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OCULAR MORBIDITY PREVALENCE AMONG SCHOOL CHILDREN- AN OBSERVATIONAL STUDY

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ABSTRACT

Background: Visual impairment is a global issue with substantial socioeconomic consequences. Due to the length of time that childhood blindness are a critical issue. Early identification and treatment of ocular illness and visual impairment in young children is crucial, especially because thirty percent of blind people in India lose their sight before the age of twenty and many of them are blind when they become blind.

Aim: to determine the prevalence of ocular morbidity in school-age children. A standardised questionnaire that had been pretested served as the data gathering tool. It was pretested at a coeducational school chosen at random that was left out of the research. A history of night blindness or examination revealed symptoms of keratomalacia, conjunctival xerosis, corneal xerosis, or Bitot's spots, vitamin A insufficiency was diagnosed.

Methods: The study, which involved children in classes one through ten (ages six to sixteen), was carried out in an urban setting. There are 721,745 people living there in total, with 23% (166,833) living in the urban area and 77% (554,914) in the countryside. There were 120 schools in city municipal corporation. According to statistics available at the district education cell in 2001, of which 104 (87%) were coeducational and 16 (13%) single sex systems (seven only boys and nine solely girls).

Results: Refractive errors (22.0%) constitute the major cause of ocular morbidity followed by squint (2.5%), color blindness (2.3%), vitamin A deficiency (1.8%) and conjunctivitis (0.8%). Similar prevalence of ocular morbidity among government (30.7%) and private schools (32.7%) was observed. Prevalence of refractive errors in government schools (21.5%) and private schools (22.6%) was also similar.

Conclusion: Overall prevalence of ocular morbidity decreased significantly with age in government schools. However, it increased up to 10-12 years then declined significantly in private schools also (P<0.05). Prevalence of squint decreased significantly after 10 years of age in both the schools (P<0.05). Prevalence of refractive errors increased significantly after 10 years of age in private schools.

Keyword: Color Blindness, Conjunctivitis, Ocular Morbidity**:** Squint, Vitamin A Deficiency

INTRODUCTION

Planning and assessing preventative and therapeutic programmes for children, such as special education and low vision care, need data on the prevalence and causes of blindness and severe visual impairment in children. According to the

available statistics, the prevalence may range by a factor of ten between the world's wealthiest and poorest nations, with prevalence rates in the former reaching as low as 0.1/1000 children between the ages of 0 and 15 and the latter reaching 1.1/1000.[1]

Only the cumulative number of blind person-years due to cataract blindness is anticipated to be higher than the cumulative number of blind person-years due to childhood blindness worldwide.[2] Early identification and treatment of ocular illness and visual impairment in young children is crucial, especially because thirty percent of blind people in India lose their sight before the age of twenty and many of them are blind when they become blind.[3]

Children that have visual problems don't usually complain about it, and they might not even be aware of it. They squeeze their eyes, sit close to the chalkboard, hold the books closer to their eyes, and even avoid tasks that need focused vision as a way to cope with their bad vision. Early identification and treatment are necessary to prevent lifelong impairment. Reducing the risk of long-term visual impairment and identifying treatable reasons of reduced vision, such as refractive problems, are two benefits of using efficient vision screening techniques on school-age children.[3]

Seventy-five percent of youngsters of school age attend school. Families with poor socioeconomic position, little family education, and a financial need for wage earning to support the family are the majority of dropouts.[4,5] In the developing world, children between the ages of six and sixteen make approximately 25% of the population. They provide remarkably representative data for these studies because they are easily available, belong to a certain age group, and fall most comfortably within the age range where blindness is prevented. Additionally, schools are the ideal setting for educating kids about health issues.

One of the greatest places to execute the full eye healthcare programme is a school.[3] Therefore, the purpose of this study was to determine the prevalence of ocular morbidity in school-age children.

MATERIALS AND METHODS

The study, which involved children in classes one through ten (ages six to sixteen), was carried out in an urban setting. There are 721,745 people living there in total, with 23% (166,833) living in the urban area and 77% (554,914) in the countryside. There were 120 schools in city municipalcorporation. According to statistics available at the district education cell in 2001, of which 104 (87%) were coeducational and 16 (13%) single sex systems (seven only boys and nine solely girls).

There were 61,600 students enrolled in classes one through ten (of which 52,000 attended coeducational schools and 9600 attended single-sex schools).Only coeducational schools were included in the research since they accounted for 84.4% of all students and had equal representation from both sexes. There were 27 private coeducational schools (24 higher secondary, 3 elementary) and 77 government schools (56 primary, 4 secondary, and 17 higher secondary). The methodology for determining sample size was N= t2PQ/d2, where d=precision - 2.5%; P= stated prevalence 30% (0.30); Q=1-P = 70% (0.70); and t=1.96 at 95% confidence level. 1344 schoolchildren were determined to be the sample size. Seven government schools (five elementary and two higher secondary) and two private coeducational schools (both higher secondary) were randomly chosen with proportionate representation from each category of schools using stratified random sampling.

There was little difference between children attending coeducational and single-sex schools in terms of socioeconomic position, religion, culture, and ethnic values. Private schools differed from public schools, though, in that they charged higher monthly fees and had superior facilities, such as larger classrooms, better student seats and tables, and open play areas. Children from higher and high middle socioeconomic class were therefore often admitted to these schools. All socioeconomic classes were admitted to government schools, which charged very little in tuition. The study was explained to the principals of the chosen schools, and permission was obtained in person to visit the chosen schools.

Permission was obtained through school diaries after the administrators of the chosen schools notified the kids' parents about the project. A standardised questionnaire that had been pretested served as the data gathering tool. It was pretested at a coeducational school chosen at random that was left out of the research. Children's questions were asked in Hindi, while the lead researcher—a postgraduate in community medicine—filled out the material in English. Throughout her study on her MD thesis, she received instruction in these techniques from a licenced ophthalmologist.

Snellen's chart was used to measure visual acuity (unaided), Ishihara's chart was used to check for colour blindness, the cover/uncover test was used to measure axis deviation, and an examination of the eyes with a torch was performed.

The first section of the questionnaire asked questions on the child's age, sex, residential address, class of study, and most common eye symptoms. In the second section of the questionnaire, indications of vitamin A deficiency and their ocular manifestations were recorded along with a thorough examination of the eye to diagnose ocular morbidity. In this investigation, visual acuity of less than 20/30 Snellen in the worse eye was considered the cutoff of uncorrected visual acuity for identifying ocular morbidity related to refractive error. Light perception (LP), hand motion (HM), count fingers (CF at a particular number of feet), or no light perception (NLP) were recorded as indicators of visual acuity less than 20/400. Next, the Snellen acuity was converted to count fingers acuity.[7]

For trachoma and xeropthalmia, the WHO clinical staging system was applied.[8,9] In cases where there was a history of night blindness or examination revealed symptoms of keratomalacia, conjunctival xerosis, corneal xerosis, or Bitot's spots, vitamin A insufficiency was diagnosed. If there was a history of bleeding gums and conjunctival haemorrhages were seen during examination, vitamin C insufficiency was confirmed. Congenital conditions such as ptosis, irregular pupil, erected upper lacrimal puncta, heterochromia iridium, and congenital cataract were also searched for. The examinations were conducted at the individual school grounds. When choosing the space, much thought was given to its length—it needed to be more than 20 feet long—as well as its lighting.

The examination methods used in government and private schools were similar. In a single sitting, every child in the class at the time of the visit was inspected. Every attempt was made to involve every student in the lesson. Attendees were monitored for a maximum of five days in a row.

The data was input into a computer database and examined using Epi info 2000 statistical software after the questionnaire was reviewed for problems. The Chi-square test was employed to examine variations in ratios. At the 5% level, differences were deemed statistically significant.

RESULTS

In the chosen schools, 1601 students between the ages of 6 and 16 were enrolled in kindergarten through tenth grade (814 in government schools and 787 in private schools). Of these, forty children were not reachable due to missing more than five follow-up days. Thus, a total of 1561 schoolchildren (794 in government schools and 767 in private schools) had their ocular morbidity assessed. In both categories of schools, the response rate was 97.5%. Nearly equal numbers of men (52.08%) and women (47.91%) were enrolled in both kinds of schools [Table 1].

Overall prevalence of ocular morbidity among school children of age 6-16 years was 31.6%. Refractive errors (22.0%) constitute the major cause of ocular morbidity followed by squint (2.5%), color blindness (2.3%), vitamin A deficiency (1.8%) and conjunctivitis (0.8%). [table 1]

Similar prevalence of ocular morbidity among government (30.7%) and private schools (32.7%) was observed. Prevalence of refractive errors in government schools (21.5%) and private schools (22.6%) was also similar. However, the prevalence of conjunctivitis was significantly more (1.5%) among government school children as compared to children (0.1%) in private schools ($P<0.05$). For the rest of the ocular morbidities prevalence did not vary significantly with type of school. [table 1]

Regarding the general frequency of ocular illness, there was no sex preponderance [Table 3]. However, compared to females (0.53%), males had a considerably ($P<0.05$) higher prevalence of colour blindness (3.9%). Compared to men (18.9%), women (39.5%) reported far more complaints about their eyes, including redness, wetness, discomfort in and around the eyes, and impaired vision. Among the guys with an eye disease diagnosis, over half (41.9%) did not exhibit any symptoms. Compared to men (sensitivity 58%, specificity 97%), females' self-reported ocular symptoms were less specific (87%) and more sensitive (100%). [table 2]

Overall prevalence of ocular morbidity decreased significantly with age in government schools. However, it increased up to 10-12 years then declined significantly in private schools also ($P<0.05$). Prevalence of squint decreased significantly after 10 years of age in both the schools ($P<0.05$). Prevalence of refractive errors increased significantly after 10 years of age in private schools. [table 3]

DISCUSSION

Current research, carried out in District, confirms the high prevalence of refractive errors and overall ocular morbidity among high school students in urban North India. It also emphasises the urgent need to implement appropriate eye care programmes and health facility-based, cost-effective strategies at the school level to reduce the burden of visual impairment among the younger population.

For India, population-based statistics on the incidence of ocular morbidity in children are not easily accessible. Because the various researches employed different methodology and criteria, the findings cannot be compared. This study's 31.6% prevalence of ocular morbidity among schoolchildren aged 6 to 16 is comparable to one done in Delhi, where the same study's 34.04% prevalence was found in the 5 to 14 age range.[10]

However, neighbouring states like Rajasthan (71.7% in 4-16 years), Haryana (58.8% in 4-18 years), and Hyderabad (43.5% in 3-16 years) have recorded greater prevalences of ocular illness.[11–13] The reason for this was the increased occurrence of refractive errors in South India and trachoma and conjunctivitis in these two northern states. Furthermore, compared to the current study, a wider variety of age groups were included in the previously stated investigations. Ocular morbidity has been observed to be less common (15%) among school-aged children in Kolkata, West India. This is likely due to the study's smaller age group and lower frequency of refractive errors (2%) in that population.

.[14[In Tanzania's rural areas, children aged 7-19 years old had a lower frequency of ocular morbidity, 15.6%, according to a review of worldwide research.[15] Racial and ethnic disparities may also account for variances in frequency between countries, mainly because of differing living environments and behaviours as well as various methods employed.
The study found that children attending government schools had a higher frequency of conjunctivitis than children attending private schools. This finding may be explained by the fact that a large proportion of students attending government schools come from poorer socioeconomic backgrounds and are more prone to practise poor personal hygiene.[16]
Childhood vision problems have an adverse effect on a child's future life and their success in school or at work.

Furthermore, the planning of a young person's career is heavily reliant on their visual acuity, particularly in industries related to the military, navy, railroads, and aircraft. The most frequent cause for an outpatient visit to an ophthalmic assistant or surgeon is refractive errors. According to reports, the total incidence of patients visiting India's eye outpatient departments is between 21% to 25%.[17] A comparable frequency of refractive defects has been reported in Ahmedabad city's youth, aged 12 to 17.[18] Due to a greater case identification rate by an optometrist in that study, there was a higher (32%) prevalence rate of refractive errors among schoolchildren from South India, ages 3 to 18 years, than there was in the current study.[

13Datta et al. have observed a low prevalence of refractive errors of 2% among primary school children aged 5-13 in Eastern India, a finding that remains unexplained.[14] Comparing the current study to other reports, children aged 5 to 15 from Africa, Finland, Chile, and Nepal had a lower prevalence of refractive errors (2.7–5.8%).[15, 19–21] Different lifestyles or living conditions (e.g., reading, watching TV, using computers or visual display units, nutrition) or medical care (e.g., unnecessary or overcorrection of refractive errors which may worsen the refractive error by inhibiting natural "emmetropization") may account for these differences. Variations in the prevalence of refractive errors among racial or ethnic groups may also contribute to these differences.

This region of the country has previously seen a research where similar findings about the frequency of colour blindness.[22] Similar findings from Rajasthan (2.9% in 4–16 years) have also been documented.[12] However, Pratap et al. from North India have observed a lower rate of colour vision impairments (0.11%).[23] This might be explained by a distinct research population in their study—children who visited an eye clinic during the previous 18 months. Children with colour blindness are less likely to visit eye clinics. The prevalence of paralytic squint, which is 0.42%, and primary squint, which is 2.8%, as reported by Pratap et al., are consistent with the findings of this investigation.[23]

Nonetheless, reports of squint prevalence vary widely, with greater rates (7.4% in 5–15 years) and lower rates (0.2-0.6% in 4–18 years) from Delhi, West Bengal, Rajasthan, and Haryana.[11,12,14, and 24] Research conducted overseas also showed that children aged 7 to 19 in Tanzania, Africa, had a reduced prevalence of squint (0.5%), according to Wedner et al.[15]

Compared to 1.8% in the current study, reports of vitamin A insufficiency in children aged 4 to 16 years from Rajasthan and Kolkata, respectively, have reached up to 5.4-9%.[12, 14] This may be explained by the fact that children's bad eating habits in those studies were linked to a lower socioeconomic position. Comparable to the Desai et al. study, the prevalence of vitamin A insufficiency reduced with age in the current investigation.[12]

The current study's night blindness prevalence (0.41%) is similar to previous research's findings, which indicated that North India and Haryana had varying prevalence rates, ranging from 0.29 to 0.3%.[11, 23] Globally, schoolchildren in Tanzania between the ages of 7 and 19 had a 5.3% incidence of night blindness and a 0.6% prevalence of bitot's spots, according to Wedner et al.[15] Due to the fact that their research was conducted in a rural region where children from lower socioeconomic backgrounds had inadequate nutrition, vitamin A insufficiency was quite common. There have been reports of higher (3–17.5%) conjunctivitis prevalence in different regions of India.

Nonetheless, this study is comparable to that of Robinson et al., who found that 1.5% of children in North America aged 1 to 17 had conjunctivitis.[25] Differences in children's personal cleanliness, seasonal fluctuations in the frequency of conjunctivitis, and differences in socioeconomic level can all account for variances in the prevalence of the condition. The low frequency of congenital abnormalities was shown to be consistent with findings from previous Indian investigations.[11,12]

The current study's findings about the marginal difference in the prevalence of ocular illnesses between men and females are similar to those of a study conducted in Delhi by Sehgal et al. (males 46.1% and females 48.3%).[

10However, Khurana et al. found that in Haryana, the frequency was greater in females (73.5%) than in men (49.4%).[11] According to their study, the increased usage of common ocular cosmetic material among females resulted in a high frequency of infectious disorders such as trachoma, conjunctivitis, and blepharitis. Contrary to the findings of previous investigations, the prevalence of vitamin A insufficiency was shown to be higher in boys than in girls in this investigation.[12, 14] The prevalence of night blindness made this distinction more noticeable. Night blindness is a subjective symptom, hence it cannot be fully depended upon. Because colour blindness is a sex-related condition, this study revealed that the prevalence of the condition was much greater in men.

The prevalence of ocular morbidity declined with age in practically all Indian research; the findings of our study, which was done in an urban hilly region of North India, supported this conclusion.[11–14] The age dependency of the eyeball and improved ophthalmic cleanliness as a consequence of health education may be the cause of the reduction in the occurrence of ocular abnormalities with increasing age of children. The higher frequency of age-related hypermetropia in young children, as is also seen from previous research in North India, may be the source of the higher incidence of refractive errors in the younger (6–10 years) age group.

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It was determined that urban District had a significant frequency of ocular morbidity among high school students. Among eye problems, refractive errors were the most prevalent. Children's eye health should be the main emphasis of school health programmes. The community's and schools' efforts to educate students about the warning signs and symptoms of ocular problems should be increased. Ultimately, the goal of all initiatives to prevent blindness should be to raise public knowledge of eye health issues and to impart the fundamentals of good eye cleanliness and eye care.

REFERENCES

1. Jose R. Present status of the national programme for control of blindness in India. Community Eye Health J 2008;21:103-4.
2. Kishore J. National Health Programmes of India. 9th ed. New Delhi: Century Publications; 2011. p. 420-1.

3. World Health Organization. Global Initiative for the Elimination of Avoidable Blindness. WHO/PBL/97.61. Geneva, Switzerland: World Health Organization; 1997.
4. Gilbert C, Foster A. Childhood blindness in the context of VISION 2020 – The right to sight. Bull World Health Organ 2001;79:227-32.
5. Dandona R, Dandona L, Srinivas M, Sahare P, Narsaiah S, Muñoz SR, et al. Refractive error in children in a rural population in India. Invest Ophthalmol Vis Sci 2002;43:615-22.
6. Murthy GV, Gupta SK, Ellwein LB, Muñoz SR, Pokharel GP, Sanga L, et al. Refractive error in children in an urban population in New Delhi. Invest Ophthalmol Vis Sci 2002;43:623-31.
7. Gilbert CE, Anderton L, Dandona L, FosterA. Prevalence of visual impairment in children: A review of available data. Ophthalmic Epidemiol 1999;6:73-82.
8. Bhalerao SA, Tandon M, Singh S, Dwivedi S, Kumar S, Rana J. Visual impairment and blindness among the students of blind schools in Allahabad and its vicinity: A causal assessment. Indian J Ophthalmol 2015;63:254-8.
9. Kumar R, Dabas P, Mehra M, Ingle GK, Saha R, Kamlesh. Ocular morbidity amongst primary school children in Delhi. Health Popul Perspect Issues 2007;30:222-9.
10. Gupta M, Gupta BP, Chauhan A, Bhardwaj A. Ocular morbidity prevalence among school children in District, Himachal, North India. Indian J Ophthalmol 2009;57:133-8.
11. Chaturvedi S, Aggarwal OP. Pattern and distribution of ocular morbidity in primary school children of rural Delhi. Asia Pac J Public Health 1999;11:30-3. 16. Lu P, Chen X, Zhang W, Chen S, Shu L. Prevalence of ocular disease in Tibetan primary school children. Can J Ophthalmol 2008;43:95-9.
12. Shrestha RK, Joshi MR, Ghising R, Pradhan P, Shakya S, Rizyal A. Ocular morbidity among children studying in private schools of Kathmandu valley: A prospective cross sectional study. Nepal Med Coll J 2006;8:43-6.
13. Nepal BP, Koirala S, Adhikary S, Sharma AK. Ocular morbidity in schoolchildren in Kathmandu. Br J Ophthalmol 2003;87:531-4. 19. Prajapati P, Oza J, Prajapati J, Kedia G, Chudasama RK. Prevalence of ocular morbidity among school adolescents of Gandhinagar district, Gujarat. Online J Health Allied Sci 2010;9:5.
14. Nirmalan PK, Vijayalakshmi P, Sheeladevi S, Kothari MB, Sundaresan K, Rahmathullah L. The Kariapatti pediatric eye evaluation project: Baseline ophthalmic data of children aged 15 years or younger in Southern India. Am J Ophthalmol 2003;136:703-9.
15. Desai S, Desai R, Desai NC, Lohiya S, Bhargava G, Kumar K. School eye health appraisal. Indian J Ophthalmol 1989;37:173-5.
16. Das A, Dutta H, Bhaduri G, De Sarkar A, Sarkar K, Bannerjee M. A study on refractive errors among school children in Kolkata. J Indian Med Assoc 2007;105:169-72.
17. Shrestha RK, Joshi MR, Ghising R, Rizyal A. Ocular morbidity among children attending government and private schools of Kathmandu valley. JNMA J Nepal Med Assoc 2011;51:182-8.
18. Pratap VB, Lal HB. Pattern of paediatric ocular problems in North India. Indian J Ophthalmol 1989;37:171-2.
19. GuptaY, SukulRR, Gupta M, PhougatA, JainR, VarshneyA. School eye survey in rural population in UP, India. Nepal J Ophthalmol 2011;3:78-9.

TABLES

Ocular Morbidity	**School**		**Total n=1561 %**	**Confidence interval at 95%**	***P***
	Government n=794 %	**Private n=767 %**			
Refractive Errors	21.5	22.6	22.0	21.14-22.85	0.6
Squint	1.8	3.2	2.5	2.4-2.6	0.08
Color Blindness	1.8	2.7	2.3	2.2-2.4	0.3
Partial	1.6	2.7	2.1	2.01-2.18	
Total	0.25	0	0.1	0.095-0.104	
Vitamin A Deficiency	1.1	2.4	1.8	1.7-1.9	0.06
Congenital Disorders	1.13	0.5	0.8	0.79-0.81	0.3
Conjunctivitis	1.5	0.1	0.8	0.79-0.81	0.007
Vitamin C Deficiency	0.7	0.2	0.5	0.48-0.51	0.3
Spring Catarrh	0.5	0.3	0.4	0.43-0.46	1.0
Seborrhoeic Dermatitis	0.1	0.1	0.1	0.11-0.12	0.5
Stye	0	0.1	0.06	0.057-0.062	0.9
Total	32.5	30.6	31.6	29.9-32.1	0.4

Table 1: Sex-wise distribution of ocular morbidity

Ocular morbidity	**Sex**		**Total n=1561 %**	***P* value**
	Male n=813 %	**Female n=748 %**		
Refractive Errors	22.5	21.5	22.0	0.63
Squint	1.9	3.2	2.5	0.12
Color Blindness	3.9	0.5	2.3	0.00002
Partial	3.7	0.5	2.1	
Total	0.2	0	0.1	
Vitamin A Deficiency	2.1	1.5	1.8	0.85
Congenital Disorders	0.5	1.2	0.8	1.6
Conjunctivitis	0.9	0.8	0.8	0.9
Vitamin C Deficiency	0.24	0.8	0.5	0.24
Spring Catarrh	0.2	0.6	0.5	0.38
Seborrhoeic Dermatitis	0.2	0	0.1	0.42
Stye	0	0.1	0.06	0.96
Total	32.5	30.6	31.6	0.3

Table 2: Age-wise ocular morbidity in government and private schools

Diseases	**Schools**											
	Government	**Private**										
Age group	**6-8**	**8-10**	**10-12**	**12-14**	**14-16**	***P***	**6-8**	**8-10**	**10-12**	**12-14**	**14-16**	***P***
No of children	**n=150**	**n=149**	**n=171**	**n=164**	**n=160**		**n=141**	**n=152**	**n=128**	**n=192**	**n=154**	
	%	**%**	**%**	**%**	**%**		**%**	**%**	**%**	**%**	**%**	
Refractive Errors	26.6	26.8	21.0	17.0	16.8	> 0.05	12.7	17.7	35.9	22.9	24.6	0.005
Squint	2.0	4.6	0	3.0	0	0.02	4.2	3.2	0.7	5.7	1.3	0.002
Color Blindness	2.0	4.0	1.0	0.6	1.8	>.05	2.1	4.6	1.6	2.1	3.2	> 0.05
Vitamin A												
Deficiency	1.3	0.6	1.7	0.6	1.2	> 0.5	2.1	1.9	4.6	2.1	1.9	> 0.05
Congenital Disorders	3.3	2.0	0	0.6	0	> 0.05	0	0	1.5	0	1.3	> 0.05
Conjunctivitis	0.6	2.6	1.0	1.2	1.8	> 0.05	0	0.6	0	0	0	> 0.05
Vitamin C												
deficiency	2.0	0	1.0	1.6	0	>0.05	0	1.3	0	0	0	> 0.05
Spring Catarrh	0.6	0.6	0	0.6	0.6	>.05	0	0.6	0	0	1.3	> 0.05
Seborrhoeic dematitis	0.6	0	0	0	0	> 0.05	0	0.6	0	0	0.1	> 0.05
Stye	0	0	0	0	0	-	0	0	0	0.1	0	> 0.05
Total	40.6	41.6	26.3	24.3	22.5	0.02	20.5	30.9	44.5	33.3	33.1	0.01

Table 3: significance level of ocular morbidity with type of disease, type of school, age and gender