

A Study on Refractive Errors among the School Children of Kothapatnam Mandal, Prakasam District

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Date of Submission: 16-07-2018

Date Of Acceptance: 30-07-2018

I. Introduction

- Uncorrected Refractive error is one of the most common causes of blindness around the world. About 80% of blindness is treatable or preventable. Refractive errors are one of the common causes of this treatable blindness. Globally, the major causes of blindness are cataract, uncorrected refractive errors and glaucoma and their prevalence are 33%, 43% and 2% respectively.
- An estimated 19 million children are visually impaired worldwide of which 12 million are due to refractive errors which could be easily corrected.
- Refractive error is one of the commonest causes of visual impairment around the world. Around 2.3 billion people worldwide is estimated to have refractive errors and of these 1.8 billion have access to adequate eye examination and affordable corrections.
- In India refractive error is the second most major cause of patients to consult ophthalmologists.
- Epidemiological study indicates that among the refractive errors, prevalence of myopia is increasing worldwide in economically developed societies. This is mainly the case in East-Asian populations like China, Japan, and Singapore.
- Different study reveals that refractive errors are usually present in the childhood and continue to the adult life.
- Undetected and uncorrected refractive errors are particularly a significant problem in school children. Children generally never complain of defective vision. Generally they are not aware of their problem or they may adjust to their poor vision. Even some time they used to avoid work which need visual concentration. Uncorrected refractive error can cause adverse impact on learning process and educational capacity.
- Blindness due to refractive error can also have dramatic effect in personality development and career opportunities, along with causing an economic burden to the society. Most of the children with such diseases are apparent and hence, screening helps in early detection and correction with spectacles.
- Refractive error has been given high priority under the National Programme for Control of Blindness. It took central part in the global initiative Vision 2020, for the elimination of avoidable blindness.
- With these rationales this study was done to assess the magnitude of refractive error and to assess the degree of myopia among school-going children of kothapatnam mandal, prakasam district.

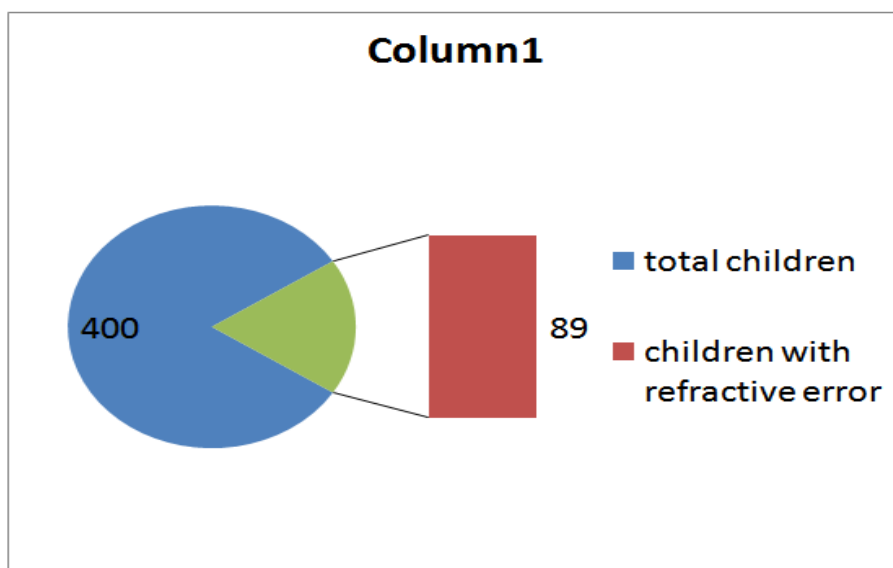
AIM

To assess the degree of myopia among school-going children of kothapatnam mandal, prakasam district.

II. Materials and methods

- Study Design: This cross sectional study was carried out in the schools of kothapatnam from june 2017 to may 2018
- Study population: All the children in the age group of 5 to16 years (i.e from class 1 to class 10) of government schools of kothapatnam mandal who were present on the day of the interview.
- Exclusion Criteria: Children having defective vision because of other reasons like trachoma, corneal injuries or ulcers
- Refractive error was tested using the following instruments:
 - 1. Snellen's chart
 - 2. Opaque disc perforated by small central hole
 - 3. Occluder-
 - 4. A trial box, a trial frame, self illuminated vision box, streak Retinoscope.

III. Results



- Above figure shows the children with refractive error. out of 400 children, refractive error was seen in 89 (44.94%) cases.

AGE DISTRIBUTION

AGE DISTRIBUTION	NO.	%
5-10 Years	33	37.07%
11-15 Years	56	62.92%

In above table, 5-10 yrs age group children were 33 (37.09%) cases, 11-15 yrs age were 56 (62.92%) cases.

SEX DISTRIBUTION

Sex distribution	No.	%
BOYS	26	29.21%
GIRLS	63	70.78%

In the above table, boys were 26 (29.21%) and girls were 63 (70.78%)

Distribution of children according to involvement of eye

Eye involved	No.	%
Right eye	2	2.2%
Left eye	4	4.4%
Both eyes	83	93.25%

- Above table shows the distribution of children according to involvement of eye. Refractive error seen in Right eye were 2 (2.2%) cases, left eye were 4 (4.4%) cases and both eyes were seen in 83 (93.25%) cases.

Distribution of children according to type of refractive error

Type of refractive error	No.	%
Myopia	73	82%
Hypermetropia	2	2.24%
Astigmatism	14	15.73%
Total	89	100%

Above table shows the different types of refractive errors. myopia were seen in 73(82%)cases, hypermetropia were seen in 2(2.24%)cases and astigmatism were seen in 14(15.73%)cases.

Common complaints among school children with refractive errors

complaints	No.	%
Difficulty in seeing blackboard from last bench	39	43.82%
Headache	34	38.20%
Eyestrain	8	8.98%
Half shutting of eyes for better vision	5	5.61%

Above table shows the common complaints among the children with refractive errors. Difficulty in seeing black board was seen in 39(43.82%) cases, headache seen in 34(38.20%)cases, eyestrain was seen in 8(8.98%)cases and half shutting of eyes for better vision was seen in 5(5.61%)cases.

Classification of myopia based on degree of myopia

Degree of myopia	No.	%
Low	65	89.04%
Moderate	8	10.95%
High	-	-
Total	73	100%

Above table shows the degree of myopia. Low degree of myopia was seen in 65(89.04%)cases, moderate degree of myopia was seen 8(10.95%)cases.

IV. Discussion

- This study shows the prevalence of refractive errors 44.95% among the school children which was more than the studies conducted by Rahman M, Devi B, Kuli JJ, Gogoi. Pavithra MB, et al.10 EL-Bayou my BM, Saad A, Choudhury AH11 and Kaushik Tripura, N. C. Luwang, Subrata Baidya, Phani Sarkar.12 But study by Prema N found the prevalence similar to our study.13 These variations in prevalence could have been due to differences in demographic factors.
- Our study showed that myopia was the most common refractive error 82% followed by astigmatism (15.73%) and hypermetropia(2.24%).
- Similar observations were found in the study done by Rahman M, Devi B, Kuli JJ, Gogoi G.9 Study by Nisha Dulani and Harish Dulani on Prevalence of Refractive Errors among School Children in Jaipur, Rajasthan also found similar observation where Myopia was 63.4%, Astigmatism was 25.8% and followed by Hypermetropia of 11.35%.15
- It was evident from this study that among refractive error detected cases majority complaint of difficulty in reading blackboard from back benches (43.82%). EL-Bayoumy BM, Saad A, Choudhury AH. reported a similar finding where the prevalence of refractive error was higher among those who had problem in seeing distant objects.11 Similar finding were found in the study done by Kumar KS, Akoijam BS.16
- Our study revealed that the majority of the myopic children were having low myopia (89.04%), followed by moderate degree of myopia (10.95%). Study by Rahman M, Devi B, Kuli JJ, Gogoi G Found that maximum students had low myopia (60.4%).9 These finding are similar to our study.
- This study revealed that 78.94 % cases of refractive errors were detected during the study where as only 21.06% were already wearing spectacles (old cases). Prema. N in the study done in Kancheepuram Dist., Tamil Nadu, India found that Only 7% of students with poor vision who wore eyeglasses but 93% of student having poor vision did not have glasses.13
- Study done by Rahman M, Devi B, Kuli JJ, Gogoi G in Dibrugarh, Assam9 and Kumar KS, Akoijam BS in Imphal, Manipur16 also found the high prevalence of uncorrected refractive errors. The possible reasons for students for not wearing glasses may be lack of awareness about refractive errors. These finding comply with the present study.

V. Conclusion

- Refractive error was seen in 89(44.94%) cases out of 400 children.
- Most of the cases was seen in 11-15 years age children (62.92%).
- Refractive error was high among the girls(70.78%) than boys(29.21%).
- Both eyes (93.25%) were involved more than single eye.
- Myopia(82%) is the common refractive error seen among school children.
- Difficulty in seeing black board from back benches(43.82%) is the most common complaint.
- Low degree of myopia(89.04%) is the most common type of refractive error.

From this study we can conclude that refractive error was a significant cause of visual impairment among school children and screening of school children can play an important part in detecting refractive errors. As prevalence of uncorrected refractive error was also found to be high, therefore students, parents, and teachers must be educated about signs and symptoms of refractive errors, so that they can get early detection and correction with spectacles to prevent progression of visual impairment. The existing school health services should be strengthened and implemented effectively so that it would be helpful to attain the global initiative for elimination of avoidable blindness by the year 2020

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Dr.N.Sandhya Rani, Assistant professor, RIMS. "A Study on Refractive Errors among the School Children of Kothapatnam Manual, Parkas District." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS),* vol. 17, no. 7, 2018, pp 29-32.