Sialkot. So it is suggested that the incidence of low vision is high and common due to various refractive errors which can be corrected by various methods like spectacles, contacts and eximer laser etc and can be prevented to develop amblyopia and squint

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