

Visual Acuity of Children of Darisharifpur Village, Pabna

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Abstract

Background: Refractive error in children aged 5-15 years is an important public health problem. Myopia and hypermetropia are leading cause of refractive errors in children in this age group. Both which are visually impairing conditions that can be significantly improved through adequate refractive correction. Population based refractive error studies in children have shows that nearly half of the visual impairment associated with correctable refractive error in this age group in not receiving attention specially those children living in disadvantaged social and economic condition

Methods: This is an observational study. One hundred children of a village Darisharifpur, upazilla- Bera, district Pabna were studied

in Random sampling method. Data were collected from children aged between 9-15 years. Refractive error with other related variables were enclosed with data and and that were analyzed.

Results: 100 children of village with visual problem or symptoms related to visual acuity were examined and prevalence of refractive error in my study 11%. Myopia (72.72%) is more common refractive error my study, myopia 46%, hypermetropia 25%, astigmatism 27%. Majority (63.63%) of refractive error was found in between -0.50D to -1.99D in my study . In my study majority of refractive errors are within 6/9 to 6/18.

Conclusions: Myopia and hypermetropia are leading cause of refractive errors in children in this age group. Both which are visually impairing conditions that can be significantly improved through adequate refractive correction.

Introduction

In Bangladesh, 77% of the population of country lives in rural area. According to Bangladesh national blindness and low vision survey 2002, about 3.3 million adult and 1.3 million children are suffering from refractive errors. Refractive error is second largest cause of visual impairment & blindness at all ages in Bangladesh Refractive error can easily be corrected by spectacles. If refractive error is detected and treated early, the visual loss is reversible in case of children. Despite the huge number of people need spectacles, only 3% of them wire spectacles.

In Bangladesh, ophthalmologists are the main provider of this service but number of ophthalmologists are grossly inadequate and they

work mainly in the large cities. Whereas 77% of population of our country lives in rural area. Refractive service is unavailable in rural area beyond Upazilla level.

Statement of problem:

Blind children due to uncorrected refractive error suffer more than blindness in old aged people and it is a greater socio-economic burden for society. Blindness due to refractive error is one of the obstacles for development of personality, education and career opportunities. Observations on London children aged of 5-8 years (Dustan 1932) shows a peak at +2.30D hypermetropia. In Bangladesh several studies were carried out to determine the refractive error especially in school going children.^{3,5,8}

There are 45 million blind and 135 million visually disabled people in the world. Increasing number of blind is big burden and this will be doubled by 2020, if appropriate measures are not taken. In February 1999 WHO taken global initiative to eliminate the avoidable blindness, “**Vision 2020 the right to sight.**”

The national prevalence survey reveals that number of refractive errors in Bangladesh are 27250 adult and 9925 children per million of population. This means there are estimated 3.3 million adult with refractive error cases with $<6/12$ visual acuity and 1.3 million children with $<6/18$ visual acuity.

Total number of population at the age of 40 years need refractive error correction for near works. Refractive error low vision should be given utmost importance specially for children because delayed intervention can lead them blindness.

Child blindness is relatively complex & demanding areas of works. Though the overall number of blind children is low compared to adult in terms of blindness years it is second only to cataract.

The childhood blindness study in Bangladesh revealed that 31% of blindness was due to problem with lens (cataract) and 27% of blindness was due to problem in the corner (vitamin a deficiency) including Glaucoma (4%) and aphakia (5%) of childhood blindness is thus avoidable (preventable and treatable). This study found that 90% of childhood blindness was developed within first 5 years of life there are estimated 40,000 children are blind in Bangladesh. The national workshop on childhood blindness 2003 recommended that planning for the control of blindness in children should be based on catchments of population of 10 millions rather than 1 million used for planning control of blindness in adult.

Objectives of the study:

The objectives of this study is to determine the prevalence and defferent pattern of refracting error among children of village aged between 9-15 years. However the specific objectives are as follows:

1. To find out the existing problems of refractive error in village children.
2. To asses deferent pattern of refractive errors.
3. To suggest measures to solve the problem.

Rationale of the study:

Refractive error in children age 5-15 years is an important public health problem. Myopia and hypermetropia are leading cause of refractive errors in children in this age group. Both which are visually impairing conditions that can be significantly improved through adequate refractive correction. Population based refractive error studies in children have shows that nearly half of the visual impairment associated with correctable refractive error in this age group in not receiving attention specially those children living in underprivilaged social and economic conditions and such refractive error remains uncorrected and unnecessary visual impairment persists.

In Bangladesh assuming a prevalence of 4 % children aged 5-15 years to have visual acuity of less than 6/18. It is estimated that there are approximate 1.3 million children having refractive error, the large majority of them are correctable.

Methods:

This is an observational study.

Place of study.

Study population : Children age between 9-15 years.

Study period : July 2008 to 30th June 2009

Sample size : 100 children

Data collection and analysis:

By purposive sampling method data were collected from children age between 9-15 years. The questionnaire was prepared containing all information regarding the patient's chief complaints with duration, refractive condition of family. Socio-economical condition of family, finding related to refractive error collected. visual acuity will be tested with the help of snellen's E chart followed by Ophthalmoscopy and Ratinoscopy were done data analysed by EPI info 6 programme.

Results

Results are given in tabulated form

Table I : Incidence of refractive error among different sex group

Sex	Total No. (%)	Normal No(%)	Error No(%)
Boys	50 (50%)	44(44%)	6(6%)

Table II: Incidence of refractive error among different occupation

Occupation	Total(%)	Normal(%)	Error(%)
Student	96(96%)	86(86%)	10(10%)
Non student	4(4%)	3(3%)	1(1%)
Total	100(100%)	89(89%)	11(11%)

Table III : Pattern of chief complaints of children

Chief complaints	Number	Percent
Headache	5	45.45%
Defective vision	4	36.36%
Incidental	2	18.18%

Table IV: Pattern of refractive error in different age group

Age group	Number	Percent
9-10 years	4	36.36%
11-13years	5	45.45%
14-15years	2	18.18%

Table V: Pattern of refractive error in one or both eyes

Eye	Number	Percent
One eye	2	18.18%
Both eyes	9	81.81%

Table VI: Severity of refractive error

Visual acuity	Number	Percent
<6/12	4	36.36%
6/12-6/18	3	27.27%
>6/18	4	36.36%

Table VII : Pattern of different types of refractive error

Type of refractive error	Number	Percent
Myopia	8	72.72%
Hypermetropia	2	18.18%
Astigmatism	1	9.09%

Table VIII : Refractive error of children using the eye with highest refractive error

Power	Number	Percent
-0.50D to -1.99D	7	63.63%
-2.00D to -3.99D	2	18.18%
>-3.00D	1	9.09%
+0.50D to +2.00D	1	9.09%

Discussion

100 Village children with visual problem or symptoms related to visual acuity were examined and prevalence of refractive error in my study 11%. Studies carried out R. Mowla Johurul⁸, Sharif and Amanullah¹⁰ showed the figures 8.19% and 6.35% respectively. The difference is due to those studies were done in urban area but my study was done in rural area. Myopia (72.72%) is more common refractive error my study also correlated with other observations of Hussain³, Rahman⁷ and Muqtadir⁵ of our country According to Dutta et al¹, myopia 46%, hypermetropia 25%, astigmatism 27%. In Japan by Muslim et al 1960, a greater prevalence of myopia was reported.

Majority (63.63%) of refractive error was found in between -0.50D to -1.99D in my study which is similar to that of Kragha¹⁹⁸⁷⁴ and Grosvenor 1970². In this study majority of refractive errors are within 6/9 to 6/18.

The efforts of Vision 2020 have resulted in increased funding through governmental and non-governmental sources that are instrumental to the elimination of avoidable causes of blindness. It has been pivotal in gaining and unifying advocacy for eye health at an international and national level. The reduced rates of age-related blindness globally are encouraging of the efforts of Vision 2020. However, there is an overall increase in crude prevalence, and this points to the need for a significant upscaling of efforts. The growing population and demographic shifts will present huge challenges in efforts to minimise vision impairment. To achieve the aims of Vision 2020, there will need to be significant upscaling of current programmes, increased education, and better reporting of outcomes to better target care. There needs to be continued focus on areas of the world where the magnitude of vision loss is the worst

and the resources available are minimal. There will need to be an increased focus to tackle the burden of NCED that will increase owing to epidemiologic shifts that have already taken place in high-income countries but are also encroaching on low- and middle-income countries. The recent COVID-19 pandemic may have an impact on achieving elimination of avoidable blindness as a public health problem, but it is difficult to say what these may be currently. Undoubtedly, Vision 2020 has led to huge milestones in the way we perceive the importance of eye care and our approaches to providing eye care. However, as can be seen from the most recent data on vision we have a while to go.

Limitation and Recommendation:

Al though children of rural area all over the Bangladesh facing the same problem, the present study cover only one village due to time and other constrains, sample size is 100 which is too small is main limitation of the study.

In spite of these limitation it is hopeful that the study will attract other attention who are interested in depth of issue, although the study not comprehensive it is envisaged to provide some food for thinking about the issue and it enable to attract the attention of the policy makers there might have opportunity to take up necessary steps to strengthen school sight testing program.

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