ORIGINAL ARTICLE

Prevalence of Refractive Errors in a public school children of Lahore

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ABSTRACT

Aim: To find out the prevalence of refractive errors in a public school children of Lahore.
Study design: This is a cross sectional descriptive study.
Place and duration: This study was conducted in Government High School Baghbanpura Lahore during the month of October 2012.
Methods: All the students present in school during the study period were included in the study. The students were clinically examined for refractive errors by a team of ophthalmologists and optometrists. Objective and subjective refraction of students was performed. The relevant data was recorded on a pre structured questionnaire which was later on analyzed by statistical tools.
Results: Five hundred and thirty three students of class 6th to 10th present in school during the study period were included in the study. The age of students ranges from 9 to 18 years. Refractive errors were found in 107(20.07%) children. Myopia accounted for 61.70%, Hypermetropia 14% and Astigmatism 24.30% of the total refractive errors.
Keywords: Refractive errors, myopia, hypermetropia, visual impairment

INTRODUCTION

Globally, uncorrected refractive errors are the main cause of visual impairment. According to the estimates of World Health Organization, about 285 million people are visually impaired out of which 39 million are blind and 246 million have low vision[1]. The major causes of visual impairment are uncorrected refractive errors (43%) followed by cataract (33%)[2]. However the major cause of blindness is cataract (51%)[2]. It is important to mention that 80% of all causes of visual impairment are preventable or curable[3]. Visual Impairment due to refractive errors is one of the most common child hood problem[4]. Refractive errors can have many problems with children and adults including educational loss, economic issues, low productivity and impaired quality of life[5]. There are many reasons for the non correction of refractive errors in children including lack of services, affordability and accessibility[6]. However the economically sound communities can also go with undetected or uncorrected refractive errors in children[7].

Untreated vision problems can have severe adverse effects on educational achievement[8]. These problems can be addressed with eye glasses, medication or vision therapy[9,10,11,12]. The children with undetected or untreated vision problem are more likely to develop social or emotional issues and can affect their own learning as well as of the peers[13,14].

In Pakistan refractive errors accounts for 11.4% of the total visual impairment[15]. Different researches concluded that the prevalence of refractive errors in school going children was found 19.8%[15] and 8.9% respectively[16].

MATERIAL & METHODS

This cross sectional study was conducted in Govt. High school Baghbanpura Lahore during the month of October 2012. The school management was requested for the permission of ocular examination of students in the school environment. The examination process was properly explained and an activity of six working days was decided. All the required instruments / equipments were shifted to school one day before the study period. A team consisting of two ophthalmologists and three qualified optometrists was involved in the ocular examination and refraction of students.

Class wise students were screened for visual acuity by a standard Snellen chart. Those having Visual Acuity of less than 6/6 in either eye were confirmed for the refractive error problem by the use of pinhole. Objective refraction was done by the use of auto refractor and retinoscopy and it was

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confirmed by subjective refraction. The standard procedures and protocols for the examination and refractive errors correction were followed. All the students present in school were included in this study. A specially designed questionnaire was used for the collection of data. The particulars of each student were entered in this questionnaire. This data was organized and entered into SPSS version 16. The data was analyzed and presented in the form of frequencies and percentages.

RESULTS

Five hundred and thirty three school children of class 6th to 10th at a public sector high school were included in this study. The age of these children ranged from 9 to 18 years with a mean of 13.9 years (SD=1.6) and a median of 14 years. Table 1 depicts the class wise number of children along with the history of glasses in the study subjects. Out of 533 school children 57(10.7%) were already using the glasses for the refractive errors. This table also represents the family history of glasses. Out of the parents of 533 children history of glasses was present in 280(52.5%) parents. The detail family history shows that out of these 280 parents already using glasses for refractive errors the history was present in 107(38.21%) couples (both father and mother).

Table 1

		Frequency	Percent
Class wise number of students	6th	88	16.5
	7th	64	12.0
	8th	146	27.4
	9th	139	26.1
	10th	69	18.0
History of glasses	No	476	89.3
	Yes	57	10.7
Parents H/o glasses	No	253	47.5
	Yes	280	52.5
Detail H/O parents using glasses	Both	107	38.21
	Father	100	35.71
	Mother	73	26.07

Table 2: Refractive errors

Refractive Errors	Frequency	Percent
Yes	107	20
No	426	80
Total	533	100

Results of this study shows that 107(20.07%) school children were having refractive errors where as 426 children were having normal vision. Different types of refractive errors are presented in Table 3 and Fig. 2. Myopia was the most common refractive errors and accounted for 61.7% of the total refractive errors. Hypermetropia was detected in 14% where as astigmatism was found 24.3% of the total refractive errors respectively.

Fig. 1: Frequency of refractive errors

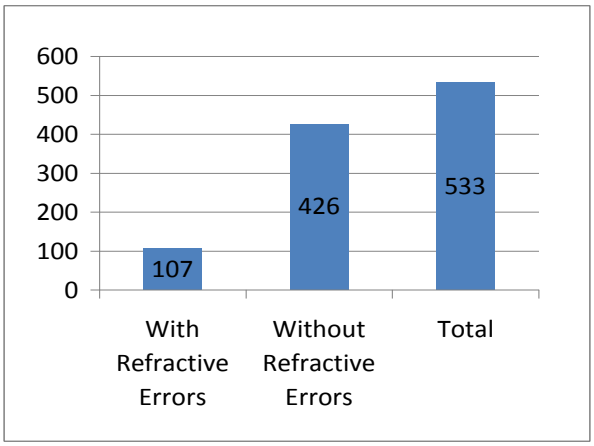
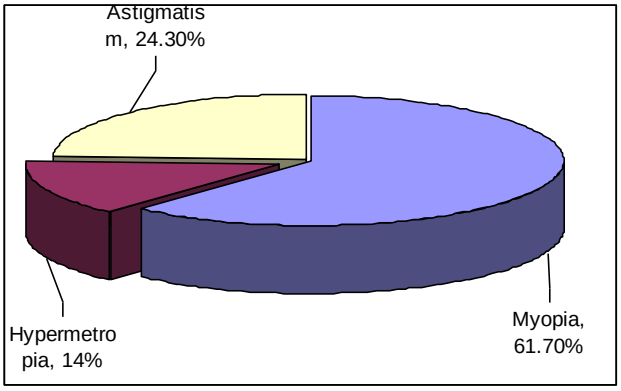


Table: 3 Types refractive error (n=107)

Type of refractive error	Frequency	Percent
Myopia	66	61.7
Hypermetropia	15	14
Astigmatism	26	24.3

Fig. 2 Types of refractive errors



DISCUSSION

There are many immediate and long term consequences related with uncorrected refractive errors in children and adults including lost educational and employment opportunities, economic issues and poor quality of life[5]. Visual impairment due to uncorrected refractive errors is a major public health concern and their correction with spectacles is among the most cost effective interventions in eye care[4]. Screening of 5 - 15 years old children at mass level is a very important and effective strategy for the management and treatment of uncorrected refractive errors[17].

According the results of this study, refractive errors are present in 20.07% of the school children at a public sector high school. This result is higher than the similar reported studies in, Pakistan representing refractive errors of 8.9%[16] and 10%[18], in Malaysia 7.7%[19], in Nepal 8.6%[20] and in Iran 3.5%[21]. Myopia as the most common refractive error is in agreement with a similar study in Saudi Arabia[22] but it differs from a similar study in Pakistan which has reported Hypermetropia as the most common refractive error[18].

An important point revealed in this study is related with the parents history glasses. 52.2% of the parents are using glasses which means they are well aware about the correction of refractive errors. Although a significant number of parents is aware but the number children with refractive errors is very high. Around 50% of the children with refractive errors are still undiagnosed and un-treated.

This study was conducted at a public sector high school of Lahore, which is the provincial headquarter having better assessable and affordable eye care services. The high prevalence of refractive errors in a public sector school of Lahore calls for immediate remedial measures. All the stake holders must develop and implement regular screening and management programs for refractive errors especially in public and private schools. The civil society and charity organization should also come forward and invest for the improvement of learning opportunities of children.

CONCLUSION

Refractive errors are the major cause of visual impairment worldwide and have immediate and long term consequences. The result of this study shows a high prevalence of refractive errors among the school going children of Lahore. Further research and regular screening of school children for refractive errors is required on mass level.

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