



VISUAL SCREENING; GOVERNMENT, PRIVATE AND COMMUNITY SCHOOL GOING CHILDREN IN FAISALABAD

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ABSTRACT... Background: Various eye diseases affect school going children. They do not complain of defective vision usually. Uncorrected visual problems are the basic reason for early visual impairment and blindness. An early diagnosis and treatment can reduce it to a great extent. **Purpose:** To reduce the prevalence of avoidable blindness among urban children in Pakistan. **Study design:** It was an observational and interventional study conducted in various Government, Private and Community Schools. The children requiring detailed ophthalmic examination and surgeries were referred to Diagnostic and Research Centre, Department of Ophthalmology, Allied Hospital, Punjab Medical College, Faisalabad. **Period:** January, 2013 - December, 2013. **Age:** 5 -16 years. **Subjects and settings:** Total 60,402 children were screened from 87 government, private and community schools. All the students were screened for eye disorders by testing visual acuity with Snellen's chart, anterior segment by torch light examination and fundus examination with ophthalmoscope. The study team included the school teachers, a clinical ophthalmologist, a refractionist, a community ophthalmologist, an optometrist, an ophthalmic technician, physiologist, PG trainees and a community social worker. The children identified with more complex visual problems were referred for detailed examination to Allied Hospital. Every government, private and community school of the target area was visited. All the data was collected, arranged and analyzed. **Results:** During study period, total 60,402 children were screened from 87 government, private and community schools. The students having visual acuity $\geq 6/12$, with or without glasses, were considered as normal. Out of 60,402 screened children, 54966 (91.01%) were normal and 5436 (8.99%) were identified by the teachers with the eye problems. 2,028 (3.35%) students were provided spectacles. Among these, 364 were boys and 1664 were girls. This shows 18 % refractive error in boys and 82% in girls. 120 children were treated by surgery; 63 for cataract (0.1%), 42 for squint (0.06%) and 15 (0.02%) for ptosis. Other identified ocular problems were chalazion 671(1.11%), blepharitis 696 (1.15%), corneal ulcer/opacity 7 (0.01%), conjunctivitis 1133 (1.87%), non-cooperative 781 (1.29%). **Conclusions:** In urban areas of Faisalabad district, 8.99% of school going children needed treatment for their ocular problems. School screening programs could play an essential role in the betterment of eye health and the avoidance of blindness among urban children in Pakistan.

Keywords: School going, screening programs, ocular disorders, refractive errors.

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INTRODUCTION

All over the world, school health remains an important aspect of every community health program. It is a formative period for a child not only physically but mentally also. Poor vision has a negative impact to the child's performance. Almost 1.4 million blind children exist in the world¹. Refractive errors and vitamin A deficiency are the most common visual disorders diagnosed which are treatable and preventable causes of childhood blindness and visual disturbances identified by the World Health Organization under

Vision 2020 programme². Mostly, the children do not complain of visual problems and may not even notice the condition. They try to adjust these problems themselves by sitting very close to the blackboard, squeezing their eyes, holding the books closely. In early stages, they may feel strain over eyes, with or without redness or watering and headache. Moreover, due to lack of awareness, to these complaints remained unnoticed the parents leading to ocular complications. Effective methods of vision screening in school children are useful in detecting correctable causes of

decreased vision, especially refractive errors³. It is an alarming thing and the only solution is the early diagnosis and treatment for these problems.

School children form a considerable segment of the country. In developing countries school going children (6-15 years) are 25% of the population⁴. For effective implementation of the comprehensive eye health care programs, schools are supposed to be one of the best centers³. The importance of visual acuity was recognized firstly during Second World War⁵.

In developed countries, it is a routine to screen school going children for eye diseases⁶ but in Pakistan there is no sufficient data about the prevalence as well as the frequency of the eye diseases among these children.

Faisalabad is an industrial city of Punjab. According to annual status of education report⁷, school enrollment for 6-16 years old children is 84.8%; 74.9% in government and 24.5% in private schools and 0.6% in madaris.

So the present study was designed to find out the frequency of ocular disorders in the school age children in Faisalabad.

AIMS AND OBJECTIVES

To reduce the prevalence of avoidable blindness among urban children in Pakistan. Its main objectives are:

1. To identify blind and low vision children within the City Faisalabad.
2. To provide the required eye care services (surgeries, spectacles, low vision devices) to children identified during school eye health activities.

MATERIALS AND METHODS

A team consisting of clinical ophthalmologist, community ophthalmologist, an optometrist, an ophthalmic technician, refractionist, school teachers, physiologist, a community social worker and PG trainees was formed and informed about different aspects of the study and data collection methods. After taking permission from principals and headmasters, the team visited all government,

private and community schools according to the schedule. Total 840 school teachers were trained by refractionist and also by community ophthalmologist at ophthalmology department, Allied Hospital Faisalabad. 60,402 children with the age from 4 to 16 years were screened by these trained teachers from 87 government, private and community schools in Faisalabad. All the students were screened for eye disorders. Visual acuity was checked by using Snellen's chart. The students having visual acuity $\geq 6/12$, with or without glasses, were considered as normal. The anterior segment was examined by torch light. For fundus examination we used ophthalmoscope. The children identified with more complex visual problems were referred for detailed examination and surgeries to Allied Hospital. All the data was collected, arranged and analyzed.

RESULTS

Total 60,402 children (4 – 16 years old) were examined by these trained teachers from 87 government, private and community schools. In government and private schools, both male and female students were examined but in community schools, only female students were examined by female members of our team. The mean age of the students was 8.46 ± 2.3 . The students having visual acuity $\geq 6/12$, with or without glasses, were considered as normal. Out of 60,402 screened children, 54966 (91.01%) were normal and 5436 (8.99%) were identified by the teachers with the eye problems. 2,028 (3.35%) students were provided spectacles. Among these, 364 were boys and 1664 were girls. This shows 18 % refractive error in boys and 82% in girls. 120 children were treated by surgery; 63 for cataract (0.1%), 42 for squint (0.06%) and 15 (0.02%) for ptosis. Other identified ocular problems were chalazion 671(1.11%), blepharitis 696 (1.15%), corneal ulcer/ opacity 7 (0.01%), conjunctivitis 1133 (1.87%), non-cooperative 781 (1.29%). All the data was collected, arranged in Table-I, Table-II and analyzed.

RESULTS

Gender	Government Schools (%) and Private Schools (%)			Community Schools (%)	Grand Total
	Class-I	Class-V	Other Classes		
Male (%)	4082 (32.46%)	2829 (34.05%)	5962 (15.22%)	0	12873 (21.31%)
Female (%)	8490 (67.53%)	5479 (65.94%)	33201(84.77%)	359 (100%)	47529 (78.68%)
Total	12572	8308	39163	359	60402

Table-I. Gender Distribution of Screened Children

Objectives	Key indicators	Target	Actual	Achievements	
				Gender	
				M	F
Objective 1: To identify blind and low vision children within the 5 project cities	Total Number of School Screened in urban slums of Faisalabad,	210	87	26	61
	20% reduction in childhood blindness caused by cataract, squint, refractive error and low vision	60,468	60402	12873	47529
Objective 2: To provide the required eye care services (surgeries, spectacles, low vision de-vices) to children identified during school eye health activities.	provided spectacles or low vision devices	1962	2028	364	1664
	children receive surgical treatment	120	120	22	98

Table-II. Summary of the targets planned and results achieved

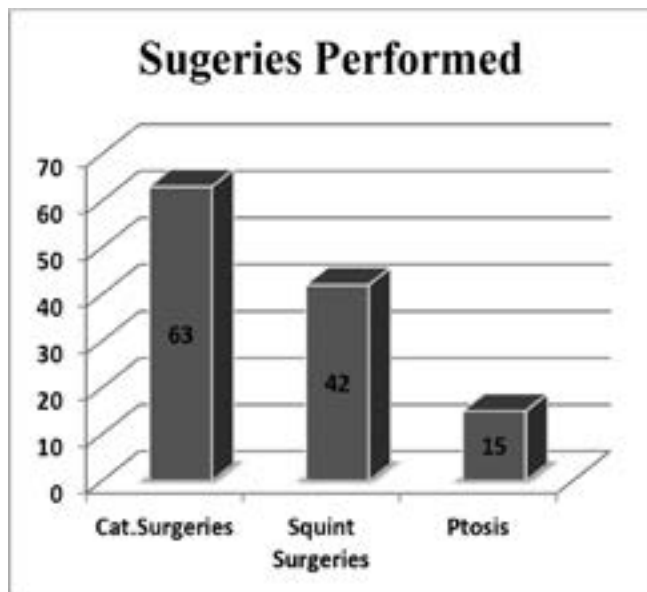


Fig-1. Graphical Presentation of Surgeries Performed.

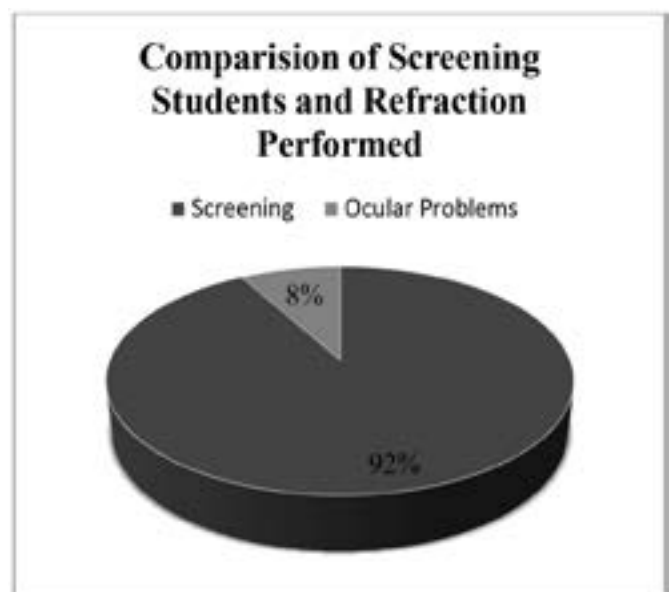


Fig-2. Graphical Presentation of Comparison of Screening Students and Refraction Performed.

DISCUSSION

The school health remains an important aspect of every community health program worldwide. World Health Organization’s Vision 2020; the Right to Sight Program highly concentrates on the prevention and control of blindness in

children⁸. The congenitally blind children or who become blind afterwards have to face a lifetime blindness ahead of them, with all the associated social, emotional, and economic costs not only to the child but to the family and the society also⁹. In children the actual number of “blind

years” due to all causes of blindness is almost equal to the number of “blind years” caused by cataract in adults, and found to be 70 million years¹⁰. In most of the cases, blindness is either preventable or treatable. At birth the children have an immature visual system. To develop normal visual status, they require clear, focused images to be transmitted to the higher visual center. If it remains immature (Amblyopia), it cannot be corrected in the adult life, so it is very important to diagnose and treat childhood eye diseases as early as possible⁸.

The major causes of childhood blindness differ widely from region to region, and mostly determined by the socio-economic development and some other factors like availability of eye care and primary health care services. Other less common causes include congenital eye anomalies, cataract and hereditary retinal dystrophies¹¹.

ASER- Pakistan reported,¹² that the literacy rate of Faisalabad district is 51.9%; 2856 are Public schools including 1980 Primary, 447 middle, 351 High and 78 Higher. Sec/ Inter Colleges/ Degree Colleges/ Technical & Vocational Institutions/ Deeni Madaris.

The present study shows a low prevalence of ocular morbidity among school children in urban areas of Faisalabad. In the present study, prevalence of ocular morbidity was 8.99% comparable to the one reported by Haq Nawaz during Health Screening of Primary School Children (4.38%)¹³, Prajapati P et al (13%) among adolescents of Gandhinagar district¹⁴.

Shobha Misra¹⁵ 14.8% in urban primary school children in Western India and 15.6% by Wedner SH et al in rural Tanzania.¹⁶ A high prevalence was reported by Khalil⁸ (22.23%) in school going children of District Lasbela, Balochistan. The prevalence of ocular morbidity differs widely at different places due to racial factors, unhygienic environment causing easy spread of the disease and also lack of knowledge. Haseeb¹⁷ reported that among school going children of Karachi,

only 10.9% children were ever checked for their ophthalmic examination.

In present study, uncorrected refractive error was 3.35% as compare to 5.6% and 8.9% reported in the studies conducted by Prasanna² and Haseeb¹⁷ respectively. Khalil A⁸ reported 2.9% prevalence rate in school going children of District Lasbela.

The second National Blindness and Impairment survey of 2002-3¹⁸ had reported the prevalence rate for refractive error as 2.7% of the blindness in all ages. Continuous accommodation markedly affect the axial development of the eye causing myopia¹⁹. The uncorrected refractive error may affect the learning capacity of the children and their educational capability²⁰. Luckily, refractive error can be treated easily by simply providing a pair of spectacles and gives an immediate solution to the problem. To provide suitable spectacles is another target of WHO’s vision 2020 program²¹.

Our study showed a prevalence rate of 0.1% for cataract, 0.06% for squint and 0.02% for ptosis. Other identified ocular problems were chalazion 1.11%, blepharitis 1.15%, corneal ulcer/ opacity 0.01% and conjunctivitis 1.87%. Most of these ocular diseases can be prevented, if diagnosed earlier and treated well. So the need of the day is that government and various non-governmental organizations (NGOs) must develop a strategy to screen these all children not only at school but pre-school level also.

CONCLUSIONS

- At school level, regular screening for visual defects can give best results.
- Health cards for each student should be made and maintained properly.
- Eye health systems should be strengthen through human resource development.
- Effective programme management systems should be established for efficient implementation of intervention.

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