

PREVALENCE OF REFRACTIVE ERRORS AMONG THE CHILDREN OF SPECIAL EDUCATION COMPLEX, PESHAWAR

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ABSTRACT:

OBJECTIVES :

The objective of our study was to determine the prevalence of refractive errors among children of special education complex.

METHODOLOGY:

A cross-sectional study was conducted to determine refractive error among the children of special education complex Hayatabad, Peshawar. A total of 272 children were examined from age 5-19 years. Refractive errors were determined by doing retinoscopy, subjective and objective refraction, ophthalmoscope and, hand held auto refractors. Snellen's charts, Lea symbol chart and Kay pictures were used for assessing the visual acuity in children who could cooperate.

RESULTS:

Among 272 children, 225 children were males (82.7%). 34(12.5%) were mentally retard, 182(66.9%) were hearing impaired and 56(20.6%) were physically handicapped. Children suffering from refractive errors were 47(17.3%). 11(4.0%) reported that they were using glasses. Squint was present in 5(1.8%). On examination status of right eye 5(1.8%) were with visual acuity 6/60 or less. For children who were unable to comprehend with Snellen visual acuity chart, they were assessed by using other charts like Lea symbol chart or Kay pictures. 19(7.0%) were assessed by Lea symbol chart, 9(3.3%) by Kay pictures and maximum number of children easily understand Snellen visual acuity chart that was 244(89.7%).

CONCLUSION:

This study concluded that refractive errors were common in special children.

KEYWORDS: Refractive Errors, Strabismus, Children, Snellen's Chart, Visual Acuity

INTRODUCTION:

Visual Impairment is a major public health problem. Worldwide prevalence of myopia and presbyopia has dramatically increased¹. Low vision is the main cause of visual impairment and the second leading cause of Blindness². Worldwide 285 million people are visually impaired³. According to American Blindness, one in four school age children have vision problems and if it is not treated than it will affect their personality, learning ability and adjustment in school⁴. Children with special educational needs are more likely to have refractive errors and visual impairment than normal children⁵. The main function to provide proper education to special children is important. Education is about to develop cognitive, moral, spiritual, Imaginative, mentally, social, emotional, aesthetic and physical aspects⁶.

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Ocular and visual disorders such as refractive errors, strabismus, nystagmus, cataract, reduced visual acuity and poor accommodation are found to be more common in children with Intellectual disabilities than in typically developing children⁷.

Consanguineous marriages together with environmental factors and maternal Infections have high Incidence for developmental / congenital abnormalities in children. Other causes include trauma, nutritional factors of childhood blindness, Vitamin A deficiency, corneal scarring, trachoma and ophthalmia neonatorum and use of harmful traditional practices⁸.

A study was done by two optometrists in special education schools in Wales, UK to identify the visual status and ocular disorders. From this study, 05 out of 44 schools' children presented with refractive errors and low vision⁵.

Another study was conducted in Nigeria, the children with low income were more affected by ocular diseases. About 10% of students were found with abnormal ocular findings⁹.

A study was carried out in Hualien, Taiwan showed that 35.4% children suffered from refractive error and the prevalence of ocular disorder was more common in multiple disability than the simple intellectual disability group¹⁰.

In India, a study was conducted in children from 11 special schools of learning disabilities. The eye examination was done by ophthalmologist. Half of the children suffer from refractive errors and one fourth had their vision improved with glasses¹¹.

One study was done in Iran that compared children with hearing impairment with different eye problems. In deaf children, vision is one of the important senses used. This study simply demonstrated that the deaf children have significantly more eye problems as compare to normal children, and the possible relation found was between deafness and eye problems. If proper treatment and attention is given to these children than these eye problems can easily be cured¹².

Many previous studies demonstrated that vision impairment and hearing influence the activities of daily living (ADL). Hearing and visual impairment increase the risk of fear of falling, fall, feeling unsafe, reduced social participation, dependency and also the main difficulty in daily life activities^{8,13-15}.

Aden the city of Yemen conducted a study on deaf and dumb students having ocular abnormalities. The leading abnormality was refractive errors, Waardenburg syndrome and pigment epithelium patches were seen in this study¹⁶. Ovenseri-Ogbomo G, Abraham C carried out a study of ocular findings and visual impairment among hearing and deaf children. Astigmatism is the commonest form of refractive error in this study¹⁷.

In Lahore, a cross sectional study was conducted. High schools' children taken from class 6th to 10th were targeted. The result shows that myopia and astigmatism was more common in children than hypermetropia¹⁸.

Prevalence of refractive errors and strabismus is a major public health issue in Pakistan.

RESULTS:

Mean age presentation was 12 ± 5.9 years.

Literature search showed no specific work on prevalence of refractive errors in special education schools in Pakistan. Although literature is available regarding prevalence of refractive errors in others schools. Due to lack of awareness these special children need extra need, attention and care if these children are not observed at early age than they lead to severe eye problems. In Khyber Pakhtunkhwa there are many special education schools but none has focused on these schools. Our objectives were to determine the prevalence of refractive errors and strabismus among students of special education complex.

METHODOLOGY:

A cross sectional study was carried out. A total number of 272 children were selected. The age group selected 5-19 years. Age was divided into 3 groups i.e. 5-9 years age group, 10-14 years age group and 15-19 years age group. Data was collected from special education complex, Hayatabad, Peshawar through a convenience simple.

All the children registered in daily attendance sheet of special education complex of Peshawar were selected. Children having hearing impairment, mentally retarded and physically handicapped were included. Blind students were excluded from the study.

Data was collected after approval by Graduate Committee, Advanced Scientific Research Board (ASRB) of Khyber Medical University and from social welfare department of Khyber Pakhtunkhwa. An informed consent and history from the parents of children, children and teachers was taken. Ocular examination was carried out with retinoscope, ophthalmoscope and flash light. Snellen's E chart, Kay symbols were used for assessing the visual acuity in children who could read and cooperate.

For descriptive statistics scale variables i.e. age (in years), mean and standard deviation were calculated while for categorical variables i.e. gender, frequencies and percentages were calculated by SPSS Version 23.

Table 1: Demographics of the Students in Special School of Peshawar

Age Groups	Frequency	Percentage
5 to 9 years	90	33.08
10 to 14 years	93	34.2
15 to 19 years	89	32.72
Gender	Frequency	Percentage
Male	225	82.7
Female	47	17.3
Class	Frequency	Percentage
Primary	129	47.4
Middle	61	22.4
Higher	82	30.1

Table 2: Children Presented with Abnormality

Children Presented with Abnormality	Frequency	Percentage
Mentally retard	34	12.5
Hearing impairment	182	66.9
Physically handicap	56	20.6

Table 3: Presence of Refractive Errors in the Special Children

Presence of Refractive Errors	Frequency	Percentage
Yes	47	17.3
No	225	82.7

Table 4: Distribution of Study Variables

Children Using Glasses	Frequency	Percentage
Yes	11	4.0
No	261	96.0
Squint Present	Frequency	Percentage
Yes	5	1.8
No	267	98.2

This study was conducted to determine the refractive errors of the special children. Esotropia was more common type of squint but a smaller number of children were affected by strabismus. Puri S et al⁷, in their study on ocular and visual disorders among children with intellectual disability studying in special schools of Nepal, showed that females were more common than males. Maximum numbers of children were in the age group of 5 to 9 years and minimum number of children in age group 10 to 14 years. This study contradicts our study in which N = 225(82.7%) were more than females N = 47(17.3%) and a greater number of children were in 10-14 years age group N = 93(34.2%).

Woodhouse JM et al. in their study in special schools of Wales documented that astigmatism is more common than myopia and hyperopia while myopia is common in our study. Esotropia is common in their study; other ocular abnormalities were also present like cataract, hazy cornea, blepharitis, in their study which may not be documented in our study due to age factor.

Joshi RS and Somani AAK, in their study in children with mental disorder in India age group was 6 to 16 years documented that myopia was more common in mentally retarded children than myopic and astigmatism. The children with increased

mental level had more refractive errors and other ocular abnormalities. Strabismus was also common in their study⁸.

Another study which was carried by Isawumi M and Akinsola F in special schools of Osun state of Nigeria. Refractive errors were more common, but the cause of blindness and visual impairment was due to corneal diseases while we excluded blind in our study⁹.

CONCLUSION:

The study concluded that refractive errors were common in special children. The children with refractive errors were mainly boys.

LIMITATIONS:

More children were taken from the primary class of the special education complex and male were in higher number in the sample size. Due to these limitations the results may not be anticipated globally.

RECOMMENDATIONS:

Arrangements need to be ensured to examine the children for periodic yearly assessment inclusive of ophthalmology. Special school need to take the cases for corrective measures.

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Data collected was emailed to all the co-authors for analysis, interpretation, discussion and review.

Corrigendum

In the issue of JGMDS, Volume: 05, No: 01; the name of the editor **Aneela Ambreen** in the "Editorial Board" was aberrantly printed by incorrect spellings.

Obituary

The Editors, Editorial and Advisory Board members of JGMDS mourn the loss of the journal's Advisory Board Member, **Dr. Riaz Gui**, who passed away on the 12 of February, 2019.



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