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Identifying Causing Factors of Low Visual Acuity Among School-Age Children

1Rishabh Dubey, 2Ms. Ankita Bandyopadhyay

1Student, 2Assistant Professor

1Galgotias University,

2Galgotias University

Abstract

Introduction: Vision serves as the primary way individuals connect with their external environment. According to the World Health Organization, around 90% of blind individuals reside in developing countries, with India having the highest number of blind people, estimated at 12 million. The age range of 6 to 12 years is considered crucial for health. Paying attention to the eye health of school-age children is vital and requires involvement from both society and parents. A study was conducted to examine the prevalence of low visual acuity and it's influencing factors among school-age children in Jasola, New Delhi. The study aimed to assess the factors affecting low visual acuity and compare it across various demographic variables among school children.

Aim- To assess the level of low visual acuity in school-age children and its influencing factor.

Methodology: The study utilized a cross-sectional design and selected 150 school-age children based on specific criteria through purposive sampling. The study framework was based on King's Goal Attainment model. Using Snellen's chart, the study assessed low visual acuity among school-age children, while a questionnaire was administered to mothers via interviews to identify influencing factors.

Result: Analysis revealed that out of the 150 children, 107 (71.34%) had a visual acuity of 6/9 in both eyes, 35 (23.33%) had 6/12, and 8 (5.33%) had 6/18. Factors associated with low visual acuity included environmental aspects like study hours and TV watching. Consequently, informational pamphlets about vision loss were distributed to parents.

Conclusion: Implementing effective vision screening methods for school-age children helps detect correctable causes of reduced vision and empowers mothers with knowledge and practices to promote healthy vision.

Key Word: Visual Acuity; Snellen's Chart; School-going Children; Environmental Factors.

Introduction

Vision, a complex human sense, has become a focal point of significant scientific and surgical advancements. The human eye can be likened to nature's most sophisticated camera. However, the quality of vision tends to decline with age due to various changes within the eye, notably a reduction in pupil size and loss of focusing ability.

Vision serves as the primary bridge between individuals and their external environment. Visual impairments can detrimentally affect learning and social interactions, potentially hindering the natural progression of cognitive, educational, professional, and social skills. Numerous authors have acknowledged the strong connection between academic performance and visual health Influential factors contributing to low visual acuity among school-age children in communities encompass environmental factors like excessive TV/computer/video game use, engaging in visually demanding activities such as drawing or sewing, strenuous household chores, congenital conditions, hereditary factors. The proportion of children experiencing non-preventable blindness is similar in wealthy and impoverished countries, but preventable blindness is more prevalent in developing nations. The period between 6 to 12 years is considered optimal health. Prioritizing eye health in school children necessitates active parental involvement. Various surveys underscore the significance of early identification of visual issues to mitigate and prevent severe complications later on. Developing countries face a more pressing concern: data indicates that 80% of global blindness cases occur in these regions, with two-thirds of cases being preventable or treatable. From a public health perspective, conducting extensive visual problem studies by ophthalmologists in children is costly, making non- physician-administered visual acuity tests, under supervision, a recommended approach. This is especially pertinent in school populations where visual concerns are prevalent. Regular visual acuity assessments aim to ensure good visual health, reduce high rates (90%) of school dropout and academic struggles, and prevent significant visual complications. Childhood blindness can often be prevented if communities and parents are educated about the causes. Therefore, investigating the factors influencing low visual acuity in school-age children has been a primary goal of this research. The World Health Organization (WHO) has introduced the global initiative "Vision 2020 – The Right to Sight," with the goal of eliminating avoidable blindness by 2020. Considering that 90% of blind individuals live in developing countries, and India holds the highest percentage of blind people, estimated at 12 million, it's disheartening that a majority of these cases could have been prevented. An estimated 500,000 children worldwide go blind each year due to a lack of timely screening and treatment. India, the world's second-most populous country, houses nearly a quarter of the global blind population. Roughly 200,000 Indian children suffer from severe visual impairment or blindness, with around 15,000 attending schools for the blind. The importance and necessity of this study are underscored by the WHO's Vision 2020 initiative. Uzma et al. (2009) conducted a study assessing refractive errors and ocular diseases in school-aged children in urban and rural areas around Hyderabad. The results indicated a higher prevalence of refractive errors (25.2%) in urban areas compared to rural regions (8%), with myopia being more common in urban children Childhood blindness has significant socioeconomic implications. The duration of blindness in childhood is particularly concerning. While

there's a tenfold difference in incidence between the wealthiest and poorest nations, childhood blindness ranks second in cumulative blind-person-years after cataract blindness. Given that 30% of India's blind individuals lose their sight before age 20, early detection and treatment are imperative.

Children often don't complain about poor vision, adapting by sitting close to the blackboard, holding books close, or straining their eyes. This highlights the need for early intervention to prevent permanent disability. Effective vision screening methods in schools can identify correctable causes of reduced vision, particularly refractive errors, and reduce long-term visual impairment.

Around 75% of school-age children attend school, with many hailing from low socioeconomic backgrounds. These children, constituting 25% of the developing world's population, are a valuable cohort for such studies due to their representativeness within the preventable blindness age range.

Review of literature

The review of literature holds in any valuable study within a specific field of knowledge. It assists researchers in acquiring insights into prior work, gaining a deeper understanding of the research issue, and conducting a thorough, exhaustive, and systematic exploration of relevant publications. The literature review serves various significant purposes during the research process, including generating research ideas, providing context for existing knowledge, guiding research methodology, and offering a conceptual framework. The literature analysis is categorized as follows: Literature related to factors influencing low visual acuity.

Unal Ayranci et al. (2009) conducted a study to ascertain the "**Prevalence of Visual Impairments in Primary School Children Using the Snellen's E Chart"**. Results showed that among the study group (n=1606), 53.7% were boys and 46.3% were girls. The mean age was 10.52±2.28, with girls having a higher frequency of visual impairment (2.4% vs. 1.0%). It concluded that a small percentage of children (1.7%) had vision worse than 20/40 in the better eye. Children with glasses exhibited a higher prevalence of reduced visual acuity ($p<0.05$). The prevalence of amblyopia was 5.0%, and strabismus was 1.7%.

Bhardwaj et al. (2009) aimed "**To Identify Visual Acuity Issues Among Adolescent Schoolchildren in Pune".** A community-based survey of 236 students from six sections was conducted, it concludes that revealing a prevalence rate of 21.19% for refractive errors leading to visual issues.

Harsha Bhattacharjee (2008) "**Investigated the Causes of Childhood Blindness in Northeastern India".** Out of 376 students examined, congenital anomalies accounted for 36.1%, scarring for 36.7%, cataracts for 10.9%, retinal disorders for 5.8%, and optic atrophy for 5.3%.it concluded Nearly half of the children were blind due to preventable or treatable conditions (48.5%).

Knappe et al. (2007) "**Assessed the Causes of Childhood Blindness in Congo**" found that 65.4% were classified as blind, 13.6% as visually impaired, and 21.0% as not impaired. Congenital cataracts also occur, probably related to rubella or toxoplasmosis. Children suffer from congenital glaucoma, retinal tumours (with, in first rank, retinoblastoma which seems particularly frequent in the Congo), and injuries to the eye

Eileen et al. (2006) conducted a study evaluating the "**Impact of Infant Formula Components on Visual and Cognitive Outcomes At 4 Years of Age".** While the control formula supplementation group had poorer visual acuity and verbal IQ scores than the breastfed group, supplemented groups showed no significant differences from the breastfed group.

Sarem (2006) examined "**The Effect of Television on Children and Adolescents"** discovering that a significant portion of participants spent a considerable amount of time watching TV and often admired and imitated characters from shows.

Carlton et al. (2006) **Investigated the Cost-Effectiveness of Screening for Amblyopia and Strabismus in Children Aged 4-5 Years,** author concluded the results show that the cost- effectiveness of screening for amblyopia is dependent on the long-term utility effects of unilateral vision loss. There is limited evidence on any such effect, although our subjective interpretation of the available literature is that the utility effects are likely to be minimal. Any utility study investigating such effects would need to be careful to avoid introducing bias. The reference case model did not represent potential treatment-related utility effects, primarily due to an increased probability of treated children being bullied at school. The evidence indicates that this may be a problem, and additional sensitivity analyses show that small utility decrements from bullying would significantly improve the cost-effectiveness of early screening. A prospective study of the utility effects of bullying would usefully inform the analysis, although such a study would need to be carefully planned in order to distinguish whether the overall incidence of bullying decreases with reduced school-age treatment, or whether it is displaced to other children.

Ravi Thomas et al. (2005) examined "**The Eye Care Scenario in India"** indicating that refractive errors, childhood blindness, corneal blindness, and glaucoma were major causes of blindness.

Luo et al. (2005) "**Assessed the Association Between Spherical Equivalent and Low Uncorrected Visual Acuity in Schoolchildren"** proposing different standards for defining myopia. Various cutoff points yielded different prevalence rates.

Goel Manish (2004) investigated "**The Prevalence of Refractive Errors Among Rural School Children"** revealing the occurrence of myopia, hyperopia, and astigmatism, particularly higher in girls.

Nirmalan et al. (2003) **"Assessed Blindness and Vision Impairment Prevalence in A Rural Population in Southern India**" Blindness and vision impairment remain major public health problems in India that need to be addressed. Cataracts and refractive errors remain the major reversible causes for the burden of vision impairment in this rural population.

METHODOLOGY

The objective of the study is to assess the extent of reduced visual acuity and identify the factors contributing to it among school-age children.

Low visual acuity and its causing factors (Age, gender, education status of child, mother, father, occupation, family in

come, number of siblings, religion, type of family) Target population of the study comprisedall school-age children in the age group of 6- 12yrs years in outreach camps and OPD who fulfill their inclusion criteria. The sample size of the study was 150 school-age children in the age group of 6-12 years who fulfilled the inclusion criteria. Non-probability purpose sampling technique was used to assess the low visual acuity and its influencing factors among school-age children.

Inclusion Criteria

1. School-age children in the age group of 6 – 12 years.
2. Both male and female.
3. School-age children understand Hindi or English

Exclusion Criteria

1. School-age children who were wearing spectacles/contact lenses.
2. School-age children who were physically sick during data collection.
3. School-age children who had undergone corrective eye surgery.
4. School-age children who have undergone corrective eye surgery.

Method Of Developing the Tool

The tool was designed by Snellen's chart, this is a standard scale comprising of alphabets, It was decided that the standard scale was appropriate for assessing the level of low visual acuity. The following steps were carried out in developing a questionnaire determining influencing factors. The tool consists of the following**.**

Visual Acuity Defect Scale	
Mild	6/9 – 6/18
Moderate	6/24 – 6/48
Severe	6/60 & above

Table 1. Assessment of Visual acuity by using Snellen's chart

Deals with demographic details like age, gender, religion, type of family, educational level, family income No of siblings, and Occupation.

Questionnaire determining Influencing factors, the questionnaire such as 13 environmental factors, 3 heredity factors, and 3 congenital factors. The above questions were elicited by the interview method of the researcher.

Data Collection Procedure

The investigator selected 150 school children by non-probability purposive sampling technique. The visual acuity was checked and data was collected from their parents who fulfilled the inclusion criteria by interview schedule the investigator collected 25 samples per month to assess the low visual acuity and its influencing factors among school children investigator read out and explained the items of the questionnaire and the responses were noted down immediately. The interview was conducted in Hindi.

MONTHS	SAMPLES
February	28
March	32
April	36
May	29
June	25

Table 2. Duration of Sample Collection

Data Analysis Procedure

Both descriptive statistics were used. Frequency and percentage distribution were used to analyze the demographic data of school-age children and to assess their low visual acuity.

Organization Of Data

The findings of the study were grouped and analysed under the following sections.

Section A: Frequency and percentage distribution of demographic variables

Section B: Assessment of level of Low visual acuity

Section C: Assessment of influencing factors.

Section D: Association of low visual acuity with influencing factors.

Results

This chapter deals with the analysis and interpretation of data collected from 150school-age children to assess Low Visual acuity and its influencing factors.

SECTION – A

Sl. No.	Demographic Variables	No.	%
1	**Age of the children**		
	6 - 8 years	51	34
	8 - 10 years	62	41.33
	10 - 12 years	37	24.67
2	**Gender**		
	Male	81	54
	Female	69	46
3	**Educational status of the child**		
	1st - 3rd std	51	34
	3rd - 5th std	62	41.33
	5th - 7th std	37	24.67
4	**Type of the family**		
	Nuclear	102	68
	Joint	48	32
	Broken	0	0
5	**No. of siblings in the family**		
	1	28	18.67
	2	95	63.33
	More than 2	27	18
	Nil	0	0

Table 3 Frequency and percentage distribution of demographical variables

With respect to age, the Majority 62(41.33%) were in the age group of 8 – 10 years and 51(34%) were in the age group of 6 – 8 years and 37(24.67%) were in the age group of 10 – 12yrs.

Regarding gender majority 81(54%) of children were males and 69(46%) were female. Considering educational status of the child, 62(41.33%) were studying 3^{rd} – 5^{th} std, 51(34%) were 1^{st} – 3^{rd} and 37(24.67%) were studying 5^{th} – 7^{th} std. Regarding type of the family, 102(68%) were in a nuclear family, and 48(32%) were in a joint family. Considering the number of siblings in the family, 95(63.33%) were two, 28(18.67) were one, 27(18%) were more than 2.

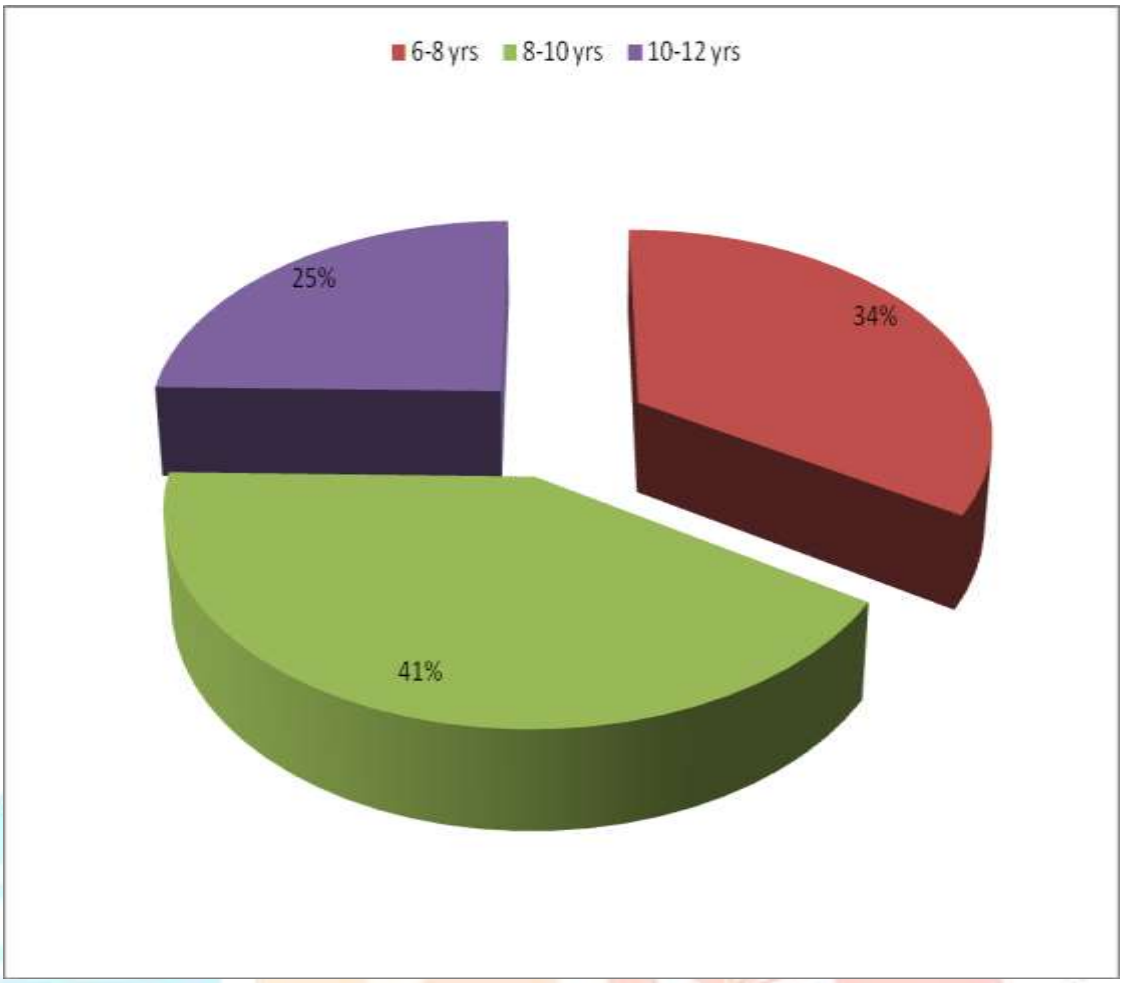

Figure 1 Frequency and Percentage distributions of Age of children

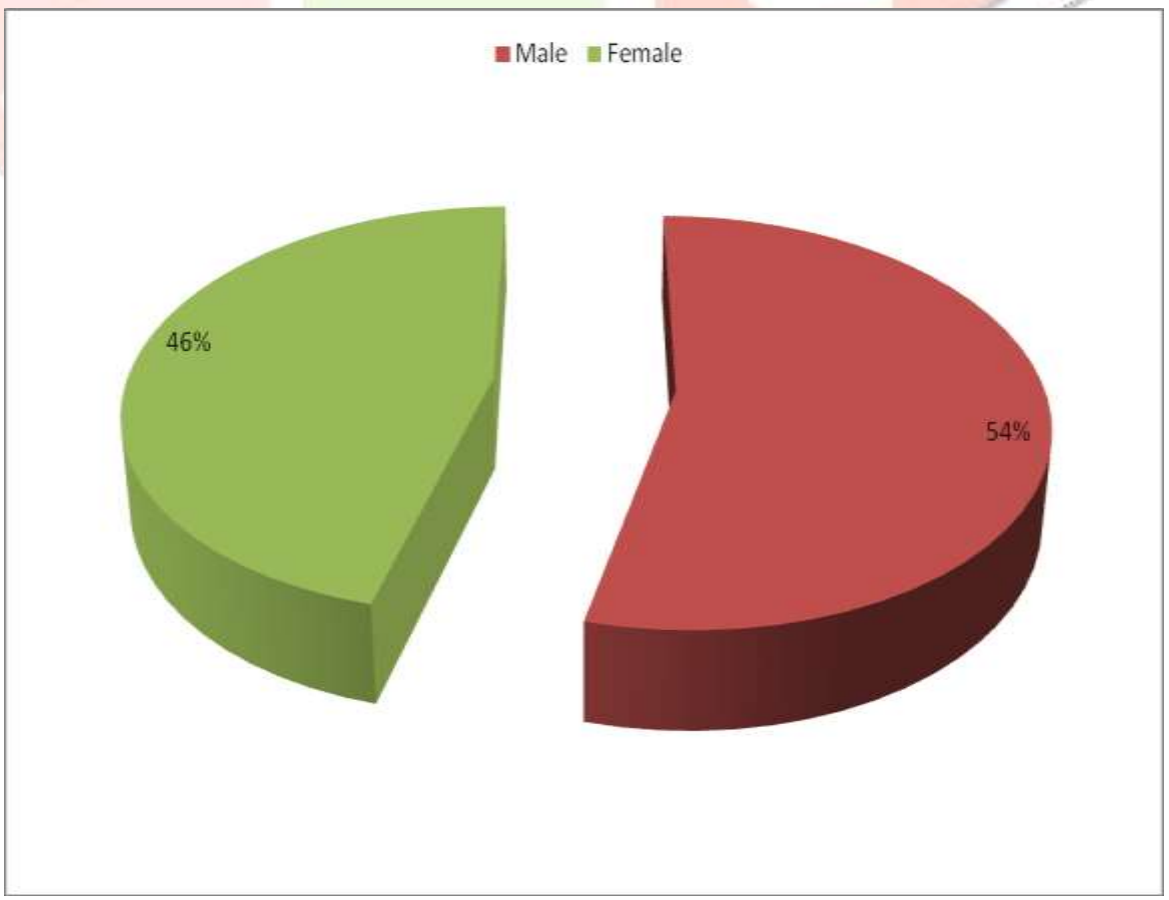

Figure 2 Percentage of Males and Female

SECTION B

According to Visual Acuity					
6/9		**6/12**		**6/18**	
No.	**%**	**No.**	**%**	**No.**	**%**
107	71.34	35	23.33	8	5.33

Table 4: Frequency and percentage distribution of low visual acuity

The above table shows that 150 school-age children had mild vision loss. Among them, 107{71.34%} had low visual acuity with a scale of 6/9 (both eyes), 35(23.33%) of themhad a scale of 6/12 (both eyes) and 8(5.33%) of them had a scale of 6/18 (both eyes).

SECTION – C

Sl. No	Environmental Factors	No.	%
1	**Type of light**		
	Tube light	133	88.67
	Dim light	10	6.67
	Other light	7	4.67
2	**Hours of spending**		
	30 - 40 minutes	27	18
	40 - 1 hour	67	44.67
	More than 1 hour	56	37.33
3	**Position of the child**		
	Sitting	119	79.33
	Lying	31	20.67
	Semi-Sitting	0	0
4	**Distance between eyes and books**		
	Normal distance (30 cm)	45	30
	Near (Below 30 cm)	105	70
	Far (Above 30 cm)	0	0
5	**Place of reading books**		
	At home	146	97.33
	Bus	4	2.67

	Classroom	0	0
6	**The child engaged with other close work**		
	Playing or doing homework on the computer	20	13.33
	Playing video games	80	53.33
Sl. No	**Environmental Factors**	**No.**	**%**
	Others	50	33.33
7	**The habit of watching television**		
	Everyday	133	88.67
	Weekend	13	8.67
	Only during vacation	4	2.67
8	**Hours of watching television in a day**		
	Only for an hour	5	3.33
	Less than 3 hours	17	11.33
	More than 3 hours	128	85.33
9	**Place of television**		
	Hall	131	87.33
	Bedroom	18	12
	Dining hall	1	0.67
10	**Placement of television**		
	Below the eye level	9	6
	At the eye level	111	74
	Above the eye level	30	20
11	**Position of the child while watching television**		
	Sitting	84	56
	Lying	65	43.33
	Semi reclined	1	0.67
12	**Distance between child and television**		
	Less than 2 meters (very near)	81	54
	2 - 3 mats (near)	58	38.67
	4 meters and more (Far)	11	7.33
13	**Type of room during watching television**		
	Darkroom	24	16
	Lightened room	77	51.33
	Dim light	49	32.67

Table 5:Frequency and Percentage distribution of influencing factors Environmental Factor

The above table shows the frequency and percentage distribution of environmental factors. Regarding

type of light majority 133(88.67%) were using tube light & and 7(4.67%) were using other light. Regarding hours of spending homework majority 67(44.67%) were spend 40 -1 hr & 27(18%) were spend 30 -40 min.

Regarding the position of the child during homework majority of 119 (79.33%) were sitting during homework & and 31(20.67%) were lying during homework. Considering the distance between eyes and books (reading) majority of 105(70%) were read at below 30cm & and 45(30%) followed the normal distance in reading.

Regarding place of reading books majority 146(97.33) were read at home & and 4(2.67%) were read by bus. Regarding engagement with other close work majority of 80(53.33%) were playing video games & and 20(13.33%) were playing or doing homework on the computer. Considering the habit of watching television, the majority 133(88.67%) were watching every day & and 4(2.67%) were watching only during vacation. Regarding hours of watching television in a day, the majority 128(85.33%) were spending more than 3 hours1 & and 5(3.33) were watching only for an hour. Regarding the television room, the majority of 131(87.33%) were placed in the hall, and 1(0.67%) were placed in the dining hall. Considering the placement of television majority of 111(74%) were seen at eye level, and 9(6%) were below eye level.

Heredity Factors		**No.**	**%**
1	**Family history of wearing spectacles**		
	Yes	54	36.0
	No	96	64.0
2	**Reason for wearing spectacles**		
	Long-sightedness	15	27.78
	Short-sightedness	18	33.33
	Others	21	38.89
3	**Age at 1st spectacles**		
	At child age	12	22.22
	Adult age	32	59.26
	Old age	10	18.52

Table 6:Frequency and percentage distribution of heredity Factors

The above table shows the frequency and percentage distribution of heredity factors. Regarding family history of wearing spectacles majority 96(64%) had no history and 54(36%) had a family history of spectacles. Considering the reason for spectacles, majority 21(38.89%) were others & 15(27.78%) were

long sightedness. Regarding 1st spectacles, the majority 32(59.26%) were worn at adult age, and 10(18.52%) were worn at old age.

Congenital Factors		**No.**	**%**
1	**Problem during pregnancy**		
	Yes	12	8.0
	No	138	92.0
2	**Type of problem**		
	Anaemia	12	100.0
	Infection	0	0
	Others	0	9

Table 7:Frequency and percentage distribution of Congenital Factors

The above table shows the frequency and percentage distribution of congenital factors. Regarding problems during pregnancy, the majority 138 (92%) said no problem & and 12 (8%) said no problem. Regarding the type of problem, the majority 12 (100 %) were anaemic.

SECTION – D

LOW VISUAL ACUITY						
Environmental Factors	**6/9**		**6/12**		**6/18**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Type of light						
Tube light	91	60.67	34	22.67	8	5.33
Dim light	9	6.00	1	0.67	0	0.00
Other light	7	4.67	0	0.00	0	0.00
Hours of spending on homework						
30 - 40 minutes	17	11.33	5	3.33	5	3.33
40 - 1 hour	43	28.67	23	15.33	1	0.67
More than 1 hour	47	31.33	7	4.67	2	1.33

Position during homework						
Sitting	83	55.33	30	20.00	6	4.00
Lying	24	16.00	5	3.33	2	1.33
Semi-Sitting	0	0.00	0	0.00	0	0.00
Distance between eyes and books						
Normal distance (30 cm)	26	17.33	15	10.00	4	2.67
Near (Below 30 cm)	81	54.00	20	13.33	4	2.67
Far (Above 30 cm)	0	0.00	0	0.00	0	0.00
Place of reading books						
At home	103	68.67	35	23.33	8	5.33
Bus	4	2.67	0	0.00	0	0.00
Classroom	0	0.00	0	0.00	0	0.00

LOW VISUAL ACUITY						
Environmental Factors	**6/9**		**6/12**		**6/18**	
	No.	**%**	**No.**	**%**	**No.**	**%**
The child engaged with other close work						
Playing or doing Home Work on the computer	16	10.67	4	2.67	0	0.00
Playing video games	53	35.33	20	13.33	7	4.67
Others	38	25.33	11	7.33	1	0.67
The habit of watching television						
E8veryday	94	62.67	33	22.00	6	4.00
Weekend	9	6.00	2	1.33	2	1.33
Only during vacation	4	2.67	0	0.00	0	0.00
Hours of watching television in a day						

Only for an hour	5	3.33	0	0.00	0	0.00
Less than 3 hours	9	6.00	3	2.00	5	3.33
More than 3 hours	93	62.00	32	21.33	3	2.00
Place of television						
Hall	92	61.33	33	22.00	6	4.00
Bedroom	14	9.33	2	1.33	2	1.33
Dining hall	1	0.67	0	0.00	0	0.00
Placement of television						
Below the eye level	8	5.33	1	0.67	0	0.00
At the eye level	77	51.33	28	18.67	6	4.00
Above the eye level	22	14.67	6	4.00	2	1.33
Position of the child whilewatching television						
Sitting	61	40.67	17	11.33	6	4.00
Lying	45	30.00	18	12.00	2	1.33
Semi reclined	1	0.67	0	0.00	0	0.00
Distance between child&television						
Less than 2 meters (very near)	60	40.00	16	10.67	5	3.33
2 - 3 meters (near)	40	26.67	17	11.33	1	0.67
4 meters and more (Far)	7	4.67	2	1.33	2	1.33
Type of room during watching television						
Darkroom	18	12.00	4	2.67	2	1.33
Lightened room	59	39.33	15	10.00	3	2.00
LOW VISUAL ACUITY						
Environmental Factors	**6/9**		**6/12**		**6/18**	

	No.	%	No.	%	No.	%
Dim light	30	20.00	16	10.67	3	2.00

Table 8: Association of low visual acuity with Environmental factors

The above table shows the association of low visual acuity with environmental factors revealing that hours of spending homework, and hours of watching television where significant others are not significant.

Heredity Factors	**LOW VISUAL ACUITY**					
	6/9		**6/12**		**6/18**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Family history of wearing						
spectacles						
Yes	40	26.67	13	8.67	1	0.67
No	67	44.67	22	14.67	7	4.67

Table 9 Association of low visual acuity with heredity factors

The above table shows the association of low visual acuity with heredity factors was notsignificant.

Congenital Factors	**LOW VISUAL ACUITY**					
	6/9		**6/12**		**6/18**	
	No.	**%**	**No.**	**%**	**No.**	**%**
Problem during pregnancy						
Yes	10	6.67	2	1.33	0	0.00
No	97	64.67	33	22.0	8	5.33

Table 10:Association of Low visual acuity with congenital factors

The above table shows the association of low visual acuity with congenital was notsignificant.

Discussion

Low visual Acuity: The person who can't able to visualize the item without a doubt. In line with Snellen's chart, visible acuity is graded as follows.

VISUAL ACUITY SCALE	
Mild vision loss	6/9 – 6/18
Moderate vision loss	6/24 – 6/48
Severe vision loss	6/60 & above

Table 11 visual acuity scale

Low visible acuity amongst school-age youngsters in the community is related to thefollowing elements which include:

Environmental factors (watching television, computer, near works)Heredity elements

Congenital elements

Diagnostic methods adapted to assess low visual acuity:

1. Snellen's take a look at
2. Ophthalmoscopy
3. Fundus examination (fundus camera)
4. Refractometer
5. Retinoscope

Snellen's test system has been used to assess low visual acuity

Snellen defined "well-known imaginative and prescient" as the capacity to understand one among his optotypes while it subtended five minutes of arc. As a result, the optotype can best be identified if the character viewing it can discriminate a spatial pattern separated by way of a visible attitude of 1 minute of arc.

The affected person is seated at a distance of 6m from Snellen's chart. The patient is asked tostudy the chart with every eye separately and the visual acuity is recorded. The numerator is the space of the affected person from the letters and the denominator is the smallest letter as it should be studied. While the patient is able to examine up to 6m line, the visual acuity is recorded as 6/6 which is ordinary. Further, relying upon the smallest line which the affected person can examine from the distance of 6m his imaginative and prescient is recorded as 6/9,6/12, 6/18

Prevention of vision loss for children:

- weight loss program: A healthy diet with an emphasis, in particular, wealthy in vitamin A consists of
- Plant resources include green leafy veggies & and yellow/orange end result & and vegetables specifically carrot, pumpkin, papaya, mango, oranges, and so on. Purple palm oil is also wealthy in diet A.
- Ghee / Oil / Butter ought to be delivered to those veggies.
- Animal sources include – liver, egg, fish, and milk. merchandise inclusive of cheese,curd, and butter.

Vitamin A supplementation

- Keep away from watching television:
- In a dark room properly lit room with white light (tube mild) is ideal.
- Viewing distance for watching television is four meters or more.

- Do not position the television in your bedroom.
- Inspire your youngster to do other things except look.
- Fill the room wherein you've got a television with a lot of books.

Computer Screen:

- vicinity the PC display screen at eye level.
- Distance between the monitor and the attention of children is eighteen – 28 inches.
- Do not permit the child to take a seat for more than forty min continuously in front of a computer display.
- Ensure your laptop is smooth and try the usage of an antiglare screen make sure youfigure in a well-ventilated room.
- computer should be placed about 50 cm from the eyes.
- The print can be adjusted for boldness, and colour line spacing to make it clean toread.
- Close work:
- visible sports accomplished at a close distance within arm's length.
- After 30 – forty min of continuous close paintings, take a vision wreck of three – 5 min by searching at distance items or out of a window.
- maintain their books about 30 cm away from their eyes and take a seat upright on a comfortable chair.

Others:

- supply measles immunization
- promotion of breastfeeding
- Premarital genetic counselling own family planning managed in families withinherited sicknesses.
- Water-tight swimming goggles stop irritation of the eyes.
- Keep away from carrying different spectacles.
- No eye drops have to be instilled until prescribed by the medical doctor. Keep awayfrom pouring oil into the eyes
- Take part in the eye camp conducted within the school/community

This chapter discusses the findings of the study desired from statistical analysis with itspertinence of the objectives and related literature of the study. The problem stated was

The objectives of the study were as follows:

1. To assess the level of low visual acuity among school-age children.
2. To assess the influencing factors of low visual acuity.
3. To associate low visual acuity with demographic variables.
4. To associate low visual acuity with influencing factors.

The demographic variables selected for the study were Age, Gender, Educational status of the child, Father and mother, religion, type of family, no siblings in the family occupation, and family income.

The frequency and percentage of socio-demographic characteristics were as follows.

Nearly (62) 41.33% were in the age group of 8 – 10 yrs., and 37 (24.67%) were in the age group of 10 – 12 yrs. Regarding gender majority 81 (54%) were male and 69 (46%) were female; considering the educational status of the child, the majority 62 (41.33%) were in 3^{rd} – 5^{th} std and 51 (34%) were in 1^{st} – 3^{rd} std.

The first objectives were to assess the level of low visual acuity and its influencing factor among school-age children.

The analysis revealed that all school-age children 150 (100%) had mild vision loss. The investigator found that 150 school-age children had visual acuity of 6/9 (both eyes) in 107 (71.34%), 35 (23.33%) were 6/12 (both eyes) and 8 (5.33%) were 6/18(both eyes).

The study findings were consistent with the study findings of Unal Ayranci et al (2009) who also revealed similar results of samples with mild low vision loss.

The second objective was to assess the influencing factor of low visual acuity among school-age children.

His analysis revealed that in the environmental factor, 133 (88.67%) were using tube light & and 7(4.67%) were using other light during homework. Regarding hours of spending homework majority of 67 (44.67%) spent 40 – 1 hr and 27 (18%) spent 30 – 40mm. Regarding the position of children 119 (79.33%) were sitting during homework., and 31 (20.67%) were lying during homework. Considering the distance between eyes & and books majority of 105 (70%) were read at below 30cm 45 (30%) were following normal distance in reading. Regarding place of reading books majority 146 (97.33%) were read at home and 4 (2.67%) were read in thus. Regarding engagement with close work 80 (53.33%) were playing video games & and 20 (13.33%) were playing & and doing homework on the computer. Considering the habit of watching television. The majority 133 (88.67%) were watching every day and 4 (2.67%) were watching only for an hour. Regarding the television room, a Majority of 131 (87.33%) were placed in the hall, and 1 (0.67%) were kept in the dining hall. Considering the placement of the television, 111 (74%) were seen at eye level, and 9 (6%) were seen below eye level.

The fourth objective was to associate low visual acuity with influencing factor among school-age children.

The analysis revealed that there was high significant association of low visual acuity with influencing factors such as environmental factors, and hours of spending homework.

The study findings were consistent with the study findings of Aftab Ahmad et al (2007) who found that genetic factors had a significant association with low visual acuity as an influencing factor.

The conceptual Framework was based on the modified imagine king's god attainment theory. The model was described as follows. The investigator perceived that low visual acuity may be high among school-age children. Environmental, and heredity congenital factors may contribute to low visual acuity. Parents of school-age children may have a lack of knowledge on identification & and management of low visual acuity & and influencing factors. Investigator judged to mobilize the resources of relief from low visual acuity among school-age children.

The overall findings of the study show that the level of low visual acuity among school-age children was 150, (6/9 is 107(71.34%) 6/12 is 35(23.33%), 6/18 is 8(5.33%) in both eyes) and the association of Low visual acuity with influencing factors were environmental & Vitamin A deficiency factors.

The present study revealed that Low visual acuity among school-age children is common. Hence pamphlets on prevention of vision loss were distributed to the school are children's parents.

The assumption of the study made was

1. Low visual acuity may be more prevalent among school-age children.
2. heredity, congenital factors may contribute to low visual acuity.

The first assumption that there may be a low visual acuity is accepted because the present study result also proved that 150 school-age children also had low visual acuity.

The second assumption that the influencing factors to low visual acuity are hereby accepted because the present study result also proved that environmental factors such as hours of spending homework...hours of watching television & Vitamin A deficiency factors such as taking vegetables like carrots and pumpkin.

The researcher could improve the Knowledge of parents on the identification and management of Low visual acuity and influencing factors.

Conclusion

International studies show that approximately 25% of school-age children carry some form of visual deficiency. 90% of children who are blind don't go to school so Blindness is a global public health problem with approximately 45 million people blind and another 135 million people visually impaired worldwide. Blindness in children is often preventable if communities and parents become aware of the causes. The findings of the study revealed that the level of Low visual acuity among school- age children Majority of 107(71.34%) of children were 6/9, 35(23.33%) were 6/12, and 8(5.33%) were 6/18 in both

eyes. Totally 150 had Low visual acuity and association of Low visual acuity with demographic variables shows that gender, religion, educational status of the mother had statistically significant at level and Association of low visual acuity with influencing factors. Environmental. The investigator has derived the following implications from the study which are vital concerns in the field of optometry practice, optometry administration, optometryeducation, and optometry research. Community health nurses have to play a vital role in enabling effective identification and management of low visual acuity. This can be facilitated by motivating the optometrist to Insist on the practice among school-age children. Educating the mother regarding influencing factors. Teach parents and teachers about the identification and management of low visual acuity and influencing factors during school health programs. Ensure that students learn about the identification and management of low visual acuity and its influencing factors. The student nurses should be involved in the conduct of workshops and seminars relatedto low visual acuity and it's influencing factors being organized by the same or any other institution. Articles on the effects and prevention of childhood blindness should be made available in the journals. Make available literature related to low visualacuity and it's influencing factors among school-age children in the library for student reference. Encourage further studies on the assessment of low visual acuity and factors influencing low visual acuity in children among teachers.

Disseminate the findings through conference seminars, publication in professional, national, and international journals & world wide web site.

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Study tool-questionnaire for data collection

Name_____		Age/Gender_____	
S.no	Questions	Tick the most appropriateanswer	
1.	Did you do the visiontest?	yes	No

2.	Did the child see the direction of the small c with both eyes?	yes	No
3.	Did the child see the direction of small c with the right eye only?	yes	No
4.	Did the child see the direction of the small c with a left eye only?	yes	No
5.	Did the childand vision understand complete the test?	yes	no
6.	Does the child‘s pupil whitish?	yes	No
7.	Is the child’s eyelid droopy?	Yes	No
8.	Has or is the child being seen by an eyedoctor? What is thediagnosis?	yes	No
9.	Does the child’s pupil appear different insize?	yes	No
10.	Do the child’s eyes show outwarddeviation?	yes	No
11.	Do the child’s eyes show inwarddeviation?	Yes	No
12.	Does the child closeone eye in bright outdoors?	Yes	No

13.	Are the child's eyes shaky when staring?	Yes	No
14.	Does the child move slowly in the dark?	Yes	No
15.	Do you have anyquestions regarding the child's eye?	description