



A STUDY OF OCULAR MORBIDITY AMONG URBAN & RURAL PRIMARY SCHOOL CHILDREN OF MEERUT

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ABSTRACT

My study depicts that timely intervention and proper management plan according to the cause of ocular morbidity will definitely lead to much less incidence of morbidity. In order to provide the children the best of vision and to achieve the target of Vision 2020,^[1] the health care institutions, government establishments, NGOs and the physicians have to work together day and night for the better future of our children.

KEYWORDS

- Refractive error
- Vitamin-A deficiency
- Cataract
- Corneal opacity
- Amblyopia
- Strabismus

INTRODUCTION

Schools are one of the best centre for effectively implementing a comprehensive health programme with successful results. In this study, 1984 school children of eleven different schools of rural and urban area of Meerut were surveyed in such a manner that represents different age group of either sex and various socio-economic groups.

The aims and objectives of my study were:

- To study the prevalence of ocular morbidity in urban and rural primary school children.
- Types of ocular morbidity and factors associated with ocular morbidity
- Management pattern of ocular morbidity in school going children.

OBSERVATIONS

- The total number of children with ocular morbidity was 294, that is 14.82% of the total studied population(1984)

- Urban population comprised 43.04% (854 children) and rural population 56.96%(1130 children). My study included 3 rural and 8 urban schools.
- Prevalence of ocular morbidity in rural population was 16.74% and 13.36 % in urban population and difference was statistically significant.
- The various causes of ocular morbidity discussed in my study were refractive error, amblyopia, strabismus, conjunctivitis, trachoma, vit. A def., corneal diseases, cataract and sty.
- Maximum number of children having subnormal vision had refractive error (80%) followed by vit. A def. (9.18%) and conjunctivitis (4.42%).
- The prevalence of ocular morbidity was maximum in age group of 13-15 yrs(29.25%) and least in the age group of 5-7 yrs(12.92%) and this difference amongst various age groups was found to be statistically significant($p < 0.001$).
- The difference in percentage of ocular morbidity between male and female sex was found to be statistically significant ($p > 0.005$).
- The prevalence of ocular morbidity was maximum in lower socio-economic status (23.22%) and least in

upper status(9.00%) and this difference was statistically significant(p,0.001%).

Conclusion: My study depicts that timely intervention and proper management plan according to the cause of ocular morbidity will definitely lead to much less incidence of morbidity. In order to provide the children the best of vision and to achieve the target of Vision 2020¹, the health care institutions, government establishments, NGOs and the physicians have to work together day and night for the better future of our children.

INTRODUCTION

An estimated 180 million people worldwide are visually disabled, of whom 45 million are blind, 4 out of 5 of them living in developing countries. Though 80% of blindness is due to avoidable or treatable causes, a large proportion of those affected remain blind for want of access to affordable eye care. Prevalence varies between countries from 0.2% or less in developed countries to more than 1% in some sub – Saharan countries.^[1]

India has the largest number of blind people in the world. 1/4th of the world's blind are in India. The country is home of 12 million blind and another 20.8 million with low vision.

VISION 2020-THE RIGHT TO SIGHT- It is a global initiative launched by the WHO and a Task Force of International Non-governmental organisations to combat the gigantic problem of blindness in the world. It was launched in Geneva on February 18,1999 by the then Director General of the WHO, Dr.Gro Harlem Brundtland. Globally, 5 conditions have been identified for immediate attention for achieving the goal of vision 2020.^[2]

They are

- Cataract
- Trachoma
- Onchocerciasis
- Childhood blindness
- Refractive errors and low vision

India was the first country in the world to launch the National Programme for Control of Blindness in 1976 with the goal of reducing the prevalence of blindness.

India is committed to reduce the burden of avoidable blindness by the year 2020 by adopting strategies advocated for Vision 2020-The right to Sight.

Childhood Blindness is a very important public health problem due to social and economic implications, as the affected child may have to live his whole life in darkness and being dependent on others.

The child may be born blind or may go blind later during early childhood due to infections, vitamin A deficiency, injuries or harmful drugs. Nearly half of childhood blindness can be prevented or easily corrected. The estimated number of blind children in India is 2, 00,000 and children with visual acuity less than 6/18 is 9.2 million.^[3]

Accurate population based epidemiological data on childhood subnormal vision are difficult to obtain because as the prevalence of blindness in children is much lower than adults, a larger sample size of children is needed. Secondly measuring visual acuity in children <5 years is difficult.

Hence the majority of data on childhood blindness are generally obtained from surveys such as school programs, vision testing programs, community centres and voluntary organizations.

Since children spend more than half of their time in the school,the “SCHOOL SURVEYS” are the best place for supervision of their health status. Schools are one of the best centres for effectively implementing a comprehensive health programme with successful results.^[4]

Childhood eye Problems causing subnormal vision includes

1. Refractive Error

The prevalence of hyperopia in school going children is 22.6%,myopia 8.6% and astigmatism 10.3%.^[5]

The defective visual acuity which persists even after the correction of refractive error and removal of any pathologic obstruction to vision is known as AMBLYOPIA.

2. Strabismus

It is a misalignment of the eyes which causes them to point in different directions. It's prevalence in school going children is 0.7%.^[6]

3. Conjunctivitis

4. Trachoma

5. Vitamin A deficiency: The prevalence is 0.6-2.8%⁴.

6. Corneal diseases: It's prevalence is 0.1%⁴.^[7]

7. Cataract

Prevalance of cataract in school going children is **0.6-2.8%**.^[8]

AIMS AND OBJECTIVE

1. To study the Prevalence of ocular morbidity in urban and rural primary school children.
2. Types of ocular morbidity and factors associated with ocular morbidity.
3. Management pattern of ocular morbidity in school children.

MATERIAL AND METHODS

The present study was planned to carry out a baseline survey to assess the prevalence of ocular morbidity in different age groups in the urban and rural school going population of Meerut district; to study its distribution in various socio-demographic variables and to assess the utilization of various eye health care services.

Phases of study

Phase 1: comprised of school surveys. The surveys were conducted in randomly selected schools of rural and urban area of Meerut so as to estimate the prevalence of various causes of subnormal vision in children of school going age (5-15 years). Children having subnormal vision due to any cause were referred to eye department, medical college, Meerut for management.

Phase 2: comprised of the management of all the referred cases who attended the eye department of medical college, Meerut. All these cases were thoroughly investigated and managed accordingly. By this method, feasibility and effectiveness of such a referral system was assessed.

Phase 3: comprised of the various modalities of treatment of the various causes of ocular morbidity and their comparison

This study was done in duration of ten months starting from May 2021 to March 2022.

For better presentation of the different socio-economic group, we select two types of school-

1. Urban area school
2. Rural area school

From these school only those children were selected for examination who belonged to the age group 5 to 15 years. In all 1984 children were examined, the children were of either sex.

Information was collected on a predesigned and pretested schedule for each child aged between 5-15 yrs including socio demographic characteristic and other contributory factors and family history, past history and present symptoms suggestive of ocular problem.

A brief history was taken regarding previous use of glasses any time and any other visual or ocular problem in the past.

1. Visual acuity examination

Visual acuity of each child was taken by Snellen's Chart. If a child was using spectacles, visual acuity was recorded with and without spectacles.

2. Local examination

Include assessment of head posture, facial symmetry, any abnormalities in lid, conjunctiva, cornea, anterior chamber, iris, pupil and lens.

3. Cover/Uncover test

4. Convergence

5. Ocular movement

OBSERVATION AND RESULTS

Table-1: Distribution of ocular morbidity with reference to urban/rural population.

Area	Total Population	Population with ocular morbidity		
		No.	Prevalance % age	Proportional Morbidity % age
URBAN	1130	151	51.36	13.36
RURAL	854	143	48.63	16.74
TOTAL	1984	294	100	14.82

$d.f. = 1, \chi^2 = 4.413, p < 0.05 \therefore$ significant

It is evident from the above table No. 1 that the prevalence of ocular morbidity in rural population (16.74%) is more than that in urban population (13.36%).

this difference was found to be statistically significant ($p < 0.05$).

Table-2: Cause Wise Distribution of Ocular morbidity.

S.No.	Cause of Morbidity	No. of Individuals	Proportional Morbidity	Prevalance
1.	Refractive Error	235	(11.84)	79.93
2.	Amblyopia	2	(0.10)	0.68
3.	Strabismus	1	(0.05)	0.34
4.	Conjunctivitis	13	(0.65)	4.42
5.	Trachoma	11	(0.55)	3.74
6.	Vit. A. def.	27	(1.36)	9.18
7.	Corneal Dis.	1	(0.05)	0.34
8.	Cataract	2	(0.10)	0.68
9.	Stye	2	(0.10)	0.68
		294	(14.82)	

The prevalence of various causes of ocular morbidity as depicted in table 2 above revealed that max. no. of children having subnormal vision were of refractive error

(80 %) followed by Vit. A def. (9.18) & conjunctivitis (4.42%).

Table 3: Age & Sex distribution of children.

S.No.	Age Group (years)	Boys	Girls	Total	%
1.	5 - 7 yrs	183(62.46)	110(37.54)	293	14.76
2.	7 - 9 yrs	209(61.47)	131(38.53)	340	17.13
3.	9 - 11 yrs	241(60.1)	160(39.9)	401	20.21
4.	11 - 13 yrs	294(61.89)	181(38.10)	475	23.94
5.	13 - 15 yrs	270(56.84)	205(43.15)	475	23.94
	Total	1197(60.33)	787(39.66)	1984	100

Note: Figures in brackets are percentages

The proportion of school going boys was maximum in 11-13 yrs. age group (294) and for girls was maximum in

13-15 yrs age group (205) as depicted in the above table No. 3.

Table 4: Overall percentage of ocular morbidity with reference to age.

Age Group	Total	Ocular Morbidity	
		No.	Percentage
5-7 yrs	293	38	12.92
7-9 yrs	340	49	16.67
9-11 yrs	401	58	19.72
11-13 yrs	475	63	21.43
13-15 yrs	475	86	29.25
Total	1984	294	100

$df. = 4, X^2=20.83, p < 0.001$ (Significant)

As depicted in the above table No-4 the prevalence of ocular morbidity was maximum in age group of 13-15 yrs (29.25%) and least in the age group of 5-7 yrs

(12.92%) and this difference amongst various age groups was found to be statistically significant ($p < 0.001$).

Table 5: Prevalence of ocular morbidity in relation to socio-economic status.

Socio-Economic Status	Population		Ocular Morbidity	
	No.	% age	No.	% age
Upper	111	5.6	10	9.00
Upper Middle	754	38.00	116	15.38
Lower Middle	567	28.5	52	9.17
Upper Lower	325	16.38	64	19.71
Lower	227	11.44	52	23.22
Total	1984	100	294	14.82

$df.=4, x^2=35.37 p < 0.001$ (Significant)

It is evident in the above table no. 5 that the prevalence of ocular morbidity is maximum in the lower socio-economic status (23.22%) and is least in upper status

(9.00%) and this difference was found to be statistically significant ($p < 0.001$.)

Table 6: Relationship of ocular morbidity with awareness of Eye Health Care Facilities.

Awareness Regarding Eye Health Care Facilities	Population		Ocular Morbidity	
	No.	%	No.	%
Present	916	43.2	111	12.11
Absent	1068	56.8	183	17.13
Total	1984	100	294	14.82

$df.=1 x^2= 9.842, p < 0.005$ (in Significant)

It is evident from the above table No. 6 that the presence of awareness regarding eye health care facilities leads to

a decreased percentage of ocular morbidity and the difference was found to be statistically significant ($p < 0.005$).

DISCUSSION

The aim of my study is to estimate the prevalence of ocular morbidity in urban and rural primary school children, the morbidity types and associated factors and the management pattern of ocular morbidity in school children.

My study includes **1984** children in all of which **854** belong to rural population and **1130** to urban population residing in and around Meerut city.

Amongst the causes of ocular morbidity refractive error was responsible for 80% of the causes followed by vit. A def. (9.18%) and conjunctivitis (4.42%).

In the comparison for age and sex distribution of children, boys comprised of 60% of school going population and girls only 40%, depicting the negligence towards female sex education.

Maximum population of boys were in 11-13 year age group(294) and girls 13-15 year age group (205). In the same study it was significantly concluded that prevalence of ocular morbidity was maximum in 13-15 year age group(29.25%) and least in the age group of 5-7 year(12.92%).

Ocular morbidity was maximum in lower socio-economic status(23.22%) and least in upper status(9.00%)- $p < 0.001$.

Awareness of eye health care facilities definitely led to decreased percentage of ocular morbidity in the studied population.

CONCLUSION

- Every child should have preliminary eye check up. Defective vision should be recorded at every time of entrance and at an interval of 1-2 yrs in school and should be reported to parents of the child.
- Immediate treatment should be planned as soon as defective vision is detected.
- Principle of ocular hygiene, mode of spread of eye diseases and their prevention should be fully explained to the children, parents and school teachers.
- Children should be educated about proper reading habits:
 - a. Principles of good posture
 - b. Proper lighting conditions
 - c. Avoidance of glare

The school teachers should be educated about the school health techniques so that they can serve as a link between

the children and their parents on one hand and the eye specialist on the other.

Liberal and adequate ophthalmic services should be provided to the rural school children.

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