

A School based Study on Hygiene, Sanitation and Health among Girls in Howrah: Knowledge and Practices



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Section I: Contextual Section & Methodology

Background

Visual impairment is a worldwide problem that has a significant socioeconomic impact. Childhood blindness is a priority area because the number of blindness has increased in recent decades. According to WHO, about 90% of the world's visually impaired people live in developing countries and 80% of all causes are either preventable or curable. WHO also estimated that, about 12.8 million children are visually impaired from uncorrected or inadequately corrected refractive errors.¹ Children in the school age group (5 – 15 years) are especially vulnerable to long-term consequences of eye diseases if not detected and treated early. The social and economic impact of visual impairment developing at this age is an enormous loss of lifetime productivity and increased burden of providing support for the children. Further, it is estimated that 842 000 deaths per year, is attributable to unsafe water supply, sanitation and hygiene and includes 361 000 deaths of children under age five, mostly in low-income countries².

School Health, including eye and visual health, is linked to educational achievement, quality of life, social interactions and economic productivity. Children themselves do not concern about defective vision and therefore may not even aware of their problem. If eye health problems of children in the school-going age group in Government schools are addressed early, they can lead better lives with improved learning outcomes.

Sightsavers also known as the Royal Commonwealth Society for the Blind since its inception in the 1950s has been a pioneer in primary eye care service delivery across the world. Established in India in the 1960s, Sightsavers has played a strong role reaching out to the needy with eye care services and eradicating blindness from the nation. Keeping eye health as the primary and the core theme of programme implementation, Sightsavers has strategized ways to reach out to populations across the urban slums, the rural needy as well as children in school. The vision of Sightsavers programme approaches have always been driven towards creating an India devoid of blindness and a nation where every individual irrespective of their gender has access to equitable opportunities.

Sightsavers India has established a partnership with Baxter to make an intervention into the eye health situation of girl children in West Bengal, India across a period of 3 years. While the importance of girl child education is sufficiently established, it would perhaps not be unfair to comment that the existing public school curriculum has very little to offer in terms of imparting knowledge and awareness on health in general and reproductive health in particular to school children. Whereas it is only the school which can play the most pivotal platform for any child to undergo the first steps of character transformation, personality development and transitioning adulthood. Most of the health problems affecting school students are preventable by promoting proper hygiene practices and adopting good health education.

Since, the project targets school girls in the age group of 5 to 15 years focusing on refractive error, Sightsavers decided to conduct a study to understand level of awareness and explore practices on hygiene, sanitation and health among school going girls in Howrah district of West Bengal, India.

¹ World Health Organization (2010) Causes of Blindness and Visual impairment. Prevention of Blindness and Visual Impairment retrieved from <http://www.who.int/blindness/causes/en/>.

² http://www.who.int/water_sanitation_health/diseases-risks/en/

Aim of the Study

The Specific objectives of this study were as follows:

- i. To assess the knowledge, attitude and practices of hygiene and sanitation among school going girls
- ii. To understand knowledge on eye health and spectacle use among school going girls

Study Methodology

Sample size: This was a cross-sectional study adopting a single stage sampling approach. The project covered Howrah District of West Bengal, India among school going girls.

The following formula was used to calculate the sample size:

$$n = N * X / (X + N - 1),$$

Where,

$$X = Z_{\alpha/2}^2 * p * (1-p) / MOE^2,$$

and $Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$ (e.g. for a confidence level of 99%, α is 0.05 and the critical value is 1.96), MOE is the margin of error, p is the sample proportion, and N is the population size.

The sample size was based on the following assumptions: i) the hypothesized frequency of outcome factor in the population is 50%; (ii) 90% confidence level; iii) margin of error (confidence interval) +/- 3%. The estimated sample size for children was 745. The sample size was rounded off to 820 to allow for 10% non-response. Respondents were selected randomly from school going girl child enrolled in the govt. school.

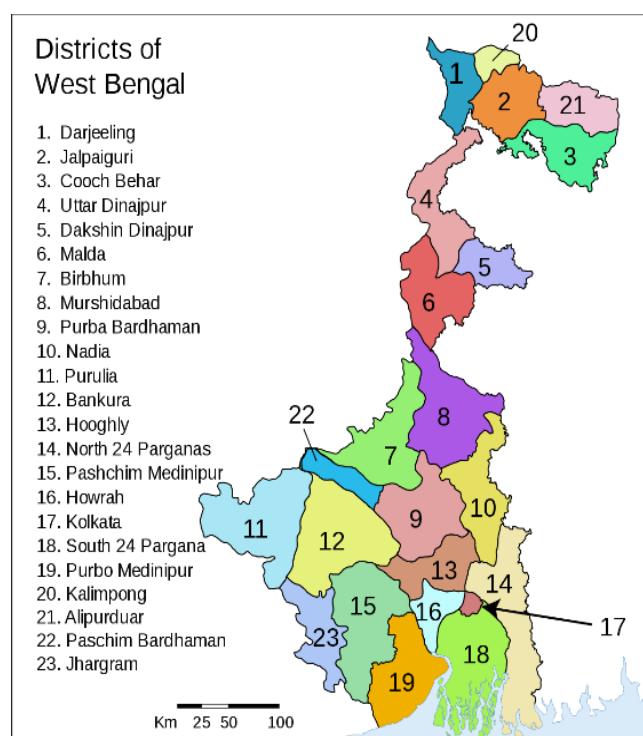
All the students attending the selected Govt. Girls' school during the study period were the study population. A list of all schools along with relevant information was prepared and 20 schools were randomly selected for the study to cover the required sample. After describing the purpose of the study, it was observed that children were excited to be part of the study and it was a challenge to deny some of them. So, the study team explained the reason for selecting 40 students from each school and convinced them even if they are not part of the study, they are part of the project. Under the project, they will get all benefits like free eye screening and provision of free spectacles if identified with Refractive error. Finally, 816 children were successfully covered in the study.

The permission to conduct the study was obtained from Education Department and school authority in advance.

Study Area: The study was conducted in Howrah district of West Bengal, India In October, 2018.

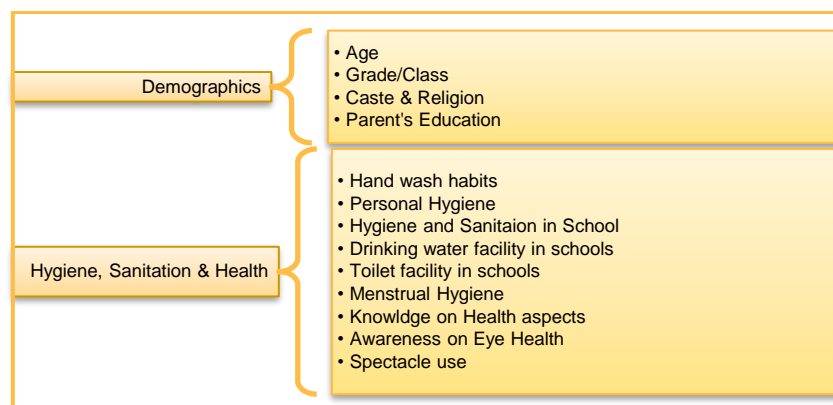
Tools for data collection: The study tools consisted of consent forms, structured questionnaire available in Hindi and Bengali based on medium of teaching at the selected schools. The questionnaire covered the socio-demographic and economic information, knowledge,

Map 1: Districts of West Bengal



attitude and practice of the students regarding personal hygiene practices, knowledge on eye health and spectacle use (Figure 1). The questionnaire was first prepared in English. Then it was translated into Bengali and Hindi by separate linguistic experts keeping semantic equivalence and cultural context. The content validity of each domain was decided by the principal investigator based on previous research experience.

Figure 1: Study domains



Training: Data collectors attended a day long training at Sightsavers India office in Kolkata. The extensive training session covered the study protocol, administering study tool, explaining the study background and objectives and obtaining the consent from respondents. The Principal Investigator and Co-investigator of the study conducted the training in English and Bengali.

Data Collection: At the time of data collection, study team visited the selected schools with prior permission from Head of the School and explained the processes required for selection of 40 children randomly along with data collection methods. With support from school staffs data collection was successfully completed in selected schools, any query raised during data collection was answered by the study team.



Photo: Sightsavers India

First the questionnaire was explained to all selected children mainly about different section of the questionnaire, how to record their answers and how to follow the skip patterns. For Class V students the questionnaire was filled up through interviewing the students as the students might find it difficult to understand the questions and unable to fill up. For the rest of the classes (VI-X) the questionnaire was self-administered and the answers were collected after the stipulated time of 30 minutes.

Data Entry and Analysis: Data captured through structured questionnaire was entered on Tabs using an app designed in Commcare software³ and data entry operator received training on the devices and app. Data was synced at the end of each day where it was uploaded to the remote storage server. Data was checked for consistency and any errors. The completed dataset was extracted from the remote storage server for analysis. Respondent names were not extracted to ensure data subject privacy. The dataset was stored in a password-protected file that only members of the study team involved in data analysis had full access. The

³ www.commcarehq.org Dimagi Inc. 2018

data analysis was carried out using STATA 14 software. Descriptive statistics was used in the analysis and chi-square was used to test for significant differences, as appropriate.

Ethics

Ethics approval for the study was obtained after finalization of study protocol and tools. The consent of each study participant (questionnaire for data collection) was taken before data collection. Information about the study and the use of data (from the questionnaire) was read out to the invited respondents before they consent to taking part. The informed consent form and information sheets were translated into the local language. All information collected was anonymous and confidential. All electronic records were protected by a password and no one apart from the research team had access to the data.

Section II: Profile of the respondents and their knowledge, attitude and practice on hygiene

Participant characteristics

The study included 816 children studying in standard 5th to standard 10th in 20 schools in Howrah district of West Bengal, India. The median age of the respondents was 13.4 (range 10-17) years; and nearly half of children in the sample were aged 13-14 years (Figure 1).

Figure 1: Percent distribution of respondents by age-group

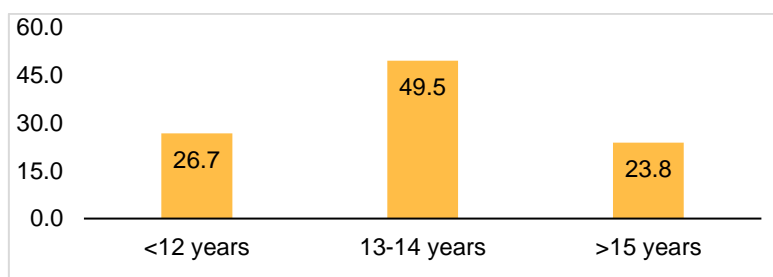


Table 1 shows frequency distribution of respondents according to their socio-demographic characteristics. More than one-fourth of the children in the sample were studying in standard 9th at the time of survey, followed by those who were in standard 8th (22%). Mother's education for more than one-fourth of children was secondary level, followed by primary level (21%) and higher secondary level (16%). Similar observation were also made for father's education.

Table 1: Socio-demographic characteristics of respondents

Characteristics	n	%
Standard		
5 th	12	1.5
6 th	103	12.6
7 th	153	18.8
8 th	181	22.2
9 th	214	26.2
10 th	153	18.8
Mother's education		
Cannot read and write	63	7.7
Can read write but never attended	71	8.7
Primary	169	20.7
Secondary	241	29.5
Higher Secondary	128	15.7
Graduate & above	96	11.8
Others	48	5.9
Father's education		
Cannot read and write	32	3.9
Can read write but never attended	64	7.8
Primary	162	19.9
Secondary	212	26.0
Higher Secondary	136	16.7
Graduate & above	149	18.3
Others	61	7.5
Total	816	100

Knowledge on Hygiene

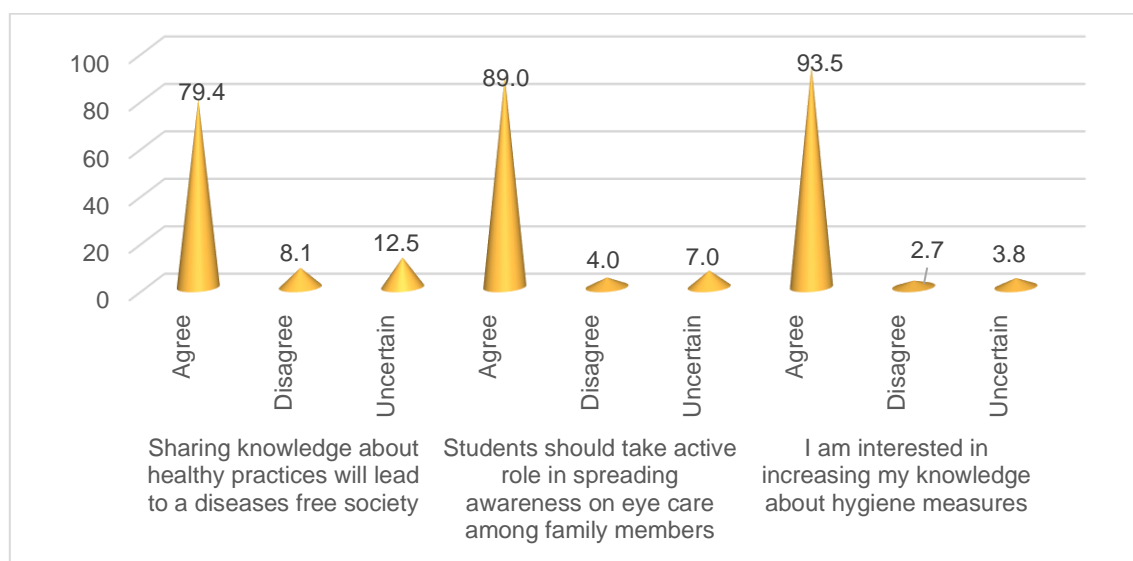
Table 2 presents knowledge on hygiene among the respondents; almost all children agreed that water and food always needs covering. More than 90% of children each agreed that boiling water kills germs, waste items should not be thrown around the houses or in open areas and personal hygiene and clean surrounding are important for healthy living. However, only 46% of children agreed that spraying pesticides will help to control spread of diseases and nearly one-fifth of them were uncertain on this.

Table 2: Knowledge on hygiene among respondents

Aspects	n	%
Water and food always need covering		
Agree	813	99.6
Disagree	2	0.3
Uncertain	1	0.1
Boiling water kills germs in water		
Agree	747	91.5
Disagree	26	3.2
Uncertain	43	5.3
Waste items should not be thrown around the houses or in open areas		
Agree	767	94.0
Disagree	30	3.7
Uncertain	19	2.3
Spraying pesticides will help to control spread of diseases		
Agree	372	45.6
Disagree	288	35.3
Uncertain	156	19.1
Stagnant water and dumping areas are home for mosquitos		
Agree	726	89.0
Disagree	35	4.3
Uncertain	55	6.7
Personal hygiene and clean surrounding are important for healthy living		
Agree	759	93.0
Disagree	15	1.8
Uncertain	42	5.2
Total	816	100

Figure 2 presents findings on respondents' opinion on involvement in hygiene measures. Around 80% of respondents agreed that sharing knowledge about healthy practices will lead to diseases free society. About 89% agreed that students should take active role in spreading awareness on eye care among family members. More than 90% showed interest in increasing their knowledge about hygiene measures. Very few of them reported their uncertainty about their involvement in hygiene measures.

Figure 2: Respondent's opinion on involvement in hygiene measures



Personal Hygiene: Attitude and Practices

Figure 3 shows frequency distribution of respondents according to their hand wash habits. More than one-third respondents reported that they always use soap to wash hands. Similarly, 68% respondents reported that they wash hand after visiting public places, 77% reported hand washing before eating meals or preparing meal and more than 90% reported hand washing after using toilet. However, only 54% of respondents reported that they wash hand when they had an eye infection. Further, about one-tenth respondents reported that they never wash hand when they had an eye infections and likewise before eating or preparing meal.

Figure 3: Hand wash habits among respondents

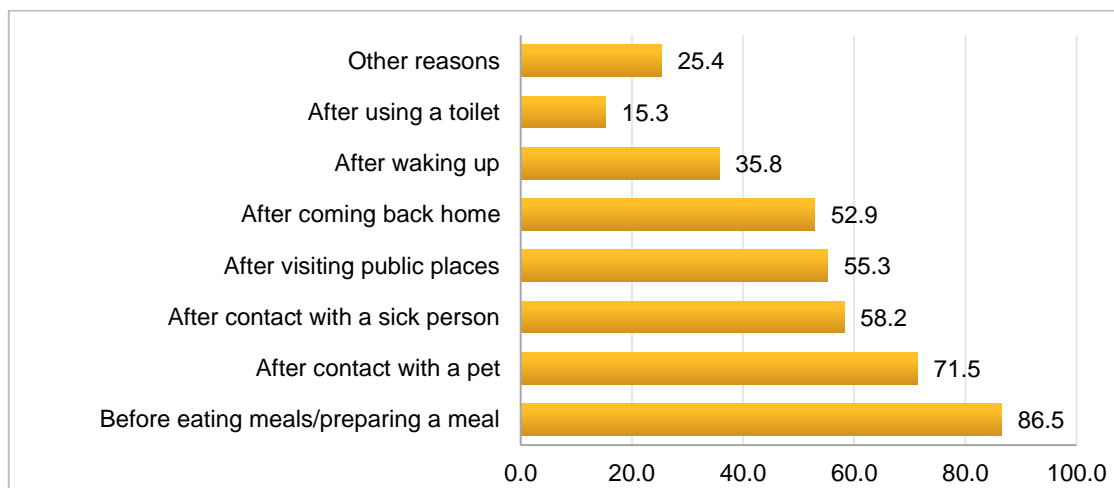


The study collected information on reasons given by respondents for not washing their hands. More than half of them reported that they forget to wash their hands, followed by those who said "nothing specific" (18%). Very few of them reported like they do not wash their hand intentionally (5%), do not have time to do it (4%) and do not understand why they should wash hands (2%).

Further, findings on scenarios when hand wash is considered necessary by respondents (Figure 4) suggest that on an average 86% of them considered hand wash necessary before eating meals or preparing meals,

followed by those who said after contact with pets (72%) and after contact with a sick person (58%). Other scenarios that were considered by respondents were after visiting public places (55%) and after coming back home (53%). Analysis suggest that majority of them agreed that dirty hands can transmit illness (90%) and significant association was observed with age of respondents ($p=.01$).

Figure 4: Scenarios when hand wash is necessary as reported by respondents



Around 88% of respondents reported that they cover mouth and nose during coughing and sneezing and nearly 83% of respondents do not share food and drinks when they are sick. Mostly they all take bath every day (97%) and about (82%) cut their nails regularly. Around two-third of them brush their teeth twice daily (Table 3).

Table 3: Practice of personal hygiene among respondents

Practices	%
% of respondents who cover mouth and nose during coughing and sneezing	87.6
% of respondents who don't share food and drinks when sick	82.5
% of respondents who take bath every day	97.4
% of respondents who cut nails regularly	82.4
% of respondents who by no. of time they brush teeth in a day	
Once	34.9
Twice	65.1
Total	816

The study reveals that the age of menstruating girls ranged from 9-15 years, with the maximum number of girls being between 12-13 years of age. The mean age at menarche was found to be 12.6 years. It was evident that only 57% of respondents were aware of menstruation before menarche its onset. As reported by respondents, mothers were the first informant for 61% of the girls.

The hygiene related practices of girls during menstruation are of considerable importance, as they affect their health by increasing their vulnerability to infections, especially infections of the urinary tract. The type of absorbent material that is used is of primary concern, since reuse of the material could be a cause for infection if it is improperly cleaned and poorly stored. Majority of them reported sanitary pad (95%) as main type of material/absorbent generally they use during menstruation. Over 80% said that there were provision in schools to change pad/cloth during menstruation.

Opinion on hygiene and sanitation conditions in schools

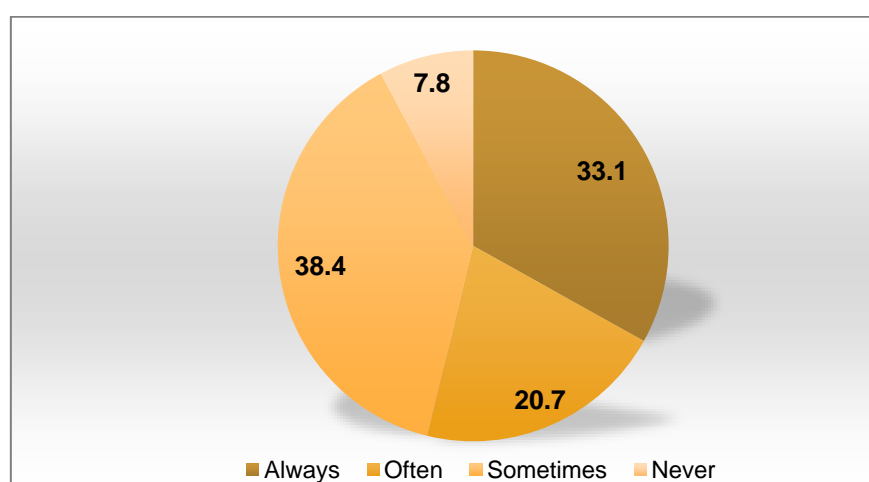
Mostly all respondents reported availability of drinking water facility in their schools, of which 57% reported availability of piped water, 23% reported availability of hand pumps and remaining mentioned about availability of other water sources. Over 95% of respondents mentioned that the drinking water facility is available within the school campus. Similar results were observed for availability of toilet facility in schools with more than 90% reporting that toilet is located within the campus and there is provision of running water in the school toilet (Table 4).

Table 4: Provision of drinking water and toilet facility in schools as reported by respondents

Facilities at school	N	%
Drinking water facility		
<i>Provision of drinking water in school</i>		
Yes, piped water	467	57.2
Yes, hand pump	190	23.3
Others	159	19.5
<i>Location of drinking water</i>		
Outside	41	5.0
Within campus	775	95.0
Toilet facility		
<i>Provision of toilet in schools</i>	816	100
<i>Location of toilet</i>		
Outside	18	2.2
Within campus	798	97.8
<i>Provision of running water in the toilet</i>	784	96.1
Total	816	

However, only one-third of respondents reported that they drink water or use the drinking water facility available at school and nearly two-fifth reported sometimes. Nearly eight percent of them said they never use water from the available drinking water facility at school (Figure 5).

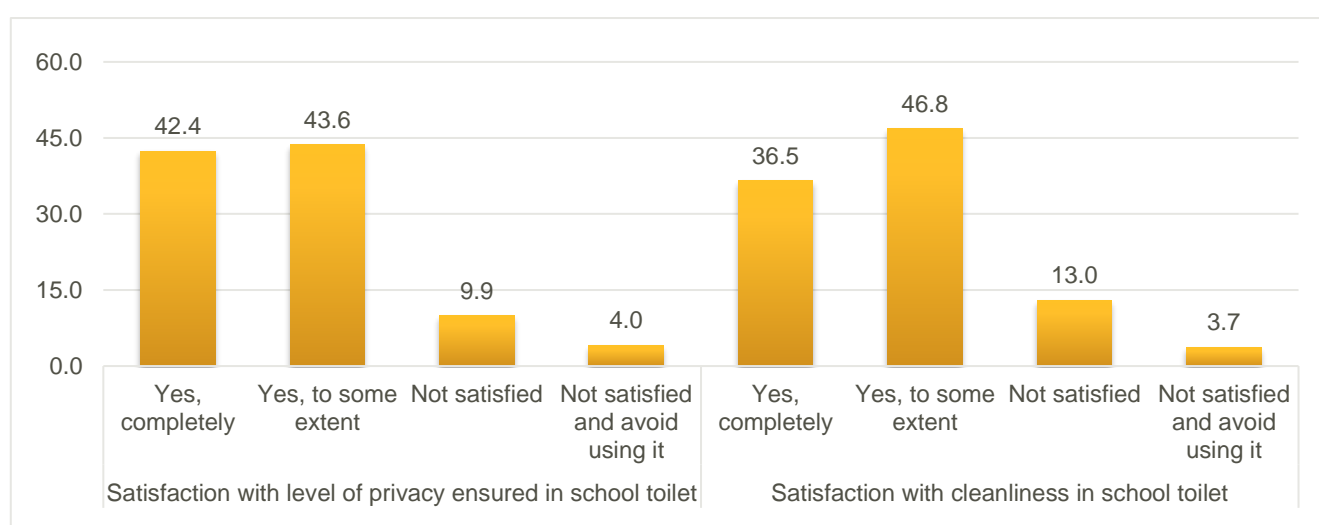
Figure 5: Use of drinking water facility available at school as reported by respondents



When similar questions were asked about the toilet facility at school, nearly one-tenth of respondents said they never use the toilet at school and more than one-fourth said they use only when they cannot hold on anymore. Only one-fifth of respondent mentioned regular use of toilets at school. Nearly, two-third of respondent said waste bins are provided in school toilets.

Despite the fact that all most all schools have toilet facility within the school campus with running water facility, but the use of toilet facility at schools is very low as reported by the respondents. Figure 6 presents level of satisfaction as reported by respondents about privacy ensured in school toilets and cleanliness in school toilets. More than two-fifth of respondents reported complete satisfaction with privacy ensured in school toilets and nearly ten percent said they are not satisfied with the privacy in school toilet. For cleanliness in school toilets, more than one-third reported they are completely satisfied with cleanliness in school toilets where as 13% said they are not satisfied and very few of them avoid using it (4%).

Figure 6: Satisfaction with privacy and cleanliness ensured in school toilet as reported by respondents



Major concerns reported by respondents for not being satisfied with school toilets are unpleasant smell in toilets (47%), lack of cleanliness (40%), lack of privacy (13%), lack of light in the toilet (12%) and other concerns are absence of hand hygiene in toilet, lack of menstrual management, etc.

Section III: Knowledge on eye health and eye health seeking behaviour among respondents

Under the School Health Programme in India the health needs of school going children and adolescents in the 6-18 year age groups is addressed in the Government and Government aided schools. Nearly 88% of respondent said that they have School health Programme in their school. About one-third of them said that health education is taught as a separate subject in their school and one-fifth said it is taught as both separate and integrated whereas one-fourth of them said they don't know. More than half of respondent reported that they have a health clinic at their school and about three-fourth said that their school maintains health records of students. Two-third of respondents reported that they perform physical activity on a regular basis at their schools.

Awareness and knowledge on eye health

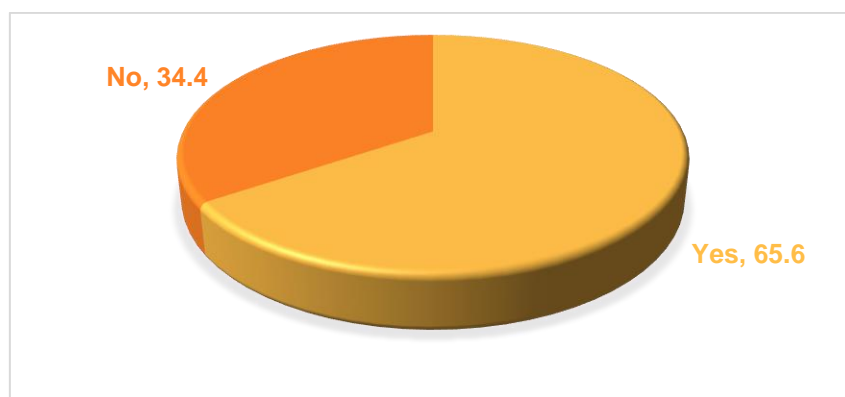
More than 80% of respondents agreed that Vitamin A has important role in prevention of childhood blindness whereas about one-tenth of them were uncertain about this. When asked about whether most of the green leafy vegetables, yellow fruits contain abundant Vitamin A, more than 75% of respondents agreed and only seven percent of them disagreed to the statement. Over 70% of respondents agreed that most of the blindness can be prevented if awareness are generated on eye health, however more than one-fifth of them were uncertain on this. So, majority of respondents were aware about role of Vitamin A, its source and importance of awareness on blindness (Table 5).

Table 5: Awareness on prevention measures of blindness among respondents

Aspects	n	%
Vitamin A has important role in prevention of childhood blindness		
Agree	674	82.6
Disagree	41	5.0
Uncertain	101	12.4
Most of the green leafy vegetables, yellow fruits contain abundant Vitamin A		
Agree	622	76.2
Disagree	57	7.0
Uncertain	137	16.8
Most of the blindness can be prevented if awareness are generated on eye health		
Agree	582	71.3
Disagree	59	7.2
Uncertain	175	21.5
Total	816	100

Among 816 respondents, 66% reported that they are aware about common eye problems/diseases (Figure 7). Further, awareness about eye problems was related to age of respondents. Those who were 13 years and above were more likely to aware about some of the common eye problems/diseases ($p=0.00$).

Figure 7: Awareness about common eye problems/ diseases among respondents



Over 70% of those, who were aware about common eye problems/diseases reported cataract, followed by watering eyes (65%), redness in eyes (61%) and reading or writing difficulty (58%) and refractive error (47%) (Table 6).

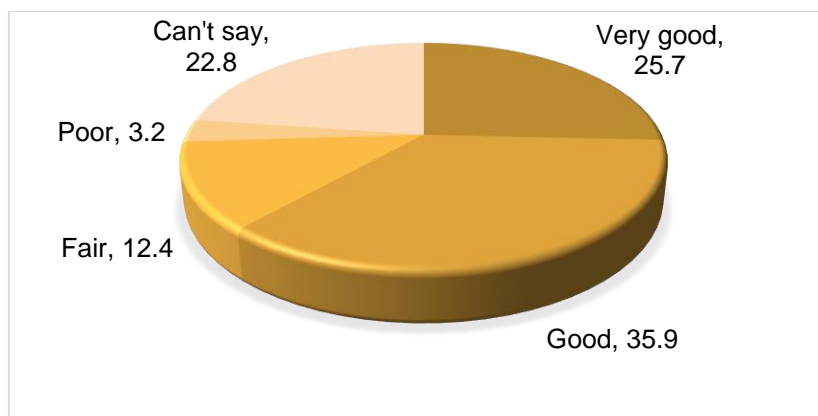
Table 6: Common eye problems/diseases reported by respondents

Eye problems/diseases	n	%
Cataract	378	70.7
Watering eyes	349	65.2
Redness in eyes	328	61.3
Reading or writing difficulties	310	57.9
Refractive Error	251	46.9
Diabetic Retinopathy	59	11.0
Dry Eyes	43	8.0
Glaucoma	34	6.4
Others	18	3.4
Total	535	

Self-perception of vision and eye health seeking behaviour among respondents

More than one-third of respondents perceived their vision to be good and 26% said it was very good. About 3% of respondents described their vision, as poor (Figure 8).

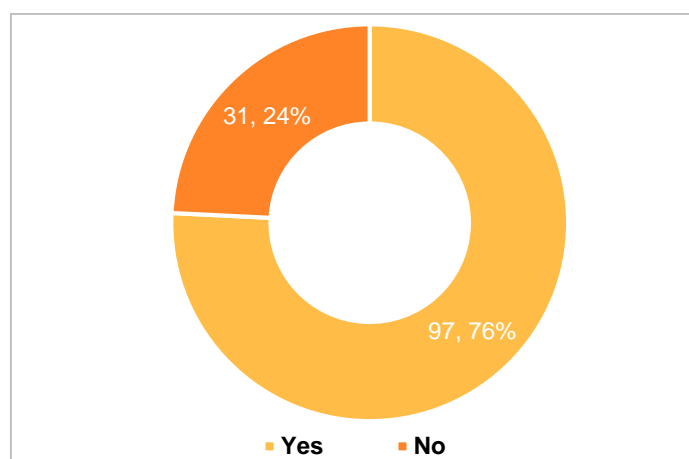
Figure 8: Respondents' perception of own vision



About one-third of respondents reported that they had tested their eyes for any problem or infection in the past. Further, testing eye for any problem was related to age of respondents. Those who were 13 years and above were more likely to have tested their eyes for eye problems ($p < 0.05$).

In total 128 out of 816 respondents, i.e. 16% had spectacles in the past. Among those who had spectacles in the past, 97 respondents were wearing glasses at the time of survey (Figure 9). However, no association was observed between spectacle use and age of respondents or standard they were studying at the time of survey.

Figure 9: Spectacle use among respondents at the time of survey



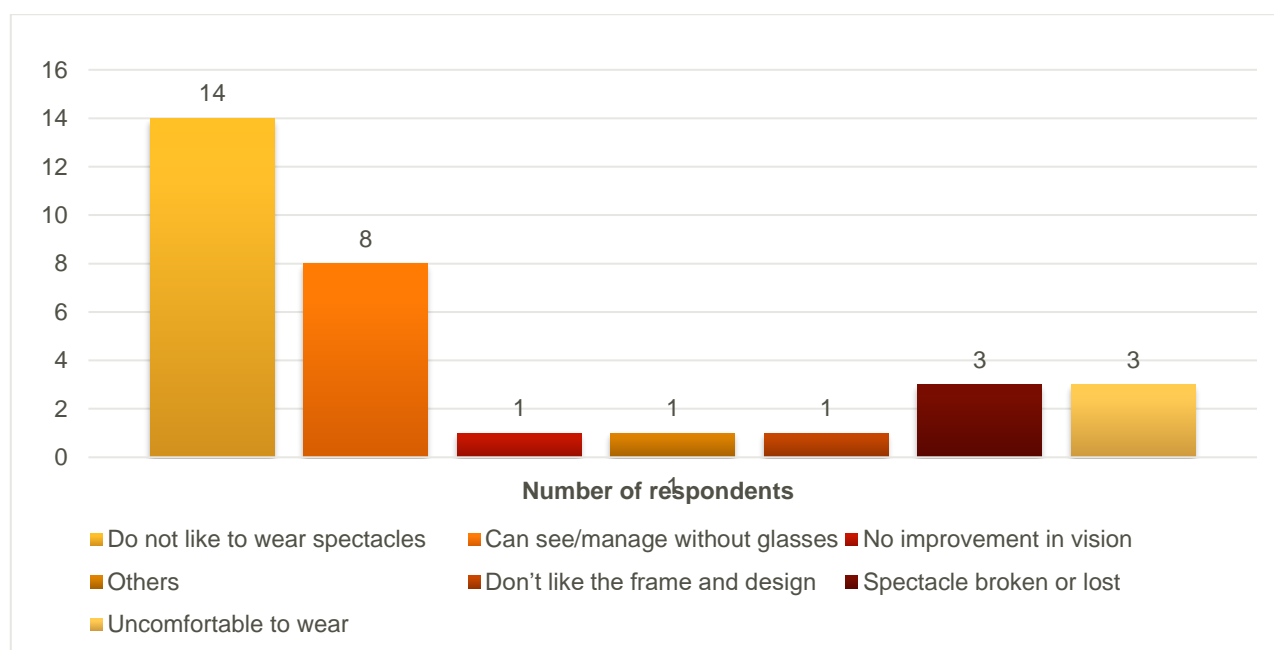
The respondents who were using spectacles at the time of the survey were asked what they appreciated about their spectacles. More than one-third of the respondents said that their spectacles were of accurate glasses; over one-fourth said that their glasses were safe (29%), another 15% said that they were of good quality and about 10% mentioned an attractive style (Table 7).

Table 7: Main requirements of spectacles among current users

Main requirements	n	%
Good quality	14	14.4
Attractive style	10	10.3
Glasses not too heavy	4	4.1
Accurate glasses	35	36.1
Safe glasses	28	28.9
Cheap or free glasses	4	4.1
Nothing specific	1	1.0
Can't say	1	1.0
Total	97	100

Among 31 respondents, who were not wearing spectacles at the time of the survey, the main reasons for stopping spectacle use were not liking wearing spectacles, can manage see/manage without glasses, the spectacles were broken or lost and feeling uncomfortable (Figure 10).

Figure 10: Main reasons for discontinuing spectacle use among respondents



Section IV: Conclusion

Knowledge, attitude and practice towards personal hygiene among school girls was satisfactory but still deficient in some aspects. The study showed that respondents tend to be forgetful of certain practices such as washing hands and negative consequences that could follow from not doing so. There is a space for intervention with practical activities/or group activities beyond talking about it as part of curriculum/health education. There is a need to understand the reasons behind not using school toilets and safety concerns among school girls. A possible intervention could be to discuss with school management committee and identify the problems. Involving groups of students in finding solutions to this can also encourage a participatory and solution oriented process among young girls. Involving parents can help discuss explicitly the issue of safety for ensuring basic safety measures and cleaning and maintenance of toilets. It can be said that among school girls prior knowledge on menstruation before attaining menarche is low. Menstrual hygiene is good to some extent among study respondents but awareness regarding the need for information on healthy menstrual practices is very important and also promoting the importance of menstrual hygiene in school toilets among young girls.

Although awareness on eye health is satisfactory to some extent, self-perception on own vision is varied as considerable number of respondents reported “can’t say”. The study found that less number of children ever had eye testing and those who were prescribed spectacles, all of them were not using it. Those who were using spectacles, their main requirement for spectacles/glasses was “accurate glasses” and “safe glasses”. The majority of children who were not using spectacles reported that they don’t like wearing spectacles. It is observed that low priority given to eye care is an important factor that influences eye health seeking behaviour among young school girls. So, regular eye screening and early referral for diagnosis is emphasized. More emphasis should be given to awareness campaigns and changing behaviour in order to increase regular use of spectacles among those identified with refractive error and also uptake of eye care services.

From the Field – Gallery



