Assessment Of Knowledge And Practice Of Personal Hygiene Among School Children In A Government School In Liluah,Howrah: A Cross Sectional Observational Study

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Abstract: Background: Children who possess a good knowledge and practice of personal hygiene measures such as hand washing have lower incidence of communicable diseases. This study was done to assess the status of personal hygiene and the morbidity pattern among the children of a government school. Material & Methods: A cross-sectional observational study was conducted among 3rd and 6th standard students of a government school situated at Liluah, Howrah district of West Bengal, India over a period of 2 weeks in August, 2017 with the help of a questionnaire. Results of the study were analysed with relevant statistical methods. Results: The importance of hand washing with soap after defecation and before meals was known to 100% and 98% students respectively, however was practised by 98% and 76% students respectively. There is significant association between knowledge and practice of hand washing with soap after meals (P value 0.04146). Brushing teeth, washing feet and taking daily bath (80.77%) are the most common practices. Most common morbidities were fever with cough (17.3%), worm infestation (13.5%) and dental caries. Conclusion: Personal hygiene practices like hand washing, trimming nails regularly, etc can reduce the incidence of many preventable diseases among children, leading them to a healthy life.[Siddhanta S Natl J Integr Res Med, 2021; 12(2):12-17]

Key Words: Personal Hygiene, school children, hand washing, clean trimmed nail, worm infestation, India

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Introduction: Healthy habits incorporated in children during their early years are carried over to adulthood. To instil a sense of responsibility in children towards their health, implementing daily routines of personal hygiene is necessary.

School is one of the best places where the health promoting behaviours are learnt and practised. Health education on important aspects of hygiene, environment and sanitation, is imparted here by teachers. Children learn about cleanliness from their parents, health professionals, media etc., as well. These children in turn spread their health related knowledge to their family and community.

According to WHO, in the year 2018, approximately 6.2 million deaths in children and adolescents under 15 years were mostly from preventable diseases[1]. These diseases especially due to infections can be prevented with simple interventions like washing hands, maintaining personal hygiene, safe food, safe water etc.

Children who possess poor knowledge and practice of personal hygiene measures such as hand washing have a high incidence of communicable diseases, which in turn negatively affect their long term overall development[2]. It has been found that children who have improved awareness of hand hygiene practices have reduced gastrointestinal and respiratory tract infections rate by up to 50%, which are the two leading preventable infectious causes of morbidity and mortality in children around the world[1,3,4].

In the period of outbreak of COVID-19 pandemic worldwide, maintaining personal hygiene is extremely important for all. Measures such as maintaining social distancing, wearing mask by children older than 2 years, washing hands with soap, taking regular bath with soap etc. must be encouraged especially in school children to protect them and prevent spread of these communicable diseases to others.

Childhood is the developmental stage when formal education on health and sickness can be imparted. Children especially between seven to twelve years believe that germs cause illness. They can learn certain healthy behaviours, even without fully understanding the relation between disease and behaviour.

Healthy habits can be developed in this period by proper health education. Hence this age group was targeted in this study to assess their knowledge and practice of personal hygiene. The objectives of this study were to find out: 1. The knowledge and practice of personal hygiene among the students, 2. The morbidity pattern among the students. 3. Compare knowledge and practice of hygiene among male and female students and between students of two different grades.

Information from this study would throw a light on the hygiene related behaviour of different grades of students and amongst boys and girls. It would help us understand the relation between morbidities and hygiene measures practiced by students.

Materials and Methods: This study is a cross-sectional observational study. The study was done in a purposively selected government school in Liluah, Howrah district of West Bengal. This study was done over two weeks in August 2017. School children in grades III and VI from the selected school were randomly selected as study population. These 2 grades were randomly selected to target the population aged 7 to 12years. A pre-designed, pre-tested and structured questionnaire was used

Permission was obtained from the institution and the school authority. This study was undertaken before the starting of yearly school health check-up. The questionnaire was drawn up in English, translated in Hindi (local language) and back translated in English to check the translation.
Before starting of the study, pre-testing of the questionnaire was done on children attending the Paediatrics outpatient department of Liluah Railway Hospital. The selected class was visited Studies on this age group will help us determine the interventions required, to ensure a healthy life for them[5].

On a pre-assigned day of the week. Out of 52 students in this study, 22 were from grade III and the rest were from grade VI.

The students from each grade who were absent on the specific day of the study were excluded. Thus, after excluding absentees, a total of 52 students were finally included in the study. The parents were called on the day of the study. The class teacher of each grade was explained the purpose of the study.

Informed verbal consent was obtained from the students and one of their parents. Students were explained regarding the questionnaire provided to them. They were asked the questions and observed and responses were marked in the questionnaire.

At the end of the study, the parents were given information about their child's status of personal hygiene and related health condition. They were suggested to attend hospital, if needed. A brief health education session was also conducted for the class teachers, students and their parents after completion of the study.

Data obtained were collected and analyzed statistically. Test statistics used were Pearson's Chi-square test, Fisher's exact test and Binomial test. P value less than 0.05 was considered significant. Statistical software used was R version 3.5.1.(CI- Confidence Interval)

Results: In this study among 52 students, 42.3% students were from 3rd standard and rest from 6th standard. 67.3% were males in this study.

Table 1: Proportion Of Students With Correct Knowledge / Perceptions (N=52)

Knowledge related to hygiene	No.	%	95% CI	
Importance Of Hand Washing After Defecation	52	100%	100%	100%
Importance Of Hand Washing Before Meals	51	98.08%	94.34%	100%
Importance Of Hand Washing After Meals	45	86.54%	77.26%	95.82%
Water Container For Drinking Water Needs Both Cleaning & Covering	41	78.85%	67.75%	89.95%
Boiling Water Kills Germs	30	57.69%	44.26%	71.12%
Human Faeces Contains Germs	24	46.15%	32.60%	59.70%
Studying Under Adequate Light Required	42	80.77%	70.06%	91.48%

As shown in table 1, all students knew that hand washing after defecation is important. 98.08% and 86.5% respectively knew about its importance before and after meals. Table 2

showed that most common practices were brushing teeth at least once daily(100%),washing feet(90.38%) and bathing daily(80.77%).

Table 2: Proportion Of Students With Healthy Practices (N=52)

Hygiene Related Practices		**No.**	**%**	**95% CI**	
Washing Hair Daily		15	28.85%	16.53%	41.16%
Changing Clothes Regularly		24	46.15%	32.60%	59.70%
Washing Feet Daily		47	90.38%	82.37%	98.40%
Taking Bath Daily		42	80.77%	70.06%	91.48%
Tooth Brushing Twice Daily		21	40.38%	27.05%	53.72%
Tooth Brushing Once Daily		52	100.00%	100.00%	100.00%
Hand Washing After Defecation With Soap And Water		51	98.08%	94.34%	101.81%
Hand Washing Before Meals With Soap And Water		40	76.92%	65.47%	88.37%
Hand Washing After Meals With Soap And Water		40	76.92%	65.47%	88.37%
Check List of hygiene related observations					
Clean Clothing		45	86.54%	77.26%	95.82%
Clean Shoes		38	73.08%	61.02%	85.13%
Clean And Trim Fingernails		33	63.46%	50.37%	76.55%
Eye Discharge		1	1.92%	0.00%	5.66%
Clean Face		45	86.54%	77.26%	95.82%
Clean Hair		44	84.62%	74.81%	94.42%

Other significant results not shown in the tables are mentioned below. 75% children knew about reasons for hand washing as a process to get rid of germs and/or dirt. Rest either did not know or had misconceptions about the purpose of hand washing. In this study, 50% of the students had some morbidity in previous 15 days. It included fever with cough and cold (17.3%), worm infestation (13.46%), dental caries (11.3%), cough (7.7%), diarrhoea (5.8%), fever without cough (5.8%), head lice (3.8%) and multiple boils(1.9%). There was a significant association between practice of hand washing with soap & water after meals and the knowledge on its importance, with P value 0.04146 (< 0.05).

Table 3: Proportion Of Students Of Different Standards And Sex With Correct Knowledge

Knowledge Related To Hygiene	**Class III n=22 (%)**	**Class VI n=30 (%)**	**P value**	**Malen=35(%)**	**Femalen=17 (%)**	**P value**
Importance Of Hand Washing After Defecation With Soap	22(100)	30(100)	1	35(100)	17(100)	1
Importance Of Hand Washing Before Meals With Soap	21(95.45)	30(100)	0.8751	35(100)	16(94.12)	0.7095
Importance Of Hand Washing After Meals With Soap	18(81.82)	27(90.00)	0.6579	30(85.71)	15(88.24)	1
Water Container For Drinking Water Needs Both Cleaning &Covering	17(77.27)	24(80.00)	1	29(82.86)	12(70.59)	0.5129
Boiling Water Kills Germs	11(50.00)	19(63.33)	0.4981	18(51.43)	12(70.59)	0.3112
Human Faeces Contains Germs	10(45.45)	14(46.67)	1	17(48.57)	7(41.18)	0.8374
Studying Under Adequate Light Required	18(81.82)	24(80.00)	1	29(82.86)	13(76.47)	0.8626

Table 3 shows importance of use of soap in hand washing after defecation, before and after meals was known to more 6th standard students than 3rd.

Table 4 shows that the practice of changing clothes regularly in class III students (81.82%) was significantly higher than class VI students (20.00%) (P Value 3.53e-05 < 0.05). Daily habits of bathing (82.3%), tooth brushing twice daily (47%), washing feet (100%), washing hands with

soap after defecation (100%) and before meals (88.2%) were practised by more(%) female students than male counterparts. Washing hair daily (37%) and hand washing after meals(80%) were practiced by more boys.

Table 4: Proportion Of Students Of Different Standards And Sex With Healthy Practices

Hygiene Related Practices	Class III n=22 (%)	Class VI n=30 (%)	P value	Male n=35 (%)	Female n=17 (%)	P value
Washing Hair Daily	6(27.27)	9(30.00)	1	13(37.14)	2(11.76)	0.1167
Changing Clothes Regularly	18(81.82)	6 (20.00)	3.53 E-05*	16(45.71)	8(47.06)	1
Washing Feet Daily	21 (95.45)	26(86.67)	0.5579	30(85.71)	17(100.00)	0.2552
Tooth brushing twice Daily	7(31.82)	14(46.67)	0.4283	13(37.14)	8(47.06)	0.7022
Bathing Daily	18(81.82)	24(80.00)	1	28(80.00)	14(82.35)	1
Hand Washing Practices						
Hand Washing After Defecation With Soap	21(95.45)	30(100.00)	0.8751	34(97.14)	17(100)	1
Hand Washing Before Meals With Soap	19(86.36)	21(70.00)	0.2935	25(71.43)	15(88.24)	0.318
Hand Washing After Meals With Soap	15 (68.18)	25(83.33)	0.3431	28(80.00)	12(70.59)	0.6856
Check List of hygiene related observations						
Clean Clothing	17(77.27)	28(93.33)	0.2058	30(85.71)	15(88.24)	1
Clean Shoes	16(72.73)	22(73.33)	1	26(74.29)	12(70.59)	1
Clean And Trim Fingernails	13(59.09)	20(66.67)	0.7879	23(65.71)	10(58.82)	0.8594
Eye Discharge	1(4.55)	0(0.00)	0.8751	1(2.86)	0(0.00)	1
Clean Face	17(77.27)	28(93.33)	0.2058	31(88.57)	14(82.35)	0.8546
Clean Hair	19(86.36)	25(83.33)	1	29(82.86)	15(88.24)	0.9247

*P value less than 0.05

Discussion: In this study we assessed the knowledgeof hygiene among students of a government schoolin Howrah district of West Bengal and their application in daily life.It was very encouraging to find that most of the students had good awarenessand practice of hygiene measures especially pertaining to hand washing. This can be attributed toregular health check upand health education sessions conducted by health professionals and teachers[6]. Along with periodic health check-ups , regular monitoring of their cleanlinesswas done in this school too.

All the students in this study knew that hand washing after defecation with soap is important. Knowledge of students about handwashing before and after meal was consistent with other studies[7].Students' knowledge and practice of handwashing with soap especially after defecation in this study is higher than studies in Ethiopia and Sharjah, UAE, but similar to another study in Kolkata[2,7,8].

Taking daily bath(80.77%) is third most commonly followed practice, first and second being cleaning teeth at least once daily and washing feet. This is in contrast to other studies where students taking daily bath were low in numbers[2,7]. Taking daily bath is affected by many factors like availability of water, hot climate etc. This percentage of students is even higher than a study where showering was considered most important hygiene practice[8].

In this study it was observed that most of our students wore clean dress and had clean face and hair. Clean trimmed nails were seen in approximately 63% students. These findings were similar to another study in Kolkata but higher than a tribal school in Maharashtra [9,10].

Higher percentage of girls brushed teeth twice, used soap to take bath, washed feet daily, and washed hands before defecation and meals with soap. However more boys washed their hair daily than girls. This is consistent with other studies

[8,10]. This is perhaps due to the fact that girls are more conscious about their appearance and personal hygiene than boys[8].

In school going children in Wardha district, Maharashtra, prevalence of intestinal parasites was among 17.8% of children[11]. The incidence of intestinal parasitosis can be controlled with hygiene education and regular drug therapy[11].

Intestinal parasitic infection was significantly high among children having dirty untrimmed nails followed by those children who had poor hand washing practices[7,9]. Prevalence of worm infestation in our study was 13.5%. This is lower than other studies, as the percentage of children washing hands properly and those having clean nails were both high[7,9,10,11].

Previous studies showed that promotion of hand washing with soap decreases the incidence of pneumonia in under 5 children by 50%, diarrhoea by 53 % and impetigo by 34% in children less than 15 years[3]. Similarly another review showed decrease in diarrhoea by 45% in community after hand washing with soap[12] .Promotion of simple and cost effective measures like hand washing must be included in the school curriculum[1].

In this study, total percentage of all children having fever with or without cough, diarrhoea and children who had only cough as symptoms during interview was 36.6%, which is lesser than other studies[2,9,13]. However a preventable morbidity like dental caries in these children was much high necessitating more emphasis on oral hygiene[9].

These symptoms of fever, cough, diarrhoea etc. might have influence of other factors like season,environment, illness among family members etc. Training on healthy habits among children would in turn disseminate the awareness to their family and community[2,7].

Knowledge regarding personal hygiene was found in slightly higher percentages of 6th standard students. Correct knowledge seen in older students is due to their developmental ability to accept and adapt hygiene practices better[6].

This kind of studies would help the school authorities to find out standards and groups of students who need more attention regarding their hygiene related practices.

In spite of regular health education programmes, there still was a gap between knowledge and practice among the students. This gap between knowledge and practice might have been due to forgetfulness, laziness, lack of time, lack of interest etc[11]. Computer and mobile based applications on personal hygiene can make the subject more interesting.

Many similar studies have been done in different schools in Kolkata, other parts of India and all over the world to assess knowledge of children regarding personal hygiene. This study has been conducted to assess the state of personal hygiene among the students in a school in Howrah district of West Bengal.

One of the limitations in this study is small sample size. In future there is scope for studying a larger group of children of other age groups and standards too. Answers were recorded based on the response given by students. Hence there is possibility of many inappropriate responses from students.

Conclusion: In this study**,** it can be concluded that most of the students possessed a good knowledge and practice of personal hygiene especially pertaining to hand washing, brushing teeth, taking bath etc. Hence, morbidities were less among the students in this study in comparison to most other studies.

Some domains of hygiene could still be improved with the help of school teachers, parents, and medical personnel. School based health education programmes are indeed useful ways to develop a child's sense of personal hygiene. Maintenance of personal hygiene can prevent many diseases among children and help us to build a healthy society.

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