Internship Training

At

International Institute of Health Management Research

New Delhi

On

AN INTERVENTION STUDY ON PERSONAL HYGIENE HABITS AND SANITATION PRACTICES AMONG STUDENTS OF AN URBAN PRIMARY GOVERNMENT SCHOOL OF DELHI

By

Dr. Raashi Gaur

PG/16/039

Under the guidance of

Dr. Sanjiv Kumar (Director, IIHMR)

Post Graduate Diploma in Hospital and Health Management

2016-2018

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This certificate is awarded to

Dr. Raashi Gaur

In recognition of having successfully completed her Internship in

International Institute of Health Management Research

New Delhi

And has successfully completed her project on

An intervention study on personal hygiene habits and sanitation practices among students of an urban primary Government school of Delhi

10th May 2018

International Institute of Health Management Research, New Delhi

She comes across as a committed, sincere and diligent person who has a strong drive and zeal for learning.

We wish her all the best for future endeavours

Dr. Sanjiv Kumar
Director
IIHMR, Delhi.

Dr. SN Sarbhadhikari
Dean, Academics and Stdent Affairs
IIHMR Delhi

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Dr. Raashi Gaur student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at International Institute of Health Management Research, New Delhi from February 2018 to April 2018.

The candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The internship is in fulfilment of the course requirements.

I wish her all success in all his future endeavours.

Dr. Sanjiv Kumar	Dr SN Sarbhadhikari
Director	Dean (Academics and student affair)
IIHMR Delhi	IIHMR Delhi

CERTIFICATE OF APPROVAL

The following dissertation titled "**An intervention study on personal hygiene habits and sanitation practices among students of an urban primary Government school of Delhi**" at "**International Institute of Health Management Research, New Delhi**" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name Signature

ABSTRACT

An intervention study on personal hygiene habits and sanitation practices among students of an urban primary Government school of Delhi.

Background: As per USAID report 2018, almost 60 percent of population in India lives in urban areas. The urban population is increasing rapidly, making it difficult for water and sanitation services. The personal hygiene is affected by lack of facilities, quality education, low socio economic status and lack of skills. The sanitation practices are affected with similar factors in addition to non-availability suitable infrastructure. School being a stepping stone, it is prudent to assess the situation for inculcating acceptable health behaviour throughout the life of person. The study is an attempt for holistic mapping of prevailing health situation in terms of hygiene and sanitation in urban primary school.

Objectives of the study:

General Objective: To assess the personal hygiene habits and sanitation practices of students of an urban primary Government school of Delhi and to design and implement an intervention based on the above results.

Specific Objectives:

1. To assess the personal hygiene habits and sanitation practices of students of an urban primary school of Delhi.
2. To design an intervention for behaviour change among the students using baseline data.
3. To see the effect of intervention on the students.

Methodology: The study was planned to be carried out in two phases. The first phase for baseline data collection and second phase for intervention and end line data collection. Municipal Corporation Primary School, Sector 16G was selected as the study area. Students from grade three to grade five (total 280) were included in the study, 0f which only 190 responded. The inclusion criteria was all the students present on the day of data collection. A close ended structured questionnaire was designed based on the guidelines of the international organizations. It was divided into three sections (demography, personal hygiene habits and sanitation) with total thirty one questions. The students were asked to tick the response most appropriate to them. Based on the analysis of the responses, critical areas were identified, which formed the base of the intervention. After intervention, phase two of data collection was done using the same questionnaire. The responses were then analysed and compared using simple frequencies and statistical tests.

Results of the study: Upon analysing the indicators of personal hygiene in phase one, head lice (2.89), frequency of brushing (4.18) and use of polybag/plastic for eating food (3.73) were identified as weak areas. Similarly, for sanitation, source (4.78), storage (5.42) and handling (3.1) of drinking water were found to be the main areas of concern. Post intervention, significant improvement in the above scores was observed.

Key Words: Hand wash, personal hygiene habits, sanitation practices, waste disposal.

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Dr. Raashi Gaur

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SYMBOLS AND ABBREVIATIONS

ABBREVIATION	FULL FORM
ARI	Acute Respiratory Infection
DPEP	District Primary Education Program
DGHS	Directorate General Health Services
GOI	Government of India
IIHMR	International Institute of Health Management and Research
IEC	Information Education and Communication
MDM	Mid-day Meal
MC	Municipal Corporation
MCD	Municipal Corporation of Delhi
SD	Standard Deviation
SPSS	Statistical Package for Social Sciences
SHS	School Health Scheme
SSHE	School Sanitation and Health Education
TSC	Total Sanitation Campaign
UNICEF	United Nations International Children's Fund
UNJPC	United Joint Program on Convergence
WASH	Water Sanitation and Hygiene
WHO	World Health Organization

ANNEXURES

CHAPTER 1: INTRODUCTION

Hygiene, the science, art and practice of presenting one's health through acts of cleanliness is very important for everyone. Basic personal hygiene refers to maintaining cleanliness and grooming of external body. It includes practices like bathing, washing hands, trimming of nails, wearing washed clothes, washing hair, keeping them clean from lice and dandruff, brushing teeth and caring for gums. Another important aspect is sanitation, which generally refers to the provision of facilities and services for the safe disposal of human urine and faeces. Inadequate sanitation is a major cause of disease world-wide Improving personal hygiene habits and sanitation practices is known to have a significant beneficial impact on health of both individual and communities.

In developing countries almost 80 percent of the diseases are associated with poor domestic sanitation and improper personal hygiene. Inadequate drinking water, sanitation and hygiene (WASH) remains a leading cause of death. Children are the worst hit to the neglect of this basic personnel hygiene. WHO states that globally around 1.7 billion cases of diarrhoeal diseases occur every year killing around 7.6 lakhs of under-five children. Studies show that due to unsafe water, inadequate sanitation and lack of hygiene, each year children lose around 272 million school days due to diarrhoea, with one in three school aged child being infested with intestinal worms.

In India, only 59 percent of urban and 22 percent of rural households have access to improved water and sanitation facilities. Despite of various efforts and schemes by government, there has been no improvement in the status of the community regarding WASH awareness.

School is the place where children get a platform to learn and imbibe new things, knowledge and good practices. Health education regarding important aspects of hygiene, environment and sanitation, as well as social customs is being imparted at this level only. Health is a key factor

in school entry, as well as continued participation and attainment in school. The teacher is the guardian of the child in school and plays a pivotal role in the whole process of overall development of the child. The importance of school health has been acknowledged across countries since the beginning of 20th century and school health services have focussed themselves on nutritional support and clinical assessment. These inputs are absolutely necessary, but so is the need to assess the state of personal hygiene, which is directly or indirectly related to the above-mentioned factors, especially in a developing country like India. In year 2004, the government of India started a Total Sanitation Campaign (TSC) to ensure School Sanitation and Hygiene Education (SSHE) which emphasizes skill based child to child hygiene education for behaviour change among school going children. Since they spend considerable amount of time in school where they are groomed properly, so before deciding quality, content and periodicity of such desired inputs, it is prudent to assess the prevailing personal hygiene habits and sanitation practices of these students for impartial assessment of areas which need more emphasis for improvement. Bearing in mind that school children have been consistently implicated in the spread of communicable diseases and that the school has been recognized as a vital setting for health promotion, this study was planned to assess personal hygiene habits and sanitation practices among government school children in Delhi and based on that assessment design an education based intervention for students. Also, the aim was to see the effect of this intervention on the behaviour change of students.

CHAPTER 2: LITERATURE REVIEW

WASH is a collective term used for Water, Sanitation and Hygiene. Due to their interdependent nature, these three core issues are grouped together to represent a growing area. While each is a separate field of work, each is dependent on the presence of the other. For example, without toilets, water sources become contaminated; without clean water, basic hygiene practices are not possible and without basic hygiene practices health cannot be improved.

Water is essential for the survival and development of human life. Without water, we including children simply cannot stay alive or thrive in a healthy environment. Providing safe drinking water to people not only helps in improvement of basic health but also strengths economic growth and environmental sustainability. But still there are around 2.1 billion people who do not have access to safe drinking water.

Picture 1: UNICEF Statistics on safe drinking water

Sanitation is an essential component for survival and development of community. Currently, there are 2.5 billion people worldwide who do not use improved sanitation facility (a facility that breaks the contact between waste and humans). Around 946 million people still go in the open, known as “open defecation”. While progress has been made to improve access to

sanitation in some parts of the world, millions of people in poor and rural areas have been left behind. The worst hit to this lack of sanitation are children. Every day around 1800 under five children die from diarrhoeal diseases caused by lack of hygiene, sanitation and safe drinking water. Around one third of world's population has intestinal worms.

Picture 2: UNICEF Statistics on use of toilets in India

Something as simple and basic as handwashing can save a million lives if considered and practiced regularly. Washing hands with soap at critical times, like after going to the toilet or before eating, can have a significant impact on a child's health. With the availability of resources, only half (51%) of people practice handwashing as a regular habit. If practices in a regular and proper way, handwashing alone can lead to 54% reduction in absenteeism from school and 44% less morbidity due to diarrhoea. Research shows that regular handwashing with soap can reduce the number of incidents of diarrhoea, a disease which can be deadly for children, by around 50 percent.

Picture 3: UNICEF Statistics on handwashing in India

Good hygiene practices reduce the incidence of many diseases such as pneumonia, trachoma, scabies, skin and eye infections and diarrhoea-related diseases like cholera and dysentery. Some of the key facts regarding WASH are stated below:

- 663 million people still do not have access to clean drinking water, despite the Millennium Development Goal target for clean water being met in 2010.
- Every 8 out of 10 people in rural areas do not have clean water for drinking.
- 159 million people use untreated water from lakes, rivers or from unsafe water bodies for daily use.
- 1 in 3 people refrain from using improved sanitation.
- 1 in 7 people still practice open defecation.
- 5 countries i.e. India, Indonesia, Nigeria, Ethiopia, Pakistan alone account for 75% of open defecation.

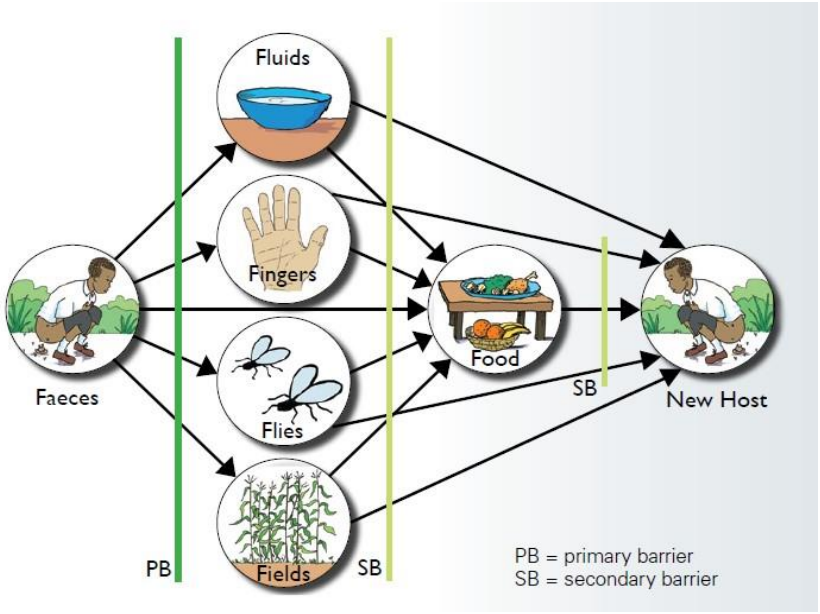
Poor sanitation, unsafe water and unhygienic practices cause millions of children in the developing areas to suffer needlessly from preventable communicable diseases. Water and sanitation related disease, despite being preventable, remains one of the most significant child health problems worldwide. Diarrhoea is the most serious of all, killing 1,600 children each

day. More than half of diarrhoeal disease deaths are attributed to unsafe drinking water, inadequate sanitation and poor hygiene. Children in developing countries typically have four to five bouts of diarrhoea every year. Even when diarrhoea doesn't kill, it can physically and mentally stunt children, affecting them for the rest of their lives. Because of weakness, diarrhoea increases mortality rates from other opportunistic infections like ARI (acute respiratory infections). ARI and diarrhoea together account for two-thirds of all child deaths worldwide. Millions of children are made sick, weakened or are disabled by other water and sanitation related diseases and infections. In growing number of countries, natural or man-made pollution of water resources with dangerous contaminants threatens the health of millions of people.

As per Anderson and Arnstein, the following factors are necessary to transmit the disease:

- A causative or etiological agent.
- A reservoir or source of infection of the causative agent.
- A mode of escape from the reservoir.
- A mode of transmission from the reservoir to the potential new hosts
- A mode of entry into the new host.
- A susceptible host

The following diagram shows importance of Proper Handwashing and Improved Sanitation to stop the chain of transmission.



Picture 4: Faecal oral transmission of germs and how to break the transmission route

Reforms in education sector were first introduced by GOI in 1994 in the form of District Primary Education Programme (DPEP) with sufficient focus on water and sanitation. The school sanitation and health education programme (SSHE) launched aims to promote sanitation and hygiene in schools to bring about a behavioural change that will have a lasting effect on the life of the students. It also seeks to enable children to realize their right to a healthy and safe environment. The strategy is to involve child as a change agent to spread the hygiene and sanitation practices through a proven cycle of Teacher-Children-Family-Community and to put greater emphasis on attitude and behavioural change through hygiene education using life skill approach.

Research shows that the provision of water, sanitation and hygiene system in school results in a number of benefits for children like increase in attendance in primary schools, enhanced participation and better performance. Findings of an assessment conducted in 540 primary schools in nine states Mid-Day Meal (MDM) program revealed that:

- Only half (51%) of the schools have a designated handwashing space and usage of that space was seen only in 44% schools.
- Only one in ten school approximately 12% had soap/detergent available for handwashing.
- 49% of the students washed their hands using only water. Two out of five (42%) students used soaps /detergents. (Source: Hygiene Practices in Schools during mid-day meals, UNICEF-India Study 2009).
- Survey conducted in 392 schools in seven states in India reveals that nearly one third (32%) of the children wash hands with soap before eating. (Source: PAHELI Survey by Pratham under United Joint Program on Convergence (UNJPC) 2012.

School Health System implemented by DGHS, Department of Health & Family Welfare, Government of NCT of Delhi, is an ongoing scheme and an integral part of general health services for school children. There are 64 School Health Service teams (SHS) functioning in about 12 districts, catering around 16 lakh students. Each team is allotted a cluster of 10-15 schools in the area where they provide comprehensive health services like promotion of positive health (Health Education), which is one of the main objectives of this program.

In 2007, UNICEF launched WASH program to promote hand washing and sanitation practices in low and middle income countries and declared October 15 as Global Hand Washing Day. A study conducted on knowledge and practice on hygiene habits in Mumbai in 2016 indicated that 59.4% primary school students wash their hands before eating food whereas 76% students claimed washing of hands after visiting toilet. 61% students were found trimming their nails regularly. A study conducted on assessment of handwashing practices and associated factors in primary school children in Ethiopia in 2015 brought out that only 22% children follow proper hygiene practices while knowledge was spread across 72% students. A review article on impact

of WASH interventions on improving health outcomes among school children suggested that further research is required to access the long term impact of interventions in different settings. A cross sectional study done in North Chennai on Hygiene status of students in 2016 stated that 2.8 %students brush daily,91.6% use soap to wash hands after using toilets.79.2% have daily bath and 11.2% trims the nails once in aweek.48.8 had experienced head lice in their life at least once.

With above literature review in mind, this study was planned to gain insight about the current personal hygiene habits and sanitation practices, design an intervention and see its effect on the behaviour change among students.

OBJECTIVES OF THE STUDY:

General Objective: To assess the personal hygiene habits and sanitation practices of students of an urban primary Government school of Delhi and design and implement an intervention based on the above results to see an effect on the behaviour change among students.

Specific Objectives:

- To assess the personal hygiene habits and sanitation practices of students of an urban primary Government school of Delhi.
- To design an intervention based on the data obtained.
- To see the percentage increase in the responses before and after intervention.

CHAPTER 3: METHODOLOGY

1. **STUDY AREA**: The study was carried out in an Urban MC Primary school of North West district of Delhi. Located in the Rohini zone, the school was established in the year 1998. At present the school has around 500 students and 16 teachers as staff. The areas around the school has population from varying backgrounds, classes and communities. There are slums (Shahbad dairy, Daulatpur, Samaypur Badli, Sector 26, MCD slum colony) which are within the reach of the school. As the students studying in this school come from low socio-economic families (majority are slum dwellers), school thus gave an excellent opportunity to study personal hygiene habits and sanitation practices of children from this background assuming their vulnerability to diseases.

Picture 5: District-wise map of Delhi

Picture 6: School Entrance (study area)

2. **STUDY PERIOD**: The study was carried out in three phases during November 2017-February 2018. The first phase of the study was carried out in November 2017-December 2017 during which the baseline data was collected. After collecting baseline data, analysis was done out to find out the areas of concern. Once the areas of concern were marked, intervention was designed. The second phase of the study i.e. Intervention phase was carried out during January 2018. The third and the last phase of collecting end line data after delivering the intervention was done in February 2018.

Figure 1: Phases of the study

3. **STUDY DESIGN**: This pre and post intervention study involving quantitative method was designed to assess the current personal hygiene habits that the students follow and sanitation practices that they observe at home to establish a base for intervention and to analyse the impact of intervention on them.
4. **STUDY POPULATION**: During the planning phase of the study, it was decided that students from nursery to grade five will be a part of target population but during the pre-testing phase and after discussion with the staff members, it was found out that students from grade three to grade five were able to comprehend and respond better to the questions than the other students. So it was decided to include grade three to grade five students only.

Picture 7: Grade 4 students posing for a picture during interaction

5. **INCLUSION AND EXCLUSION CRITERIA**: The students present on the day of the study and willingly gave consent were included in the study. All those who wanted to quit at any point of the study were allowed to do so without any restrictions. Those who were non responsive, did not have parent's consent, were absent and not willing to participate were excluded from the study.
6. **SAMPLE SIZE**: Initially all the 509 students from nursey to grade five were planned to be included in the study. After pre testing of the instrument and discussion with the

teachers, it was found out that grade three to grade five were able to perform better. So total 190 students from grade three to grade five were considered for the study.

Table 3.5: Number of students who participated in the study (grade wise)

S.No	GRADE	PHASE 1	PHASE 2
1	Grade 3A	15	27
2	Grade 3B	12	19
3	Grade 3C	15	26
4	Grade 4A	27	13
5	Grade 4B	28	22
6	Grade 4C	23	27
7	Grade 5A	31	20
8	Grade 5B	32	29

On the day of phase 1 of data collection, all the 190 students present gave consent and voluntarily participated in the study. The response rate for phase 1 came out to be:

$$\frac{190}{190} \times 100 = 100\%$$

The reason for low attendance (190/280) can be attributed to the winter season and the school break which was due to start from 24th December 2017. On the day of the end line data collection, 200 students participated in the study. The response rate again came out to be:

$$\frac{200}{200} \times 100 = 100\%$$

The end line data was collected after the intervention phase. The intervention was conducted after the students had returned from their winter break. The number of absentees

was still high due to extended holidays by students. The migrant students travel to their native place during vacations and then return after an extended break.

7. **INSTRUMENT DESIGN**: A questionnaire was designed based on the sample questionnaires used in different studies during literature research and by talking to the teachers and taking their view. The questionnaire was divided into three parts:
    a. Part 1: Demographic Information: The information on age, gender, parent's education, parent's occupation and monthly income of the family was incorporated in this part. The responses obtained were verified using the school records available with the class teacher. For demographic information Kuppuswamy scale was used for assessment.
    b. Part 2: Personal hygiene habits: Twenty questions for assessment of Personal hygiene were included in this section.
    c. Part 3: Sanitation practices: Total of eleven questions were included in this third section for assessment of sanitation practices that students observe at home.
8. **PRE-TESTING**: Before starting the study, pre testing of the questionnaire was done. It was first drawn in English, translated to Hindi (local language) and then back translated to English. The principle and the staff members of the school were contacted and explained about the pre testing. One student per class and five students per grade were selected for the pre testing of the questionnaire. The selection of the student was done by the class teacher based on her judgement. The questionnaire was then explained to the students and they were asked to tick the response most appropriate to the practice they follow. Analysis of the responses was done and necessary changes were incorporated.
9. **PERMISSION**: A written permission was obtained from Assistant Director Education, North Delhi Municipal Corporation prior to the start of the study. A written consent to

conduct the study, take pictures and use them in the report was also obtained from the school principal and other staff members. Students were informed and permission was taken before clicking pictures. Since the study population were students below the age of 18 years, an informed consent letter was designed in the local language and distributed among students to get it signed by the parents. All the necessary information regarding the study was included in the letter. An assent section was also incorporated in the questionnaire to seek permission and voluntary participation from students.

Picture 8: Staff members along with Principal of the school

10. **ANALYSIS PLAN**: All the responses were checked, coded and entered in SPSS (Statistical Package for the Social Sciences) version 16. Of all the options given for a single question, the ideal response was marked as expected/correct response whereas other options were clubbed into the incorrect/unexpected response category. For every correct/expected response a score of 1 was given and for every incorrect/unexpected response score 0 was given. Based on this scale, simple frequencies for all the questions were calculated and percentages were derived from it. The formula for calculating the percentage is as below:

$$\frac{Expected\ Response}{Total\ Respondants} \times 100$$

11. **ETHICAL CONSIDERATION**: Each and every participant was adequately informed about the purpose, benefit and risks of the study and their right to discontinue or refuse to participate in the study. A consent letter was designed for the parents. The total description about the study, its use and importance in child's life was well explained in that consent letter. The students were asked to get the letter signed/thumb impression from the parents. The school teachers were thoroughly informed about the study, its benefit to the child and separate permission was taken from them. Also, an assent section was incorporated in the questionnaire to seek permission from the students.

Picture 9: Interaction with the students for study

12. **DESIGNING INTERVENTION:** After obtaining the results of the pre intervention phase, percentages were calculated. Based on these percentages, the current personal hygiene habits that the students follow and the sanitation practices that they observe at home were analysed. The nine key areas for both personal hygiene habits and sanitation practices were taken as the base while planning the content of the intervention.

The planning for the intervention started by keeping in mind the age of the students, their socio-economic status, their grasping power and the environment of the school. The school principal and teachers were approached to find out the education provided by them and the medium with which the education is given. It was found out that the awareness regarding the personal hygiene habits and sanitation is provided on daily basis during morning assembly and from time to time basis during regular classes. There are certain areas in school that have wall paintings regarding handwashing after using toilets, keeping surroundings clean, and throwing garbage in the dustbin. Teachers during regular classes give lectures on handwashing, keeping ourselves clean, wearing clean clothes, using toilet for defecation and eating washed fruits and vegetables. Though there is an active effort from the sides of the government in the form of provision of regular health check-ups for the students, referral to hospital for treatment, provision of iron folic acid and albendazole under deworming program, but a lack in preventive and promotive part is seen. The gap between this promotive and curative part has to be covered with a bridge of communication using different media, which helps in better understanding, better grasping, learning and lifelong inculcation in the students.

The aim of designing the intervention was to bring about a noticeable change in the current habits and practices of the students so that they imbibe it as a lifelong lesson and be the change agents for the communities.

Intensive internet research was started on the above mentioned nine variables. It was initially thought that lectures would be given but keeping in mind the children, a mix of videos, charts, flipbooks, posters, poems and lectures were decided upon. The core areas focussed under above nine areas are as below:

1. Handwashing habits: Primary focus was given on the topics like importance of handwashing before meals, after using toilet and after playing outdoors. Next was to

make students understand the importance of using soap for washing hands and the five steps of hand washing.

2. Eating habits: Under this section, the students were taught about the harmful effects of eating food with hands and how spoon is a correct way to eat food. Also, the focus was to make them aware that eating food in polybag/plastic container is harmful for the health.
3. Brushing habits: In brushing habits, the focus was to make students aware about the importance of brushing twice daily. They were made to understand that brushing at night and cleaning tongue along with it is also important. The steps of cleaning the teeth were also demonstrated to the students via lectures and hand movements.
4. Bathing habits: Students were told about benefits of taking bath daily. They were told about bad smell, sweat and body odour and how it is harmful for the health.
5. Dressing habits: The students were given information regarding proper dressing habits, in which to change after changing uniform, how frequently same clothes/uniform can be repeated, how frequently clothes should be washed.
6. Nail and hair care: The students were given information on when to trim nails, how to trim, what are the signs of bad nail hygiene and how dirty nails can affect the health in a negative way.
7. Cleanliness: The students were taught about cleanliness around the place they live, surrounding areas near school and home. And how unclean surroundings lead to unhygienic conditions and a cycle of infections among the households.
8. Waste Management: In this section, information of waste disposal, use of dustbin, frequency of cleaning of dustbin was given to the students.

9. Food and water storage: Topics like source of water, storage of water and handling of water were covered in water storage, whereas storing cooked food in a hygienic conditions with proper lid on was taught in food storage.

TYPES OF INTERVENTION DESIGNED: The intervention given to the students consisted of mix of all the options available. There were charts, posters, videos, lectures, discussions, role plays were used as tools for intervention.

1. Posters: The posters were shown on topics such as handwashing steps, safe drinking water, good personal hygiene habits, handwashing with soap, cleanliness around the house, use of dustbin for throwing garbage, use of toilet for defecation and cleaning teeth.
2. Videos:
    a. "aakad-bakkad bambe bo" for handwashing before meals and using toilets.
    b. "Good manners" for maintaining healthy lifestyle.
    c. "Swacchta and Khushhaali" for handwashing habits.
    d. "Swachh poshtik khaana" for hygienic food.
3. Lectures: Lecture was given on brushing habits, placing of brush and movements during brushing.

For posters, all the posters by UNICEF available for their IEC use were downloaded. These posters are available in public domain for the use. No permission were taken from UNICEF.

For videos, YouTube and internet was searched thoroughly. Videos from WaterAid India were downloaded. A mail was dropped after having a word with them telephonically. Later it was replied by them that the videos did not belong to them, so again they were used as they were available in public domain.

For brushing habits, a simple lecture was given to them with the help of posters to make them understand the correct position of placing the brush on the surface of the tooth.

CARRYING OUT THE INTERVENTION: On the day and date decided for the intervention, all the students from third, fourth and fifth standard were called and made to assemble in the library. A mini screen, system and speakers were installed in that room. The principal and teachers were informed about the content, the way of delivering the message and the total time required for the intervention. During the interaction, students were exposed to a mix of pictures, posters and videos. Healthy discussions were carried out time to time in between so as to understand whether the students are able to imbibe things or not. The students appeared to be very happy, receptive and responsive to the session.

At the end of the session, as a token of thanks, sweets were distributed among the students. The principal and teachers were informed about the ending of the session. Charts and posters used during the session were donated to the school for further use.

CHAPTER 4: RESULTS

4.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

A total of 190 students were invited and all of them participated in the study making a hundred percent response rate. One hundred and five boys (**55.3%**) and eighty four girls (**44.2%**) participated in the study. Most of them (**101, 53.2%**) were found to be in the age range of 8-10 years with mean age of 10 years (SD= 1.295). Regarding the grade wise participation, maximum participation from fourth grade students was seen (**81, 42.63%**) in comparison to third grade (**44, 23.15%**) and fifth grade (**65, 34.21%**) students. One hundred forty three students (**75.3%**) were from lower or upper lower socio-economic strata. Regarding the family educational status, **52** (**27.4%**) and **24** (**12.6%**) of the participant's mothers and fathers were uneducated. Most of the families (**143, 75.3%**) had their monthly income in the bracket of 1866-5546 rupees.

Table 4.1: Socio-demographic profile of the respondents

S.No	DEMOGRAPHIC VARIABLES	NUMBER (N=190)	PERCENTAGE
1	**GENDER OF RESPONDENT**		
	• Male	105	55.3%
	• Female	84	44.2%
2	**AGE OF RESPONDENT**		
	• Less than 8 years	17	8.9%
	• 8-10 years	101	53.2%
	• More than 10 years	54	28.4%
3	**PARENT'S EDUCATION**	**MOTHER**	**FATHER**
	• Illiterate	52 (27.4%)	24 (12.6%)
	• Primary Education	70(36.8%)	54(28.4%)
	• Up to high School	51(26.8%)	72(37.9%)
	• High school and above	13(6.8%)	18(9.5%)
4	**PARENT'S OCCUPATION**	**MOTHER**	**FATHER**
	• Unemployed	27 (14.2%)	00 (0%)
	• Unskilled	113(59%)	2(1.1%)
	• Semi-skilled	20(10.5%)	23(12.1%)
	• Skilled and above	26(13.7%)	157(82.6%)
5	**MONTHLY INCOME**		
	• >/=36997	1	0.5%
	• 18498-36996	0	0%
	• 13874-18497	2	1.1%
	• 9249-13873	8	4.2%
	• 5547-9248	69	36.3%
	• 1866-5546	108	56.8%
	• </=1865	1	0.5%
6	**SOCIO-ECONOMIC STATUS**		
	• Lower Class	16	8.4%

	• Lower/Upper Class	143	75.3%
	• Middle/Lower Middle	27	14.2%
	• Upper Middle	3	1.6%
	• Upper Class	0	0%

4.2 PERSONAL HYGIENE HABITS

For the assessment of current personal hygiene habits that the students follow, twenty questions were included in the questionnaire. The questions covered various aspects of personal hygiene habits like hand washing, eating with spoon, bathing daily, brushing regularly, changing into clean clothes after school and keeping finger/toe nails trimmed. The table below shows the questions asked related to the areas identified above.

Table 4.2: Questions included in personal hygiene habits section

S.NO	QUESTION
1	Do you wash hands before having meal?
2	How do you wash hands before having meal?
3	Do you wash hands after having meal?
4	How do you dry your hands after washing?
5	Do you wash your hands after using toilet?
6	How do you wash hands after using toilet?
7	How do you eat food in school?
8	When do you clean your lunch box?
9	Which type of lunch box do you use for eating lunch?
10	How many times a day do you clean your teeth?
11	How do you clean your teeth?
12	Do you also clean your tongue?
13	Do you take bath daily?
14	How do you take bath daily?
15	Do you wash your hands and feet after returning home from school?
16	Do you change your uniform after going home?
17	In which clothes do you change your uniform after going home?
18	When do you trim your nails?
19	Do you clean your ears with towel after bath every day?
20	Do you have head lice?

4.3. QUESTION WISE ASSESSMENT OF THE PERSONAL HYGIENE HABITS

To find out the current practices of the students, responses obtained were analysed on the basis of 0 and 1. For every correct response a score of 1 was given whereas for every incorrect response, a score of 0 was given. The total correct response for a question was then converted to percentage.

4.3.1. HAND WASHING BEFORE AND AFTER MEALS

Table 4.3.1 Handwashing habits before and after meals

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
1	Do you wash your hands before having meals?				
	Yes	118	84.9	193	96.5
	No	21	15.1	07	3.5
3	Do you wash your hands after having meals?				
	Yes	120	86.3	190	95.0
	No	19	13.6	10	5.0
2	How do you wash your hands?				
	Only Water	25	18.0	12	6.0
	Water and Soap	114	82.0	185	92.6

Picture 10: Students washing hands at centralized facility at school

Picture 11: Students using hand wash for washing hands at centralized facility

When the response for the frequency of hand washing habits (before and after having meals) were analysed in pre and post intervention phases, an increase of around 11% percent was seen in percentage of students washing hands before having meals, whereas an increase of around 9% was seen in those washing hands after having meals. Around 10% increase was seen in students who started using soap and water for washing their hands. This increase can be attributed to charts, posters and videos shown to students during intervention phase

4.3.2 WIPING/ DRYING HANDS AFTER WASHING

Table 4.3.2: Wiping/drying hands after washing

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
4	How do wipe or dry your hands after washing?				
	Handkerchief	131	94.2	188	94.2
	Uniform/Bag/Others	08	5.7	12	5.8

The habit of using handkerchief to dry/wipe their hands after washing hands was seen in 94.2% respondents. The response remained same in both pre and post intervention phase. The students were taught the correct method of wiping their hands and how even after washing hands can become contaminated again.

4.3.3 HAND WASHING AFTER USING TOILET

Table 4.3.3: Hand washing after using toilet

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
5	Do you wash your hands after using toilet?				
	Yes	134	96.4	192	96.0
	No	05	3.5	08	4.0
6	How do you wash your hands after using toilet?				
	Only water	26	18.7	06	3.0
	Water and Soap	109	78.4	189	94.5

After assessing the handwashing habits of the students before and after meals, the habit was assessed after using toilet. Not much increase in the percentage of students washing hands after using toilet in pre and post intervention was seen. The results obtained were 96.4% and 965 respectively. A huge increase from 78.4% to 94.5% was seen among students using water and soap for washing hands in post intervention phase.

4.3.4. EATING WITH THE HELP OF SPOON

Table 4.3.4: Eating with the help of spoon

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
7	How do you eat your lunch in school?				
	Spoon	107	77.0	185	92.5
	Hands	08	5.8	05	2.5
	Mixed	23	16.5	05	2.5

Eating with the help of spoon was observed to be 77% during pre-intervention phase. Post intervention it jumped to 92.5%. The students were educated about the ill-effects of eating with the help of hands and how dirty hands can cause the transmission of diseases in our body.

Picture 12: Students using spoon to eat lunch in school

4.3.5. USE AND CLEANING OF LUNCH BOX FOR EATING MID-DAY MEALS

Table 4.3.5: Use and cleaning of lunchbox for eating mid-day meal

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
9	Which type of lunch box do you use for having mid-day meal?				
	Plastic/Polybag	82	59.0	96	48.0
	Steel tiffin	53	18.1	94	47.0
8	Do you clean your lunch box daily?				
	Yes	134	96.4	192	96.0
	No	03	2.1	04	2.0

During the assessment of the habits, students were asked about the type of the lunch box they use for eating the mid-day meal they get at school. Very few 38.1% answered they use steel tiffin box for eating lunch during pre-intervention while other 59% either use plastic box or polybag to eat their lunch. This response was taken into special consideration while designing the intervention. Those using the steel/plastic lunch boxes got their boxes cleaned at home daily (96.4%). In the post intervention phase, when the percentages were calculated again, decrease in percentage of students using polybag/plastic was seen at 48% and those using steel tiffin, the increase in percentage was seen from 18.1% to 47%.

Picture 13: Students eating mid-day meal

4.3.6. BRUSHING AND CLEANING THE TEETH AND TONGUE

Table 4.3.6: Brushing and cleaning the teeth and tongue

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
10	How many times a day do you brush?				
	Once	63	45.3	48	24.0
	Twice	59	42.4	127	63.5
11	How do you clean your teeth?				
	Toothbrush and toothpaste	121	87.1	189	94.5
	Others	17	12.2	05	2.5
12	Do you clean your tongue along with teeth?				
	Yes	112	80.6	166	83.0
	No	27	19.4	10	5.0

Intervention had a positive effect on the percentage of students brushing twice daily. An increase of 21.1% was seen during the analysis of pre and post intervention data. More percentage of students started using toothbrush and toothpaste for cleaning their teeth (87.1% → 94.5%). 83% students started cleaning their tongue as well after intervention.

4.3.7. BATHING DAILY WITH SOAP AND WATER

Table 4.3.7A: Bathing daily with soap and water

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
13	Do you take bath daily with soap?				
	Yes	109	78.4	161	80.5
	No	24	17.2	36	18.0
14	How do you take bath daily?				
	Only water	07	5.0	07	3.5
	Water and soap	130	93.5	186	93.0

Post intervention an increase in percentage of students taking bath daily was observed. The percentage increased from 78.4% to 80.5%. The number of students reporting use of water and soap for bathing decreased by 0.5% and came down to 93%.

Table: 4.3.7B: Washing hands and feet after going back home

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
15	Do you wash your hands and feet after going back home?				
	Yes	111	79.9	188	94.0
	No	08	5.8	08	4.0

79.9% of the students have a habit of washing their hands and feet after going back home from school which increased to 94% post intervention. This was made possible by educating students about the importance of keeping the hands and feet clean therby breaking the transmission of germs.

4.3.8. CHANGING INTO CLEAN CLOTHES

Table 4.3.8: Changing into clean clothes

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
16	Do you change your uniform after going back home?				
	Yes	137	98.6	194	97.0
	No	02	1.4	03	1.5
17	Which clothes do you change in after changing uniform?				
	Morning clothes	16	11.5	20	10.0
	Freshly washed	122	87.8	176	88.0

98.6% students in pre intervention phase said that the first thing that they do after going back home is to change their uniform. This percentage decreased by 1.6% in the post intervention phase and came to 97%. After changing 87.8% of pre intervention phase said that they wear freshly washed clothes whereas 11.5% say that they repeat the previous day's clothes or morning clothes. This figure was 88% and 10% in the post intervention phase.

Picture 14: Students with dirty uniform

Picture 15: Students with clean uniform

4.3.9. TRIMMING OF NAILS AND CLEANING EARS

Table 4.3.9: Trimming of nails and cleaning ears

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
18	How often do you trim your nails?				
	Once a week	101	72.7	149	74.5
	Every two weeks	19	13.7	25	12.5
	Once a month	09	6.6	16	8.0
	Upon seeing dirt	09	6.5	04	2.0
19	Do you clean your ears with towel after having bath?				
	Yes	122	87.8	181	90.5
	No	13	9.3	13	6.5

Trimming nails every week is a habit which was seen in 72.7% respondents during pre-intervention phase, whereas in post intervention the number increased to 74.5%. Others i.e. 13.7% (pre intervention), 12.5% (post intervention) said that they do it every two weeks or when they see dirt in their nails (6.5%) and (2%). 87.8% students responded that they clean their ear with towel for removing wax from their ears during pre-intervention, which increased to 90.5% during post intervention.

Picture 16: Black nails with dirt inside in pre intervention phase

Picture 17: Clean trimmed nails in post intervention phase

4.3.10. NOT HAD HEAD LICE EVEN ONCE

Table 4.3.10: Not had head lice even once

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
20	Do you have head lice?				
	Yes at present	14	10.1	14	7.0
	Had before	62	44.6	72	36.0
	Occurs frequently	27	19.4	15	7.5
	Never had	32	23.0	57	28.5

Students were asked about the presence of head lice. Very few i.e. 23% in pre intervention phase replied that they never had head lice even once till date whereas 28.5% from the post intervention phase said the same. For some 19.4% in pre intervention phase and 7.5% in post intervention phase, it was a common usual phenomenon, while majority 44.6% and 36% said that they had it at one point of time but don't have now. Only 10.1% and 7% said that they currently have head lice.

4.4 SANITATION PRACTICES

For the assessment of the sanitation practices that the students are aware of and see at home regularly, eleven questions were framed based on the indicators of sanitation found during literature review.

Table 4.4: Sanitation Practices

QUES NO	QUESTIONS
21	Do you have garbage around your house?
22	Type of waste present around the house?
23	Do you have dustbin in your house?
24	What do you do with garbage after cleaning your house?
25	How often do you clean your dustbin?
26	What kind of toilet do you use?
27	From where do you get drinking water?
28	Which type of vessel do you use at home for storing water?
29	Do you cover water vessel with a lid?
30	How do you take out water for drinking from the vessel?
31	How do you store leftover food at home?

4.5 QUESTION WISE ASSESSMENT OF THE SANITATION PRACTICES

For question wise assessment of the sanitation practices, the responses were analysed on the scale of 0 and 1. For every correct response, a score of 1 was given and for every incorrect response a score of 0 was given. When the frequencies were calculated, all the responses were totalled up and the same was converted to percentage for further analysis.

4.6.1 PRESENCE OF GARBAGE AROUND HOUSE

Table 4.6.1: Presence of garbage around house

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
21	Do you have garbage around your house?				
	Yes	71	51.1	95	47.5
	No	62	44.6	102	51.0
22	What type of garbage is present around your house?				
	Human waste	76	54.7	67	33.5
	Animal waste	25	18.0	44	22.0
	Household waste	13	9.4	31	15.5
	Clogged water/waste	19	13.7	42	21.0

During pre-intervention phase, 51.1% students responded having garbage around their house. This figure got reduced to 47.5% during the post intervention phase, the reason for which is unknown. Majority of them from the pre intervention phase (54.7%) reported animal waste as the main type of waste present around their house, whereas in post intervention phase the figure reduced to 33.5% only.

4.6.2 USE OF DUSTBIN AT HOME

Table 4.6.2A: Use of dustbin at home

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
23	Do you have dustbin in your house?				
	Yes	120	86.3	182	91.0
	No	16	11.6	16	8.0
25	How often do you clean your dustbin?				
	Once daily	84	60.4	122	61.0
	Alternate day	16	11.5	11	5.5
	Once a week	24	17.3	52	26.0
	Twice a week	12	8.6	10	5.0

86.3% students from pre intervention phase and 91% from post intervention phase responded having dustbin at their place. The practice of cleaning dustbin daily was reported by 60.4% in pre intervention phase and 61% from post intervention phase.

Table 4.6.2B: Garbage disposal

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
24	What do you do with garbage after cleaning your house?				
	Throw in dustbin	67	48.2	132	66.0
	Throw outside	03	2.2	00	00
	Throw in street	04	2.9	07	3.5
	Throw in garbage van	60	43.2	54	27.0

Most of the families in pre intervention phase are seen either using dustbin (48.2%) or garbage van (43.2%) to dispose of their garbage after cleaning house. While those in post intervention phase reported using dustbin at 66% and using garbage van at 27%. The effect of intervention can be clearly seen here in the form of increased use of dustbin.

4.6.3 TYPE OF TOILET FACILITY USED

Table 4.6.3: Type of toilet facility used (N=139)

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
26	Type of toilet facility used				
	Public toilets	08	5.8	18	9.0
	Private at home	125	89.9	169	84.5
	Open defecation	01	0.7	05	2.5

Most of the students from both the phases i.e. 89.9% and 84.5% were found using private toilets. The percentage of students reporting the same during post intervention phase was lesser than that of the previous phase.

4.6.4 SOURCE, STORAGE AND HANDLING OF DRINKING WATER

Table 4.6.4: Source, storage and handling of drinking water

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
27	From where do you get your drinking water supply?				
	Government supply	71	51.1	92	46.0
	Bore well water	02	1.4	03	1.5
	Water tank	11	7.9	10	5.6
	Motor/ground water	47	33.8	86	43.0
	Hand pump	03	2.2	01	0.5
28	How do you store drinking water?				
	Earthen pot	16	11.5	13	6.5
	Plastic pot	58	41.7	64	32.0
	Steel pot	60	43.2	96	48.0
29	Do you cover the container with lid?				
	Yes	127	91.4	181	90.5
	No	08	5.8	01	0.5
30	How do you take out water for drinking from container?				
	Long handled utensil	23	19.4	55	27.5
	Glass	89	64.0	80	40.0
	Vessel has tap	13	9.4	33	16.5
	Tilting the pot	07	5.0	15	7.5

DRINKING WATER SUPPLY: The response obtained for Government water supply during pre-intervention phase was 51.1% whereas during post intervention phase it was 46%. There

was an increase found in the responses for motor/ground water from pre intervention to post intervention from 33.8% to 43%.

STORAGE OF DRINKING WATER: Most of the students in both the phases reported using steel container for storing water (43.2%; 48%). The percentage of students resorting usage of plastic container dropped to 32% in the post intervention phase.

HANDLING OF DRINKING WATER: During the pre-intervention phase most of the students responded that they use steel glass to take out water from the container. This percentage dropped to 40% from 64% in the post intervention phase. Also the percentage of students using long handled utensil for taking out water increased to 27.5% from 19.4%.

4.6.5 STORING THE COOKED FOOD AT HOME

Table 4.6.5: Storing the cooked food at home

Ques Number	Response Options	Pre Intervention		Post Intervention	
		Frequency	Percentage	Frequency	Percentage
30	How do you store cooked food at home?				
	Open areas	06	4.3	02	1.0
	Cover and keep it at clean place	66	47.5	108	54.0
	Refrigerator	62	44.6	67	33.5

During pre-intervention phase it was found that most of the students responded cover and keep it at clean place (47.5%). This percentage increased to 54% in the post intervention phase. The percentage of students reporting refrigerator in pre intervention was 44.6%, which decreased to 33.5% in post intervention phase.

4.7 COMPARATIVE PERCENTAGE OF BOTH THE PHASES (PRE AND POST INTERVENTION)

QUES NO	QUESTIONS	PHASE 1 (Percentage)	PHASE 2 (Percentage)
HANDWASHING BEFORE AND AFTER MEALS			
Q1	Do you wash your hands before meals?	84.9	96.5
Q2	How do you wash your hands before meals?	82.0	92.5
Q3	Do you wash your hands after meals?	86.3	95.0
WIPING/ DRYING HANDS AFTER WASHING			
Q4	How do you dry your hands after washing?	94.2	94.0
HAND WASHING AFETR USING TOILET			
Q5	Do you wash your hands after using toilet?	96.4	96.0
Q6	How do you wash your hands after using toilet?	78.4	94.5
EATING WITH THE HELP OF SPOON			
Q7	How do you eat your lunch in school?	77.0	92.5
USE AND CLEANING OF LUNCH BOX FOR EATING MID DAY MEALS			
Q8	When do you clean your lunch box?	96.4	96.0
Q9	In which vessel do you eat food?	38.1	47.0
BRUSING AND CLEANING THE TEETH AND TONGUE			
Q10	How many times a day do you brush your teeth?	42.4	63.5
Q11	How do you clean your teeth?	87.1	94.5
Q12	Do you clean your tongue after brushing?	80.6	83.0
BATHING DAILY WITH SOAP AND WATER			
Q13	Do you take bath daily?	78.4	80.5
Q14	How do you take bath daily?	93.5	93.0
Q15	Do you wash your hands and feet after going back home?	79.9	94.0
CHANGING INTO CLEAN CLOTHES			
Q16	Do you change your uniform after going back home?	98.6	97.0
Q17	Which clothes do you change in after going back home?	87.8	88.0
TRIMMING OF NAILS AND CLEANING EARS			
Q18	How often do you trim your nails?	72.7	74.5
Q19	Do you clean your ears with towel after having bath?	87.8	90.5
NOT HAD HEAD LICE EVEN ONCE			
Q20	Do you have lice in head?	23.0	28.5
PRESENCE OF GARBAGE AROUND HOUSE			
Q21	Do you have garbage around your house?	51.1	51.0
USE OF DUSTBIN AT HOME			
Q23	Do you have dustbin at your place?	86.3	91.0
Q24	How do you dispose garbage after cleaning your house?	48.2	93.0
Q25	How frequently do you clean your dustbin?	60.4	61.0
TYPE OF TOILET FACILITY USED			
Q26	What kind of toilet do you use?	89.9	84.5
SOURCE, STORAGE AND HANDLING OF DRINKING WATER			
Q27	From where do you get drinking water?	51.5	46.0

Q28	In which container do you store drinking water?	54.7	54.5
Q29	Do you cover water container with lid?	91.4	90.5
Q30	How do you take out water for drinking from the container?	30.9	44.0
STORING COOKED FOOD AT HOME			
Q31	How do you store leftover food at home?	92.1	87.5

When comparing the results of both the phases, we observe drastic change in certain areas. The percentage increase has gone up by more than ten percent at some places. Around 11% increase is seen in students who have started washing their hands before meals, whereas 10.5% increase was seen in students who have switched to using soap for washing their hands. Around 8.7% increase was seen in students washing their hands after meals. An increase in use of soap for washing hands saw an increase of 16.1%. Percentage of students using spoon for eating food increased by 15.5%. The use of steel tiffin box rather than polybag increased by almost 8%. Frequency of brushing twice a day increased by over 21.1% along with cleaning of tongue which saw an increase of 3.6%. A two percent increase of taking bath daily was seen among the students post intervention. The students reporting washing hands and feet after going back home increased by 14.1%. All the above areas seeing an increase in the percentage were the core areas that were discussed during the intervention. All these areas are the areas that the students follow to keep themselves healthy. The intervention had left an impact on them and they have changed their habit. The areas that saw slow increase or no increase were the areas included in the assessment of sanitation practices. Reporting of presence of garbage reduced by around 3.6%. The practice of disposing garbage in the dustbin saw a marked increase of 17.8%. In comparison to the results obtained in pre-intervention phase for the use of toilet, a decline of almost five percent was seen in the responses. The area related to source of drinking water again saw a decline of around 5.5%. There was a marked increase seen in the practice of handling drinking water. The use of long handled utensil increased by 20.6% from 30.9% to 51.5%. The reason behind the slow increase is, because the areas which the child does not have

a control on. These are the factors which are influenced with several others factors. For example, presence of garbage is an external environmental factor that the child cannot control. But for such factors, the child can become a change agent for his parents and community by imbibing good habits and practices.

CHAPTER 5: DISCUSSION

This school based intervention study with the objective "to assess the current personal hygiene habits and sanitation practices among government school children, to design an intervention based on the assessment and to see the effect of this intervention on the students" was carried out in a Municipal Corporation Primary school in Rohini zone of North West district of Delhi, India.

The mean age of the study population was 10 years (Standard Deviation 1.295). Most of the students belonged to lower or upper lower socio-economic strata. Very less percentage (27.4%) mothers were found to be illiterate whereas only 12.6% fathers were illiterate. Majority of the mothers (59%) belong to the unskilled category, working as maids and labourers. These findings were expected as the students from MC Primary School generally come from lower SE strata.

Results from this study reveals that the mode of intervention play a significant role in moulding the habits of the students. Of all the modes i.e. pictures, posters, charts, flipbook, lectures and videos, it was found out that the videos had a lasting impression on the minds of the students. The percentage increase seen in questions related to videos is much higher than the other questions.

The percentage increase in students washing hands before meals was 96.5% from previous percentage of 88.4%, and after meals, the increase was from 87.3% to 95%. Studies conducted in Philippines and Columbia indicating handwashing before meals as 75.9% and 46.9%, which was below the percentage that our study revealed. A rise of almost 14.5% (from 84.7% to 92.5%) was seen among the students using soap and water for washing their hands before and after meals. Studies conducted in Philippines and Turkey revealed the use of soap for washing hands before meals as 37.7% and 42.4%, both of which were much below the percentage of

our study. Also, the findings regarding hand washing using soap of the current study is far better than the other studies conducted by Lopez et al in the year 2009 in Columbia, where only 33.6% students washed their hands using soap and water. There was an increase of 15% from 81% to 96% seen among the students washing hands after using toilet in our study. The findings are quite similar to a study conducted in Ghana, where 88.3% students in the age group of 6-14 years washed their hands after using toilet. Another study conducted by Behailu Besha et al in 2015 in Ethiopia, revealed contrasting findings that very small proportions (22.3%) of primary school students practice proper hand washing behaviour while rest of them (77%) practice poor hand washing behaviour. A study conducted in Bangladesh about handwashing habits suggests that the study population washed their hands less frequently than they claimed. These findings demonstrate that asking students about their handwashing behaviour may not provide an accurate assessment of the actual behaviour.

Regarding the eating habits, the phase 2 i.e. the post intervention phase revealed that 12% students have adopted a good habit of using spoon for eating mid-day meals in school. Though very less (only 9.7%) students were able to switch from using polybag/plastic tiffin to using steel tiffin box for eating mid-day meal but the increase was appreciable since this is something which is not in hands of students. The type of lunch box to be used depends more on the parents rather than the students. Involving parents especially mothers would help in increasing the use of steel tiffin boxes.

An increase of 15.8% (from 47.8% to 63.5%) in the frequency of brushing twice daily was seen among the students. This increase can be attributed to the lectures, hand movements and posters shown to the students during the interaction. The students were taught about how many they should brush their teeth, how they should brush and which movements they should follow for brushing their teeth. They were also shown charts related to steps of brushing. The students were asked to imitate the technique of brushing as told during the lectures. In a study conducted

in Ethiopia, the results revealed that the percentage of brushing among students was 89.2%, which was more than the results obtained in our study. Tongue cleaning is another area which saw improvements from 76.3% to 83% during the post intervention phase of the study. The response obtained for this question exceeds the number of the students brushing daily. This is thus an example of over reporting by students. In a study conducted by Kaviraj et al in Karnataka, India, unclean tongue was reported in around 21% students. Similar findings were obtained in a study by Soumya Deb, Sunitta Dutt revealed that bad oral hygiene was present among 29% studentsRegular bathing was seen in around 80.5% students. Those responding to using soap for havinf bath daily was as high as 93%. The low percentage of bathing daily can be attributed to the fact that the study season was the winter season. It appears that bathing which requires hot water in winters is low because of the socio economic factors, non-availability of hot water early morning poses as a constraint for many. Thus personal hygiene habit of bathing daily becomes a low priority for many. A similar study revealed the finding for bathing daily to be at 34% and poor hair washing practices at 21%.

Washing hands and feet after school is an important habit which keeps diseases at bay. Changing into fresh clothes, removing dirt and dust are examples of good personal hygiene habits. The habit of washing hands and feet saw an increase in percentage from 83.6% to 94%, whereas changing into fresh clothes decreased from 89.4% to 88%. This decrease is justified because during winters, the mothers are not very regular in washing clothes. Also, there are students whose parents work as labourers on whole day basis. The lack of time and resources just makes certain things out of reach of students. In a similar study carried out in Ethiopia, it was found out that the percentage of students washing feet were 97.4% and those changing into fresh clothes was 84.9%. Both the percentages were more than that of this study. {*Same as blue}.* In another study conducted in Karnataka India, the percentage of students with clean

hands and feet were more than 80%. In a similar study conducted by Oyibo, it was found out that 45.2% students had dirty uniform

Regular trimming of nails was present only in 74.2% cases. In some cases, the trimming of nails happened only when the black dirt was seen in them or when the teacher scolded the student for not trimming them. During intervention, this issue was discussed, but since the students are young, they need parents to trim their nails. Parents would understand the importance of such things only when they are taught about it. A study conducted by Priyanka Gawai et al in the year 2015 presents that 61% students all over Mumbai had visible dirt in their nails. In another study conducted in Chennai, it was found out that only 11.2% trimmed their nails once a week regularly.

Presence of head lice among girls was a common phenomenon seen. Only 28.5% reported that they never had head lice till date. Majority of the mothers' are illiterate and work as either maids or labourers. They are not sure about how to identify the signs and symptoms of head lice and even if they identify, they go for home remedies rather than using the medicated products. There is a need to involve parents in the interaction at regular intervals to bring about a positive change in the students. In a study it was observed that 17.9% of the physical inspection of the students led to the conclusion that 17.9% had poor hair hygiene, while another study conducted in Karnataka observed the same to be around 7%.

The response of the students for the presence of garbage remained same for both the phases at 51%. This is something which cannot be changed with the help of intervention. Most of the students live in the adjacent slum areas, JJ colonies. Providing information on these topics during intervention cannot lead to changing of the scenario overnight. The presence of "Human Waste" is a topic of concern. Parents should be the population for intervention on this issues. During the interaction, the students were taught about how they should use dustbin to throw

garbage at home or in streets. The benefits of having dustbin were explained to them. Post intervention there was a rise of 3.2% in the use of dustbin. Though the rise was not significant and can be due to over-reporting as well. There was an increase seen in the students reporting use of dustbin for throwing garbage at home.

Surprisingly there was a decrease in the use of private at home toilet reporting in the phase two of the study. Initially 91.5% students reported using toilets at home for defecation, but post intervention only 84.5% responded having toilets at home and using it for defecation. This could be due to missed reporting. Most of the students left question at the end due to the school timings.

There was an increase seen in the percentage of the students using long handled vessel to take out water from the container. Before intervention only 31% responded taking out water with a proper long handled vessel for drinking water, whereas after discussion 44% responded saying that they have started using correct way of taking out drinking water.

There are so many factors that can influence the personal hygiene habits and sanitation practices of a child that there cannot be a single factor that if modified can bring about a change in the students. Low levels of parental education is one of the main factors that influences the overall development of the child. In this study more number of mothers were illiterate in comparison to the fathers (27.4% and 12.6% respectively). Another factors is the occupation of the parents. If both the parents are working (full time labourers, maids, shop owner), there are chances that they do not spend much time at home. In that case it becomes very difficult for a child to learn good things. Illiterate or uneducated parents may be less knowledgeable about teaching their children proper hygiene habits and sanitation practices, subsequently leading to increased rate of disease among them.

Schools are the right place to initiate this behaviour early in the childhood. In addition, there are studies that observed that around half of the students mention their teachers as the source of information regarding personal hygiene. These observations clearly demonstrate that the schools and the teachers play a vital role in imparting knowledge and practices of personal hygiene very early in a child's life. It is well known that children are more receptive to learning and are very likely to adopt healthy behaviours at a very young age.

CHAPTER 6: CONCLUSION

The study concludes in bringing out the current personal hygiene habits and sanitation practices that the students follow.

In general even before intervention, there was a high percentage (88%) of students seen washing hands and 84.7% were seen using soap and water. Washing hands after using toilet and using soap for washing hands after using toilet was seen at 81%. Frequency of brushing was very low among the students (47.8%), whereas taking bath daily and washing hands and feet after going back home was found to be 75.2% and 83.6%. Reporting presence of garbage around house was seen in 51% cases. Use of dustbin for disposing the garbage was observed in 86.8% cases. The percentage of students following correct practice of handling water was seen in 31% cases only.

During intervention, it was observed that out of all the ways, the students were able to grasp more from the audio-visual materials. They were exposed to videos and animation on topics like handwashing, garbage disposal, sanitation and good personal habits. The impact was such that they were seen singing the poem about handwashing in the video.

The key areas that saw improvements in the second phase of the study were the areas in which education was provided with the help of audio-visual aids. Also the areas seeing improvements were the ones where the students have a control themselves. Like for example, it is easier for them to change their habit from washing hands with only water to washing hands with soap and water. Similarly, other areas too saw improvements. The difficult areas were the ones where parental involvement was there. Like they can only tell their parents to start using dustbin but cannot go and buy one themselves.

Since personal hygiene and sanitation practices are not isolated behaviours and varies from person to person based on various factors, intervention programs raising the awareness and

importance of these topics among school children through education measures by parents, teachers and media will benefit the students in early age.

In the end, it is recommended that for bringing in complete change, involvement of both students and parents is required. Children are the change agents but due to tender age, this has to be supported by parents. Reinforcement of hygiene habits and sanitation practices through advertisements, campaigns, creative competition in schools, government programs, NGOs and teachers would help in bringing about a positive change in the society.

CHAPTER 7: LIMITATIONS OF THE STUDY

The findings and interpretation of the current study are restricted to only school going children of a single MC primary school of Delhi. There are several potential limitations including inappropriate responses from children, relying on subjective observations by researchers, financial constraints due to which the study was restricted to only one school. Also, since the study was respondent driven, it is possible to assume that there might be over-reporting of proper behaviour.

As a result of above mentioned factors, the findings cannot be generalized to all students in the study area.

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CHAPTER 9: ANNEXURES

ANNEXURE 1: QUESTIONNAIRE FOR STUDENTS

<u>सरकारी स्कूल के बच्चों में व्यक्तिगत एवं आस पास की स्वच्छता जानने हेतु प्रश्नाली</u>

दिनांक: स्थान:

मैं अपनी इच्छा से इस सर्वेक्षण में भाग लेने के लिए अनुमति देता/देती हूँ। यह सर्वेक्षण हमारी व्यक्तिगत एवं आस पास की स्वच्छता जानने के लिए किया जा रहा है। हमें बताया गया है कि इस सर्वेक्षण के बाद हमें अच्छी आदतें, व्यक्तिगत स्वच्छता कैसे रखी जाए और खुद को बिमारियों से बचाने के बारे में पता चलेगा।

उम्र: कक्षा:

लिंग १. पुल्लिंग २. स्त्रीलिंग ३. नहीं बताना चाहते ४. नहीं बताना चाहते

माता पिता कि पढाई	माता	पिता
व्यवसायी	7	7
स्नातक	6	6
इंटर	5	5
उच्च विद्यालय	4	4
माध्यमिक विद्यालय	3	3
प्राथमिक विधालय	2	2
अशिक्षित	1	1

माता पिता का काम	माता	पिता
व्यवसायी	10	10
अर्ध व्यवसायी	6	6
अधिकारी/दुकान/किसान	5	5
कुशल	4	4
अर्ध कुशल	3	3
अकुशल	2	2
बेरोज़गार	1	1

मासिक आय	
>/=36997	12
18498-36996	10
13874-18497	6
9249-13873	4
5547-9248	3
1866-5546	2
</=1865	1

व्यक्तिगत स्वच्छता जानने के लिए प्रश्न

प्रश्न 1: क्या आप खाना खाने से पहले हाथ धोते हो?

१. हाँ २. ना ३. कभी-कभी

प्रश्न 2: हाथ धोते समय किस का प्रयोग करते हो?

१. खाली पानी का २. साबुन + पानी ३. राख का ४. अन्य

प्रश्न 3: क्या आप खाना खाने के बाद हाथ धोते हो?

१. हाँ २. ना ३. कभी-कभी

प्रश्न 4: हाथ धोने के बाद कैसे पोंछते हो?

१. रुमाल से २. वर्दी से ३. बस्ते से ४. सिर पे हाथ फेरने से

प्रश्न 5: शौचालय का प्रयोग करने के बाद हाथ धोते हो?

१. हाँ २.ना ३. कभी-कभी

प्रश्न 6: शौचालय का प्रयोग करने के बाद हाथ कैसे धोते हो?

१. पानी से २. साबुन+पानी से ३. राख से ४. अन्य

प्रश्न 7: स्कूल में खाना किस प्रकार खाते हो?

१. चम्मच से २. हाथ से ३.कभी हाथ से, कभी चमच्च से

प्रश्न 8: खाने का डब्बा कब साफ़ करते हो?

१. रोज़ाना घर जाकर २.अगले दिन स्कूल आकर ३. रोज़ खाना खाने से पहले

प्रश्न 9: खाना किस डिब्बे में खाते हो?

१. प्लास्टिक के डिब्बे में २. स्टील के डिब्बे में ३. पॉलीथिन में डालकर

प्रश्न 10: दिन में कितनी बार दांत साफ़ करते हो?

१. एक बार २. दो बार ३. हर बार खाना खाने के बाद

प्रश्न 11: दांत कैसे साफ़ करते हो?

१. ब्रश+पेस्ट २. दातुन ३. ऊँगली से ४. मंजन से ५. अन्य

प्रश्न 12: क्या दांतों के साथ साथ जीभ भी साफ़ करते हो?

१. हाँ २. ना ३. कभी-कभी

प्रश्न 13: क्या रोज़ साबुन से नहा कर आते हो?

१. हाँ २.ना ३. एक दिन एक छोड़ कर ४. कभी नहा कर कभी बिना नहाये

प्रश्न 14: आप किस प्रकार नहाते हो?

१. खाली पानी से २. पानी+साबुन से ३. अन्य

प्रश्न 15: स्कूल से घर जाने के बाद मुँह हाथ धोते हो?

१. हाँ २. ना ३. कभी-कभी

प्रश्न 16: स्कूल से घर जाने के बाद वर्दी बदलते हो?

१. हाँ २. ना ३. कभी-कभी

प्रश्न 17: वर्दी बदलने के बाद कैसे कपडे पेहेनते हो?

१. सुबह उतारे हुए २. साफ़ धुले हुए

प्रश्न 18: नाखून कब काटते हो?

१. सप्ताह में एक बार २. महीने में दो बार ३. महीने में एक बार ४. नाखून में काला नज़र आने पर

प्रश्न 19: नहाने के बाद तौलिये से कान साफ़ करते हो?

१. हाँ २. ना ३. कभी-कभी

प्रश्न 20: सर में जू है या कभी हुई हो?

१. अभी हैं २. पहले थी ३. होती रहती है ४. कभी नहीं हुई

आस-पास की सफाई जानने के लिए प्रश्न

प्रश्न 21: क्या आपके घर के आस पास गंदगी है?

१. हाँ २. ना ३. अन्य

प्रश्न 22: आपके आस पास किस प्रकार की गन्दगी होती है?

१. मनुष्ये द्वारा फैलाई हुई २. जानवरों द्वारा फैलाई हुई ३.घरेलु कचरा ४. ठहरा हुआ पानी एवं कचरा

प्रश्न 23: क्या आपके घर में कूड़ादान है?

१. हाँ २. ना ३. गली का कूड़ादान है

प्रश्न 24: अपना घर साफ़ करने के बाद कचरे का क्या करते हो?

१. कूड़ेदान में डालते हैं
२. गली में फेंकते हैं
३. घर के बहार ही इकठ्ठा करते हैं
४. खाली जगह में फेंक देते हैं
५. कूड़े की गाडी में डालते हैं

प्रश्न 25: घर का कूड़ेदान कितनी बार साफ़ करते हो?

१. रोज़ाना २. हफ्ते में एक बार ३. हफ्ते में दो बार ४. हर दूसरे दिन

प्रश्न 26: आप किस प्रकार का शौचालय प्रयोग करते हैं?

१. सार्वजानिक शौचालय २. घर का शौचालय ३. बहार खुले में जाते हैं

प्रश्न 27: घर में पीने का पानी कहाँ से आता हैं?

१. जलबोर्ड का पानी २. बोरवेल का पानी ३. पानी के टैंकर से ४. मोटर का पानी
५. हैंडपंप का पानी ६. अन्य

प्रश्न 28: घर में पानी किस प्रकार के बर्तन में रखा जाता है?

१. मिटटी के बर्तन में २. प्लास्टिक की बाल्टी में ३. स्टील के बर्तन में

प्रश्न 29: पानी के बर्तन को ढकते हो?

१. हाँ २. ना

प्रश्न 30: घर में पानी के बर्तन से पानी कैसे निकलते हो?

१. घंटी की मदद से
२. गिलास की मदद से
३. टूटी वाला बर्तन/मटका है
४. बर्तन/मटके को टेढ़ा करके

प्रश्न 31: पका हुआ या बचा हुआ खाना किस प्रकार रखते हो?

१. खुले में २. ढक कर साफ़ जगह पर ३. फ्रिज में

ANNEXURE 2: CONSENT FORM FOR PARENTS

सरकारी स्कूल के बच्चों में व्यक्तिगत स्वच्छता जानने के लिए माता पिता से अनुमति हेतु पत्र

दिनांक:

स्थान:

कक्षा:

बच्चे का नाम:

मैं IIHMR इंस्टिट्यूट की छात्रा आपके बचे से उसकी व्यक्तिगत स्वच्छता एवं आस पास कीस्वच्छता के विषय में कुछ जानकारी लेना चाहती हूँ। इस जानकारी का प्रयोग आपके बच्चे को स्वच्छता के बारे में बताने और अच्छी आदतें सिखाने के लिए किया जायेगा। हमारे द्वारा दी गयी जानकारी से आपका बच्चा अछि आदतें, स्वच्छता कैसे राखी जाएव एवं खुद को बिमारियों से सुरक्षित रखने के बारे में सीखेगा ।

आपके बच्चे से यह जानकारी लेने से पहले मुझे आपकी अनुमति की आवश्यकता है। अपनी अनुमति देने के लिए आप नीचे हस्ताक्षर के स्थान पर हस्ताक्षर कर दें।

आपका बहुत बहुत धन्यवाद।

हस्ताक्षर: