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Research Article

A school based survey on hygiene in an urban area of North India.

Dr. Harinder Sekhon[1]*, Dr Sukhmeet Minhas[2]
[1]Chief Medical Officer (Psychiatrist), Composite Hospital, Group Centre, Central Reserve Police Force, Bantalab, Jammu – 181123, Jammu & Kashmir
[2]Reader, Dept of Community Medicine, Armed Forces Medical College, Pune - 411040 Maharashtra.

***Corresponding author**
Dr. Harinder Sekhon
Email: drharindersekhon@yahoo.com

Abstract: Sanitation is one of the basic determinants of quality of life and human development index. Good sanitary practices go a long way in helping to prevent diseases. Hand washing and oral hygiene are the basic steps to maintaining good health. The present study was a school based survey undertaken among children in a government school in an urban area of north India with the objectives of finding out the prevalent status of personal hygiene in the study population. The total sample was 684 students. The survey was conducted using the GSHS Core Questionnaire Hygiene Module of the Global School-Based Student Health Survey (GSHS) 2013 Core Questionnaire Modules. There were three classes – class I, II and III, each having five sections and a total of 246, 220 and 218 children respectively (N=684). Most of the junior children carried their own water bottles to the school, while this practice decreased as they grew older and senior. Almost all the children adhered to the good habit of washing their hands after using the toilet or latrine, always, or at least most of the times, but the practice of using soap was variable. The present study revealed a generally good standard of hygiene amongst the study population. However, steps are required to be taken to improve the status of personal hygiene of all the school children, who are found lacking in this aspect, through various coordinated primordial as well as primary preventive measures like imparting health education.
Keywords: Hand washing, Sanitation, School children, Toilet, Urban, Water

INTRODUCTION

According to the World Health Organisation, about two million people every year die due to diarrhoeal diseases. Most of the deaths occur amongst children less than five years of age [1]. Population in developing countries is the most affected. These are the people living in extreme conditions like poverty, peri-urban dwellings etc. Among the important problems that are responsible for this kind of situation is poor hygiene behaviour of the school children. The health and hygiene of any individual is largely dependent on the adequate availability of water for drinking and proper sanitation[1-2]. Therefore, there is a direct relationship of water, with sanitation and health. Earlier, the concept of sanitation was limited to the disposal of human excreta mainly. Today it encompasses a comprehensive concept that includes the proper disposal of waste, food hygiene, as well as personal, domestic and environmental hygiene. Proper sanitation is essential not only from the point of view of general health but it has an important role to play in life of an individual as well as the society. Sanitation is a basic determinant of the quality of life and the human development index. Good sanitary practices help to prevent the contamination of both water and soil, thereby preventing diseases. The revised approach incorporated in the Programme titled "Total Sanitation Campaign (TSC)" introduced by the Government of India, lays more emphasis on the Information, Education and Communication (IEC), Human Resource Development (HRD), Capacity Development activities so as to increase awareness among rural people and also generate a demand for sanitary facilities. The technical note on water supply, sanitation, and hygiene education has been prepared to help the programme implementers in making informed decisions and in building a comprehensive and a clear understanding on the School Water Supply, Sanitation and Hygiene Education (SSHE) [2-4]. Handwashing, not only is simple and inexpensive, but handwashing with soap can, in fact, dramatically decrease the number of children falling sick. It has been seen that handwashing with soap can protect about one out of every three young children who fall sick with diarrhea and almost one out of six young children who get affected by respiratory infections like pneumonia[4]. Although most people around the world do clean their hands reasonably with water, very few of them make use of soap to wash their hands. Washing the hands with soap helps removes germs much more effectively [4]. People and communities around the

world celebrate Global Handwashing day, where handwashing lessons and events are held. Handwashing is, in fact, akin to a "do-it-yourself" vaccine. It involves five simple and very effective steps one can take in order to reduce the spread of common illnesses like diarrheal and respiratory ones [2,5]. Regular handwashing, especially and particularly before commencing and after completion of certain activities, is one of the best possible ways to remove the germs, avoid becoming sick, and prevent spread of germs to the others around. It was in view of the importance of this aspect of personal hygiene that the present study was undertaken in a school of northern India.

MATERIALS AND METHODS

The present study was a survey undertaken among school children in the junior wing of a government school in an urban area of north India with the objectives of finding out the prevalent status of personal hygiene among the school children and giving suitable recommendations based on the findings of the study. The study population comprised of all the students studying in class I, II and III, and present during data collection. Each of these classes had further five sections and a total of 246, 220 and 218 children respectively (N=684). The survey was conducted using the GSHS Core Questionnaire Hygiene Module of the Global School-Based Student Health Survey (GSHS) 2013 Core Questionnaire Modules, the final version that was updated in January 2013. This survey was about the health of the students and the things that may affect their health. The school authorities, class teachers and the students were given a brief introduction of the survey, the aim and the method of giving the responses. The parents and the school authorities were informed that the information given by the students will be used to develop better health programs for the youngsters. Informed consent was taken and anonymity of the respondents was maintained. As per the questionnaire, besides the personal particulars, a total of sixteen questions were asked related todrinking water and washing hands. The respondents were briefed about keeping their responses private and that they should base the answers on what they really know or do. They were also told that there was no right or wrong answers to these questions.

Completing the survey was voluntary. However, all the students approached in the classes I, II and III participated in the survey. Since the target population had children in the age group of four to eight years of age, the questionnaires were administered by the investigators, as against self-administered method which is recommended for the older children. All questions were answered by all the respondents. There were no blank responses. Data so collected were analyzed by using suitable statistical tests and with the help of Microsoft Excel 2007 as well as EpiInfo version 3.2.

RESULTS

The total number of students studied in the sample was 684. There were three classes – class I, II and III, each having five sections and a total of 246, 220 and 218 children respectively. The distribution of the children based on their age is as shown in table-1.

Table- 1: Distribution of study population as per their age

Age in years	Number of children	Percentage
≥4 to <5	208	30.41
≥5 to <6	348	50.88
≥6 to <7	116	16.96
≥7 to ≤8	12	1.75
Total	**684**	**100**

Maximum number of children were five to six years of age (50.88%) while there were only twelve children (1.75%) who were seven to eight years of age.

The first question asked to the children was if there was a source of clean water for drinking at school? All (100%) of the study population confirmed that there is a source of clean water for drinking at their school.

Table - 2 shows the distribution of study population as per their response to question 2, that is, during the past 30 days, how did they usually wash their hands before eating?

Table - 2: Distribution of study population as per their response to question 2

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
I did not wash my hands before eating during the past 30 days	0	0	0	0	0
In a dish of water used by others	0	0	0	0	0
In a dish of water used only by me	2 (0.96)	1 (0.29)	0	0	3 (0.44)
Under running water	206 (99.04)	347 (99.71)	116 (100)	12 (100)	681 (99.56)
Some other way	0	0	0	0	0
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

Note: Numbers in parenthesis correspond to the respective percentages.

All the students usually practiced hand washing before eating but the methods were variable.

Table - 3 shows the distribution of study population as per their response to question 3, that is, during the past 30 days, how did they usually wash their hands before eating at school?

Table-3: Distribution of study population as per their response to question 3

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
I did not was my hands before eating during the past 30 days	0	3 (0.86)	54 (46.55)	2 (16.67)	59 (8.63)
In a dish of water used by others	0	0	0	0	0
In a dish of water used only by me	0	0	0	0	0
Under running water	208 (100)	345 (99.14)	62 (53.45)	10 (83.33)	681 (99.56)
Some other way	0	0	0	0	0
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

In contrast to the responses to the first question, all the students did not practice hand washing before eating while they were at school. Almost all children who were four to six years of age practiced hand washing before eating while they were at school. The reason for the latter was that their respective class teachers ensured that they did so.

Table - 4 shows the distribution of study population as per their response to question 4, that is, during the past 30 days, how often did they wash their hands before eating at school?

Table – 4: Distribution of study population as per their response to question 4

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
Never	0	3 (0.86)	2 (1.72)	0	5 (0.73)
Rarely	0	7 (2.01)	6 (5.17)	2 (16.67)	15 (2.19)
Sometimes	2 (0.96)	26 (7.47)	18 (15.52)	2 (16.67)	48 (7.02)
Most of the time	96 (46.15)	294 (84.48)	42 (36.21)	4 (33.33)	436 (63.74)
Always	110 (52.88)	18 (5.17)	48 (41.38)	4 (33.33)	180 (26.32)
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

The frequency of hand washing was variable at all ages, but it was observed that younger the child, more the likelihood of adhering to this practice.

Table - 5 shows the distribution of study population as per their response to question 5, that is, during the past 30 days, how often did they wash their hands after using the toilet or latrines at school?

Table-5: Distribution of study population as per their response to question 5

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
Never	0	0	4 (3.45)	0	4 (0.58)
Rarely	0	0	18 (15.52)	1 (8.33)	19 (2.78)
Sometimes	0	0	26 (22.41)	1 (8.33)	27 (3.95)
Most of the time	0	26 (7.47)	37 (31.90)	2 (16.67)	65 (9.50)
Always	208 (100)	322 (92.53)	31 (26.72)	8 (66.67)	569 (83.19)
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

Since the youngest lot of the children were supervised by their respective class teachers, 100% of them washed their hands after using the toilet or latrines at school. There was a decrease in this practice observed with increase in age.

Table - 6 shows the distribution of study population as per their response to question 6, that is, during the past 30 days, how often did they use soap when washing their hands at school?

Table – 6: Distribution of study population as per their response to question 6

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
I did not wash my hands at school	0	0	0	0	0
Never	0	342 (98.28)	113 (97.41)	6 (50.00)	461 (67.40)
Rarely	0	0	0	0	0
Sometimes	0	0	0	2 (16.67)	2 (0.29)
Most of the time	0	6 (1.72)	3 (2.59)	4 (33.33)	13 (1.90)
Always	208 (100)	0	0	0	208 (30.41)
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

For the same reasons as the previous question, in the youngest lot of the children, 100% of them washed their hands with soap and water after using the toilet or latrines at school. There was a decrease in this practice observed thereafter, with the maximum defaulters being in the age groups ≥5 to <6 (98.28%) and ≥6 to <7 (97.41%). This was most likely due to the lack of supervision by the class teachers as the seniority of the class increased. In the junior most class, it was mandatory for the teacher to supervise this activity, as against the other classes.

The seventh question asked to the children was if there is a place for them to wash their hands after using the toilet or latrine at school? All (100%) of the study population confirmed that there is a place for them to wash their hands after using the toilet or latrine at school.

The eighth question asked to the children was if there is a place for them to wash their hands before eating at school? All (100%) of the study population confirmed that there is a place for them to wash their hands before eating at school.

Table - 7 shows the distribution of study population as per their response to question 9, that is, if they brought water from home to drink while they are at school?

Table – 7: Distribution of study population as per their response to question 9

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
Yes	208 (100)	348 (100)	87 (75.00)	2 (16.67)	645 (94.30)
No	0	0	29 (25.00)	10 (83.33)	39 (5.70)
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

All the children in the youngest lot (100.00%) brought their own water bottles from home. This practice too was found to decrease with increasing age.

Table - 8 shows the distribution of study population as per their response to question 10, that is, how often did they drink water from the water sources at school?

Table – 8: Distribution of study population as per their response to question 10

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
There is no water source at school	0	0	0	0	0
Never	201 (96.63)	42 (12.07)	6 (5.17)	0	249 (36.40)
Rarely	2 (0.96)	18 (5.17)	6 (5.17)	0	26 (3.80)
Sometimes	5 (2.40)	36 (10.34)	53 (45.69)	0	94 (13.74)
Most of the time	0	18 (5.17)	47 (40.52)	0	65 (9.50)
Always	0	234 (67.24)	4 (3.45)	12 (100)	250 (36.55)
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

The youngest children who brought their own water, did not require to consume the same from the school drinking water supply. On the contrary, the oldest of this lot always drank water from the school supplies.

Table - 9 shows the distribution of study population as per their response to question 11, that is, during the past 30 days, how often did they use the toilets or latrines at school?

Table-9: Distribution of study population as per their response to question 11

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
There are no toilets or latrines at school	0	0	0	0	0
Never	0	0	0	0	0
Rarely	0	0	0	0	0
Sometimes	0	2 (0.57)	53 (45.69)	2 (16.67)	57 (8.33)
Most of the time	165 (79.33)	112 (32.18)	43 (37.07)	6 (50.00)	326 (47.66)
Always	43 (20.67)	234 (67.24)	20 (17.24)	4 (33.33)	301 (44.01)
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

Some degree of reluctance was observed in the use of toilets, the reason for which was subsequently found, that is, a general lack of cleanliness of the toilets.

The responses to the subsequent questions were unanimous (100%) for the complete study population. That is, they all responded by saying that at school there are separate toilets or latrines for boys and girls (question - 12); the toilets or latrines safe (question - 13); the toilets or latrines are managed by school authorities (question - 16).

Table - 10 shows the distribution of study population as per their response to question 14, that is, are the toilets or latrines clean at school?

Table-10: Distribution of study population as per their response to question 14

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
There are no toilets or latrines at school	0	0	0	0	0
Yes	22 (10.58)	342 (98.28)	37 (31.90)	0	401 (58.63)
No	186 (89.42)	6 (1.72)	79 (68.10)	12 (100)	283 (41.37)
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

Table - 11 shows the distribution of study population as per their response to question 15, that is, are the toilets or latrines easy to go to at school?

Most of the respondents has easy accessibility to the toilets while the others did not owing to the distance they had to walk from their section to the toilet block.

Most of the children used soap and water always to wash hands. This knowledge was inculcated in them by their parents as well as their teachers and both impressed upon them to put this theory into practice. In fact, within the school premises, soap dispensers were placed next to all the taps used for taking water to wash hands; thereby being all the more instrumental in making this a habit for them.

Table-11: Distribution of study population as per their response to question 15

Response	Age in years				
	≥4 to <5	**≥5 to <6**	**≥6 to <7**	**≥7 to ≤8**	**Total**
There are no toilets or latrines at school	0	0	0	0	0
Yes	208 (100)	304 (87.36)	12 (10.34)	12 (100)	356 (52.05)
No	0	44 (12.64)	104 (89.66)	0	148 (21.64)
Total	**208 (100)**	**348 (100)**	**116 (100)**	**12 (100)**	**684 (100)**

DISCUSSION

It is a well known fact that education concerning the prevailing health related problems and the methods for their prevention and control is one of the first eight activities that are listed as essential in primary health care [6]. In a study conducted in West Bengal, the KAP status of the students was assessed. Results indicated that the knowledge of the student about health, attitude towards personal hygiene and the practice of it improved significantly with good education. In another study, school children were examined for their nails, teeth and scalp hairs. This was related to personal hygiene and the relevant infective conditions from the two sets of villages, that is, one set in which primary school teacher was also working as a primary health care worker (Group I) and the second set

where the Community Health Volunteer (CHV) was instrumental in delivering primary health care (Group II) [7]. The objective of the study was to evaluate the efficiency of role of school teachers as compared to that of the CHVs' in imparting relevant health education to the school children. The results indicated that the teacher better education on this matter too, as compared to the CHV [7]. The importance of school health and the role of teachers has been highlighted in another study conducted in Calcutta [8]. School health services have had the tendency to focus on nutritional support as well as clinical assessment. These inputs are necessary but so also is the need to assess the state of the personal hygiene, which directly or indirectly, is related to the aforementioned factors. Similarly, provision of safe drinking water at school is also imperative. This is especially true for a developing country like India. The teacher is considered to be the guardian of the child while in school and plays a pivotal role where the process of primordial prevention is concerned. The consequences of poor personal hygiene become obvious in the form of diarrhea, typhoid, dysentery, gastroenteritis and intestinal worms etc. Due to this morbidity, the affected children are at risk of detrimental effects, for example, poor physical growth and cognitive performance. Majority of these diseases are preventable by the promotion of hygienic practices at school and at home, among school children through proper health education. In the study conducted in Calcutta, the girls had better hand washing practices than the boys before eating at home (70.4% *vs*. 56.3%), as well as at school (92.6% *vs*. 79.6%), while a total of 70% children had good oral hygiene [8]. Clearly, the findings of the present study were better. May be, besides a good sample size, the difference in place of study was an important factor, because the present study was conducted in a rural area of north India, where people have a comparatively better standard of living. In another study conducted in a rural area (N=350), all the children adhered to the good habit of washing their hands after using the toilet or latrine, always, or at least most of the times; and also most of the children used soap and water always to wash hand [9].

CONCLUSION

Good habits are better inculcated during the formative years of life. The time of introduction and reinforcement of good habits is very important in the life of a child. Parents and teachers have a very important role to play in the growth and development of children. They have a tremendous impact on these impressionable minds. The present study revealed a good standard of hygiene amongst the study population. However, steps are required to be taken so as to improve the status of personal hygiene of all the school children, who are found lacking in this aspect, through various coordinated primordial as well as primary preventive measures like imparting health education. The researchers conducted an IEC activity to impart health education to these students and also the teachers of the school, subsequent to the study. Simple and cost effective measures like safe drinking water, improvement of personal hygiene as well as following safe and hygienic practices by children will definitely go a long way in effectively reducing morbidities. This will, in turn, help to break the vicious cycle infection and malnutrition prevalent in our country as well as other similar developing countries.

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