

ORIGINAL ARTICLE

PREVALENCE OF REFRACTIVE ERRORS IN MADRASSA STUDENTS OF HARIPUR DISTRICT

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Background: Visual impairment due to refractive errors is one of the most common problems among school-age children and is the second leading cause of treatable blindness. The Right to Sight, a global initiative launched by a coalition of non-government organizations and the World Health Organization (WHO), aims to eliminate avoidable visual impairment and blindness at a global level. In order to achieve this goal it is important to know the prevalence of different refractive errors in a community. Children and teenagers are the most susceptible groups to be affected by refractive errors. So, this population needs to be screened for different types of refractive errors. The study was done with the objective to find the frequency of different types of refractive errors in students of madrassas between the ages of 5–20 years in Haripur. **Methods:** This cross sectional study was done with 300 students between ages of 5–20 years in Madrassas of Haripur. The students were screened for refractive errors and the types of the errors were noted. After screening for refractive errors-the glasses were prescribed to the students. **Results:** Myopia being 52.6% was the most frequent refractive error in students, followed by hyperopia 28.4% and astigmatism 19%. **Conclusion:** This study showed that myopia is an important problem in madrasa population. Females and males are almost equally affected. Spectacle correction of refractive errors is the cheapest and easy solution of this problem.

Keywords: Myopia, Hyperopia, Astigmatism, Refractive Errors, Spectacle correction.

J Ayub Med Coll Abbottabad 2015;27(4):850–2

INTRODUCTION

Refractive Errors is defined as a condition in which the optical system of non-accommodating eye fails to bring parallel rays of light to focus on the retina.¹ Childhood visual impairment due to refractive errors is one of the most common problems in school children and second leading cause of treatable blindness.² In recent years numerous studies have begun to examine the prevalence of refractive errors such as myopia, hyperopia, amblyopia and astigmatism in school children and adults.^{3,4}

To the best of our knowledge not much work is done in the Madrasa Students and very little is known about the prevalence of refractive errors in these institutes⁵. The reasons in selecting this group is that, they are routinely and extremely subjected with near work of reading, reciting and memorizing the Holy Quran and other religious books

Though, it is difficult to find the health status of these students, as very few madrassas provide basic health care services to their students. Most are neglected both by the government and the voluntary sectors. The students living in these madrassas are not provided with balance diet which is necessary to cope with the heavy work load related to academics.

Our study will help in assessing the refractive status of these students, as well as increasing the awareness and better planning of eye

care services. Early detection of reflective error and its timely and proper correction saves permanent ocular morbidity.

MATERIAL AND METHODS

This was a cross sectional study, done in madrassas of Haripur district. Executive District Officer provided the list of madrassas of Haripur district. The permission for this study was sought from the education department of district and the heads of madrassas were requested to allow the screening. The madrassas were stratified in to girls and boys and then 3 madrassas were randomly selected from each strata, i.e., 3 from each boys and girls madrassas. All the students between the ages 5–20 years in the six selected madrassas of different areas of Haripur were the sample population of this study. Students having any adnexal, anterior segment or posterior segment pathology, any systemic disease, ocular trauma or history of ophthalmic surgery were excluded from the study. Three hundred students meeting the study criteria were screened and evaluated for the type of refractive errors. Data was collected on a *pro forma*. Distant direct ophthalmoscopy was done in order to test the red reflex. In case of any opacity the student were referred to DHQ hospital Haripur. Visual acuity of all students was taken with the help of Snellen's acuity chart at 6 meters distance. Pinhole acuity test was performed to distinguish between different visual defects, when improves are caused by refractive

errors and; in case it is not are caused by other eye problems. Cycloplegic Refraction was done with Streak Retinoscope in the children ages 5–15 years. 0.5% Cyclopentolate Eye Drops was used to find the total refractive error objectively and latter subjectively verified by Post-mydriatic Test. Subjective refraction was done in the students aged 15 and above, and was confirmed by +1.00DS Blur Test and Jakson's Cross Cylinder. The operational definition of myopia was taken as refractive error ≥ -0.50 DS. Hyperopia was defined as refractive error $\geq +0.50$ DS. Astigmatism was taken as refractive error ≥ 0.25 DC.

RESULTS

The study results showed that 123(41%) students had refractive errors and the remaining 177 (59%) were emmetropes. Sixty-four (52%) Female students had refractive errors while male ammetropes were 59 (47.9%) mean age of all the students was 13.37 ± 3.97 years.

Myopia was present in 65 students (52.6%), hyperopia was present in 35 students (28.4%) and astigmatism was found in 24 students (19%).

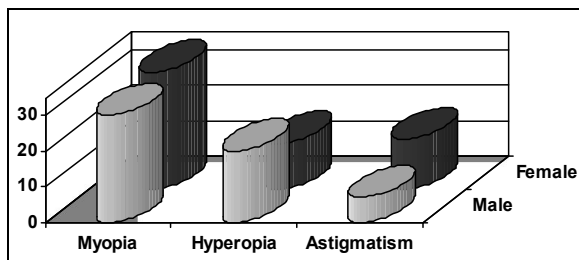


Figure-1: Showing distribution of refractive errors in male and female students of madrassas

DISCUSSION

This study was conducted to find out the age and gender wise distribution of the frequency of different types of refractive errors among the students of madrassas of Haripur. The results showed that myopia was the most frequent refractive error in the students (52.6%). A similar study conducted in China showed the prevalence of myopia in high schools in China as 77.3% and in college more than 80%.⁶ In some areas, such as China, India and Malaysia, up to 41% of the adult population is having myopia of about -1.00 diopters⁷ up to 80% to -0.5 diopter⁸.

With regards to age, myopia shows peak frequency in the age group 11–15 years. The probable cause of high frequency of myopia in this age group is the burden of the near work since early childhood, as these students are admitted to madrassas at the age of 5 years. Education level could be considered a surrogate of factors

associated with myopia, such as socioeconomic background, intelligence, and near-work activity.⁹ Watching TV and spending longer hours on computer games as well as the demand to cope with academic activity are all the probable factors contributing to high myopia percentage.¹⁰ The study showed that hyperopia was the most common refractive error in age group 5–10 years. The probable reason for high frequency of hyperopia is that many children are born with hyperopia and some of them outgrow it as the eye ball lengthens with normal growth.¹¹ Astigmatism was equally present in the age group 11–15 and 16–20 years as per this study. One probable reason is that astigmatism rarely occurs alone and is commonly accompanied with myopia.

The overall result of the study showed that females (52%) were suffering with refractive errors more than males (48%). Another study, however, did not show any significant difference in refractive errors between males and females.¹²

The identification of close reading distance and continuous reading as possible risk factors for myopia may have important public health significance. These students do have very prolonged reading hours (about 10 hours a day) in contrast to others students (1–2 Hours). Given the widespread emphasis on reading and conscientious study habits in childhood, health promotion messages could encourage children to read with the book at a further distance, and to take breaks between periods of continuous reading. Whether these reading habits in children precede the development of myopia or whether they are a consequence of myopia are critical issues.

Moreover as these students have fewer chances of outdoor activities, this can lead to more chances for the development of myopia.¹³

As these findings are limited to only a few studies, we recommend that further exploration of the role of such modifiable risk factors be conducted in other populations.

CONCLUSION

Myopia was the most common refractive error found in this study. It is evident that refractive errors were present almost equally in males and females. The age group having peak frequency of refractive errors was 11–15 years. Madrassa students are significantly suffering from refractive errors and need to be diagnosed for refractive errors and should be given refractive correction. The school going children especially those who are studying in government schools or madrassas should be routinely screened for refractive errors. Every school/madrassa should have a school health program to control further deterioration of vision.

AUTHOR'S CONTRIBUTION

All the authors contributed equally.

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