(International Print/Online Journal)

SJIF IMPACT FACTOR: 5.565
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume3, Issue 6, Page No: 801-806
November-December 2020

Prevalence of refractive errors and color blindness in students of class VIth, VIIth of Millennium Public School, UP

Rijul Ranjan[1], Saurabh Sharma[2], Abhishek Kumar Burman[3]
[1]Assistant Professor, [2]Associate Professor, [3]PG Tutor
[1,3]National Capital Region Institute of Medical Sciences, Meerut
[2]Subharti Medical College, Meerut

***Corresponding Author:**
Rijul Ranjan
Assistant Professor, National Capital Region Institute of Medical Sciences, Meerut

Type of Publication: Original Research Paper
Conflicts of Interest: Nil

ABSTRACT

Introduction: Refractory error is an optical defect intrinsic to the eye which prevents the light from being brought to a single focus on the retina thus reducing the normal vision.

Aim & Objectives:

1. To find out the prevalence of color blindness and refractive error and its determinants among school children of class VI, VII students in school in, UP
2. To examine the students from class VI, VII for refractive error with help of **Snellens Chart.**
3. To examine the students from class VI, VII for color blindness with help of **Ishihara Chart.**
4. To find **factors** associated with Color blindness and refractive error in school going children.

Material & Methods: A cross-sectional study conducted in VI, VII class students of Millennium Public School, UP

Conclusion: A positive association of frequently blinking, repeated blinking, watering or unusual discharge, moving head towards object of interest, abnormal head posture, excessive tv watching and mobile usage was found with visual impairment.

Keywords: NIL

INTRODUCTION

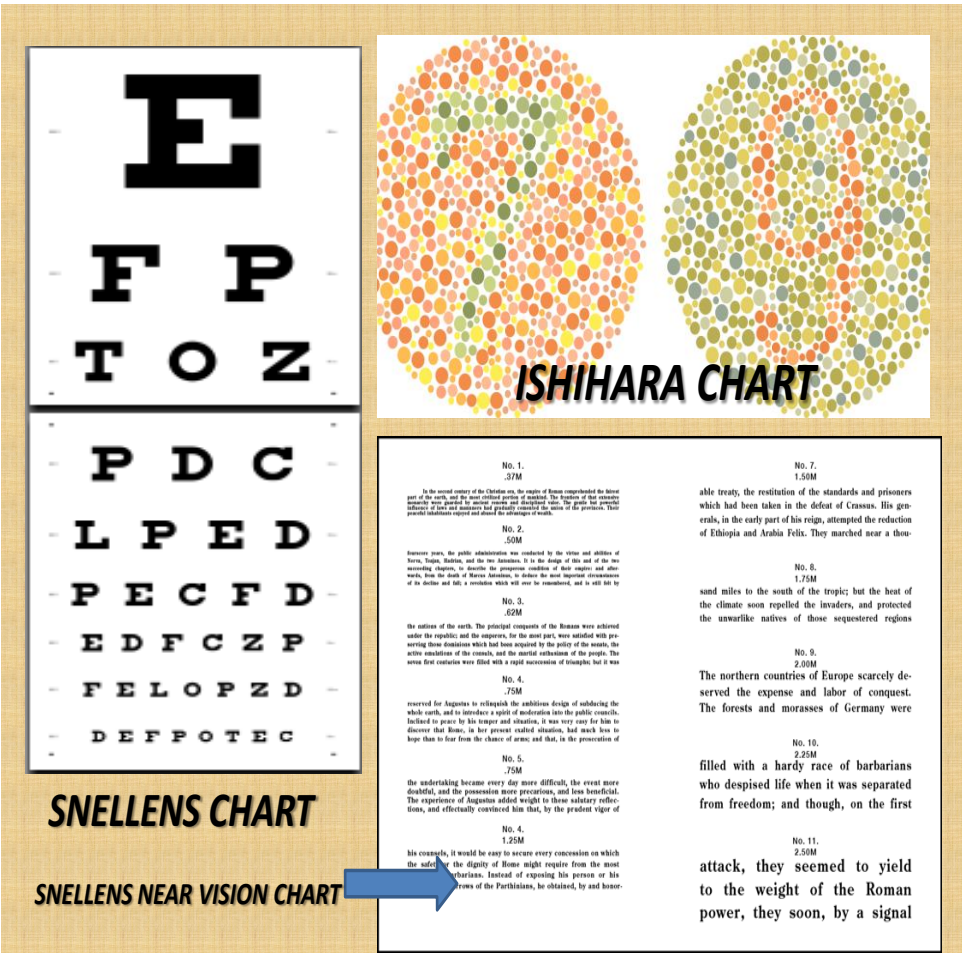
- ***Refractory error*** is an optical defect intrinsic to the eye which prevents the light from being brought to a single focus on the retina thus reducing the normal vision.[1]
- Refractory error is a ***major*** contributor to visual impairment which is a significant cause of morbidity in children worldwide. [1]
- *Early detection* & *prompt treatment* of eye condition is important to ***prevent*** vision problems and eye morbidities which could affect a child's learning ability, personality and adjustment in school. [2]
- Vision screening is the search for unrecognized eye diseases or defect by means of rapidly applied test, examinations or other procedures in *apparently* healthy individuals. [2]
- A *screening test* is not intended to be a diagnostic test, it is only an initial examination. Those who are found to have positive test results are referred to an *Ophthalmologist* for further diagnostic work up and treatment.[3]
- Vision is important in development because it allows children to interact with their

environment. Vision in school going children is uniquely important because their visual system is still developing and they are at risk of developing uncorrected vision. Lack of awareness may lead to long term visual impairment.[4]

- *Poor vision in childhood affects performance in school or at work and has a negative influence on the future of the child.*[4]

MATERIAL REQUIRED

- Snellens Visual Acuity chart (Alphabet & tumbling A)
- Measuring tape to measure 6m reading distance
- Ishihara charts
- Pen torches with batteries
- Educational posters
- Stationaries



SAMPLING PROCESS

- 300 students each will be selected from class VI and VII.

INCLUSION CRITERIA

- All the students having normal visual acuity
- All the students present on the day of survey.
- All the students who are willing to participate.

OPERATIONAL DEFINITION

- *MYOPIA*: - (Aka Short-Sightedness) is that dioptric condition of the eye in which, with accommodation at rest, incident parallel rays come to focus anterior to light sensitive layer of retina.[4]
- *HYPERMETROPIA*: - (Aka Far sight) is that dioptric condition of the eye in which, with

Volume 3, Issue 6; November-December 2020; Page No 801-806

accommodation at rest, incident parallel rays come to focus posterior to the light sensitive layer of retina.[5]

- *COLOR BLINDNESS*: - is an abnormal condition characterized by the inability to clearly distinguish primary **colours** of the spectrum (red, green & blue). [6]

ANALYSIS

With the help of Microsoft Excel and chi square analysis software

METHOD

1	Study design	Crosssctional Study
2	Study Area	Millennium Public School, UP
3	Study subject	VI, VII class students
4	Sample size	1000
5	Sampling technique	Purposive sampling
6	Research tool	Pre-validated questionnaire and Ophthalmology charts
7	Inclusion criteria	Those present and gave consent to participate
8	Exclusion criteria	Those not present and did not consent to participate
9	Ethical consideration	Informed verbal consent
10	Data entry and analysis	MS Excel

RESULT:

Table 1:

Yes	**No**
DO YOU FEEL ANYTHING WRONG WITH YOUR VISION?	
80	420
HAVE YOU EVER BEEN DIAGNOSED WITH SOME OTHER EYE CONDITION?	
40	460
DO YOU HAVE ANY DIFFICULTY IN READING BOOKS OR SEEING FAR OBJECTS?	
55	445
HAVE YOU OBSERVED ANY PROBLEM IN EYELIDS, EYELASHES AREA AROUND EYES?	
45	455
DO YOU HAVE ANY PROBLEM WHILE LOOKING AT BRIGHT LIGHT?	
40	460
DO YOU HAVE ANY COMPLAINTS OF HEADACHE OR DIZZINESS?	
80	420
ANY HABIT OF FREQUENTLY RUBBING OF EYES?	

Volume 3, Issue 6; November-December 2020; Page No 801-806

60	440
IF REPEATED BLINKING IS PRESENT?	
50	450
ANY UNUSUAL WATERING OR DISCHARGE FROM EYES?	
50	450
DO YOU HAVE TO MOVE YOUR HEAD TOWARDS OBJECT OF INTEREST?	
55	445
DO YOU TAKE MILK AND ITS PRODUCT DAILY?	
470	30
DO YOU TAKE GREEN LEAFY VEGETABLES DAILY?	
490	10
IS THERE ANY PRESENCE OF ABNORMAL HEAD POSTURE?	
465	35
HAS ANYONE TOLD YOU ABOUT COLOUR BLINDNESS?	
10	490

16% of the students felt that there was something wrong with their vision, 84% of the students felt that there was nothing wrong with their vision. 8% of the students were diagnosed with some eye condition, 92% of the students were not diagnosed with some eye condition. 11% of students had difficulty while reading books

89% of students didn't had any difficulty while reading books. 9% of students observed problem in eyelids, eyelashes area, 91% of students didn't observed any problem in eyelids, eyelashes area. 8% of students had problem while looking at bright light, 92% of students didn't had any problem while looking at bright light.

16% students had problem of complaints or headache or dizziness, 84% students didn't have any problems of headache or dizziness. 12% people had a habit of frequently rubbing their eyes, 88% people din't had a habit of frequently rubbing their eyes. 10% students frequently rubbed their eyes, 90%students didn't rub their eyes. 12% students had complained of unusual watering or discharge, 88% students din't had complain of unusual watering or discharge. 11% students moved their head towards object of interest, 89% students din't moved their head towards object of interest. 94% students consumed milk an its products daily, 6% students didn't consume milk and its products daily. 98% students consumed green leafy vegetables, 2% students din't consumed green leafy vegetables. 7% students had presence of abnormal head posture, 93% students didn't had presence of abnormal head posture. 2% students have idea about color blindness, 98% students don't have any idea about color blindness.

Volume 3, Issue 6; November-December 2020; Page No 801-806

Table 2:

Yes	No
DO YOU FEEL ANYTHING WRONG WITH YOUR VISION?	
80	420
HAVE YOU EVER BEEN DIAGNOSED WITH SOME OTHER EYE CONDITION?	
40	460
DO YOU HAVE ANY DIFFICULTY IN READING BOOKS OR SEEING FAR OBJECTS?	
55	445
HAVE YOU OBSERVED ANY PROBLEM IN EYELIDS, EYELASHES AREA AROUND EYES?	
45	455
DO YOU HAVE ANY PROBLEM WHILE LOOKING AT BRIGHT LIGHT?	
40	460
DO YOU HAVE ANY COMPLAINTS OF HEADACHE OR DIZZINESS?	
80	420
ANY HABIT OF FREQUENTLY RUBBING OF EYES?	
60	440
IF REPEATED BLINKING IS PRESENT?	
50	450
ANY UNUSUAL WATERING OR DISCHARGE FROM EYES?	
50	450
DO YOU HAVE TO MOVE YOUR HEAD TOWARDS OBJECT OF INTEREST?	
55	455
DO YOU TAKE MILK AND ITS PRODUCT DAILY?	
470	30
DO YOU TAKE GREEN LEAFY VEGETABLES DAILY?	
490	10
IS THERE ANY PRESENCE OF ABNORMAL HEAD POSTURE?	
35	465
HAS ANYONE TOLD YOU ABOUT COLOUR BLINDNESS?	
10	490

92% students spent up to 3 hours watching television per day, 8% students spent more then 3 hours watching television per day. 95% students spent up-to 3 hours on mobile per day, 5% students spent more then 3 hours on mobile per day. 98% students spent up-to 3 hours on computer per day, 2% students spent more then 2 hours on computer per day

Volume 3, Issue 6; November-December 2020; Page No 801-806

CONCLUSION

Upon examination of 500 students, we found that

100 - Students were myopic

5 - Students were hypermetropic

5 - Students were color blind

- It indicates that visual impairment and mainly myopia is a common problem which remains unnoticed for a very long time.
- 16% of the students complained of headache
- 12% of the students had a habit of frequently rubbing their eyes
- 10% of the students had repeated blinking
- 11% of the students moved their head towards object of interest

Moreover, a positive association of frequently blinking, repeated blinking, watering or unusual discharge, moving head towards object of interest, abnormal head posture, excessive tv watching and mobile usage was found with visual impairment.

DISCUSSION

- Teachers were advised to inform the parents of the students who were found with visual impairment so that they can go for a proper visual check-up.
- Moreover teachers were also asked to observe students if any repeated blinking, Headache, unusual watering ,dizziness, Unable to read from board as parents can be informed and child can go for a proper visual checkup
- We also told the teachers to have an eye on the copies that they are checking to know if any student is making errors in copying down from the board.
- We also told them about the importance of seat rotation. Students generally don't visualize properly from back seats and considering it normal they start sitting on the front seats. Daily seat rotation and teachers asking to read words from the board help in identifying the problem at early stages.

REFERENCES

1. Kanski Textbook of ophthalmology
2. Kanski Textbook of ophthalmology
3. Kanski Textbook of opthalmology
4. Parsons' 22nd edition Disease Of Eye by Radhika Tandon
5. Parsons' 22nd edition Disease Of Eye by Radhika Tandon
6. Parsons' 22nd edition Disease Of Eye by Radhika Tandon
7. https://www.google.co.in/url?sa=t&source=web&rct=j&url=http://www.iosrjournals.org/iosr-jdms/papers/Vol14-issue2/Version-3/F014232733.pdf&ved=0ahUKEwjjj_HVhe7WAhXJQo8KHdtRDmYQFgg9MAQ&usg=AOvVaw1MSde9tXufeEfLmcR1n-GK
8. https://www.google.co.in/url?sa=t&source=web&rct=j&url=http://journals.plos.org/plosone/article%3Fid%3D10.1371/journal.pone.0117349&ved0ahUKEwjjj_HVhe7WAhXJQo8KHdtRDmYQFghEMAY&usg=AOvVaw1HBrk2rWsUafJDARXyemPM
9. http://www.iosrjournals.org/iosrjdms/papers/Vol15-issue1/Version- 9/B015190609.pdf
10. https://www.ncbi.nlm.nih.gov/pubmed/21505549
11. http://jphmr.com/wpcontent/uploads/2014/12/6.pdf)
12. http://medind.nic.in/jav/t12/i4/javt12i4p223.pdf

Volume 3, Issue 6; November-December 2020; Page No 801-806