Internship Training

At

International Institute of Health Management Research

New Delhi

On

A CROSS SECTIONAL STUDY ON PERSONAL HYGIENE HABITS AND SANITATION PRACTICES AMONG SCHOOL CHILDREN OF AN URBAN PRIMARY SCHOOL OF DELHI

By

Col Pramod Dahitule

Enroll No PG/16/036

Under The Guidance Of

Dr Dhananjay Srivastava (Associate Professor)

Post Graduate Diploma in Hospital and Health Management

2016-2018

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This certificate is awarded to

Col Pramod Dahitule

In recognition of having successfully completed his

Internship at

International Institute of Health Management Research

New Delhi

And has successfully completed his project on

A cross sectional study on personal hygiene habits and sanitation practices among school children of an urban primary school of Delhi

10th May 2018

International institute of Health Management Research

New Delhi

He comes across as a committed, sincere and diligent person who has

A strong drive and zeal for learning

We wish him all the best for future endeavors

Director IIHMR

Dean Academics IIHMR

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Col Pramod Dahitule 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 01 Feb 2018 to 15 May 2018.

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

I wish him all the success in all his future endeavors.

Dr Supten Sarbadhikari	Dr Dhananjay Srivastava
Dean, Academics and Student Affairs	Associate Professor
IIHMR, New Delhi	IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **'A cross sectional study on personal hygiene habits and Sanitation practices among school children of an urban primary school of Delhi'** at **IIHMR, Delhi** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a pre requisite for award of **Post Graduate Diploma in Hospital and Health Management** for which it has been submitted. It is understood by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation

Name Signature

Certificate from Dissertation Advisory Committee

This is to certify that Col Pramod Dahitule, a graduate student of **Post-Graduate Diploma in Health Management and Hospital Management** has worked under our guidance and supervision .He is submitting this dissertation titled **'A cross sectional study on personal hygiene habits and Sanitation practices among school children of an urban primary school of Delhi'** at **IIHMR, Delhi** in partial fulfilment of the requirement for the award of **the Post Graduate Diploma in Health and Hospital management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr Sanjiv Kumar
Director
IIHMR, DELHI

Dr Dhananjay Srivastava
Associate Professor
IIHMR, DELHI

ABSTRACT

A Cross-Sectional Study on Personal Hygiene and Sanitation Practices among School Children of an Urban Primary 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, poor quality of 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 an urban primary school.

Objective: To assess the personal hygiene and sanitation practices amongst the students of an urban primary government school of Delhi.

Methodology: This cross-sectional descriptive study was carried out in 2017-18 in Municipal Corporation Primary School of Northwest zone of Delhi. The sample (N=190) comprised of students from class three to class five, between the age group of 8-11 years who were present on the day of data collection. The data collection was done using a structured questionnaire based on the guidelines by international organizations. The questionnaire was divided into two sections dedicated to personal hygiene and sanitation respectively. The students were asked to tick the response most appropriate to their practice. For every incorrect response a score of 0 was given and for every correct response a score of 1 was given. The mean for each question/variables was then calculated on the scale of 0-10. The development of '**Hygiene and Sanitation Scale** 'lead to

an easy and quick comparison between variables. This resulted in better understanding of prevailing practices for designing of interventions.

Results: Hand washing, eating, brushing and bathing habits along with dressing behaviour as well as nail and hair care were considered as major variables during the study of personal hygiene. The subjective assessment of critical areas was done through application of suitably designed quantified pro-rata scale to give a holistic picture. Not washing hands after using toilet was identified as one of the weakest area in hand washing practices. Majority of the students were found using plastic container for eating lunch, reflecting poor awareness and undesirable behaviour. Most of students displayed the habit of brushing only once a day. Three fourth of the total students claimed using soap for bathing every day. Another area of concern was frequently occurring head lice among majority of the study population.

During assessment of sanitation, the general cleanliness, waste management and storage of food and water were assessed using relevant indicators. The cleanliness of surrounding was found to be unsatisfactory, primarily due to non-use of suitable disposal facility/technique. The cleanliness of dustbin was one of the most neglected area under waste management. Non availability of appropriate utensils hampered portability of water severely.

Recommendations: The holistic mapping revealed critical/neglected practices affecting personal hygiene and sanitation behaviour. Evidence based targeted intervention would enable to restore desired health outcome to a greater extent. It is recommended that larger study involving multiple schools with mix of urban and rural background be carried out to get wider perspective for better intervention and policy formulation.

Key Words: Personal Hygiene, Sanitation, School going children, Swachh Bharat, WASH.

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Col. Pramod Dahitule

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LIST OF SYMBOLS AND ABBREVIATIONS

S NO	ABBREVIATION	FULL FORM
1	USAID	United States Agency for International Development
2	UNICEF	United Nations International Children's Fund
3	NFHS	National Family Health Survey
4	SHS	School Health Service Team
5	MCD	Municipal Corporation of Delhi
6	BPA	Bisphenol A
7	DEHP	di-(2-ethylhexyl)phthalate
8	WASH	Water Sanitation and hygiene
9	SSHE	Sanitation and Hygiene Education

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CHAPTER 1: INTRODUCTION

As per recent report by UNICEF, only 31 percent of India's population uses improved sanitation facilities. The increasing urbanization has further compromised the state of hygiene and sanitation considering 60 percent population now staying in urban areas. Everyday over 800 children die globally from preventable diseases caused by poor water, lack of sanitation and hygiene. Adequate sanitation, together with good hygiene and safe water, are fundamental to good health and to social and economic development. That is why, in 2008, the Prime Minister of India quoted Mahatma Gandhi who said in 1923, "sanitation is more important than independence"

India is one of the largest countries of the world with diverse population both in geographical and cultural terms. Given this, it has been a challenge to universally provide safe drinking water and sanitation facilities in India. As per NFHS-3, 88 percent of the total population of the country had access to improved source of drinking water and 45 percent had latrines within their households. This was even less in rural areas i.e. 85 percent and 26 percent, and out of this, only 18 percent households have latrines with water closet. Furthermore, inadequate use of water and sanitation facilities and poor hygiene practices has enhanced the severity of such challenges. Open defecation remains the predominant norm and poses one of the biggest threats to the health of the people in India. Estimates suggest that nearly 65 percent of India's population still defecate in the open. This practice of open defecation is reinforced by traditional behavior patterns and lack of awareness about the health threats posed by it. The best way to break bad practices is to cultivate good practices and childhood is the best time for that as children are receptive to all influences. Therefore school sanitation and hygiene education have been given prominence in the Total Sanitation Campaign, which recognizes the role of children in absorbing and popularizing new ideas and concepts.

'Swachh Bharat Swachh Vidyala' campaign was launched by HRD Ministry, Government of India in the month of September 2014 with the aim to promote awareness on hygiene as part of Swachh Bharat Abhiyan. To address health issues in school going children, Government of Delhi is implementing 'School Health Program'. Perusal of available information on web site of this program reveals no mention of awareness of Hygiene and Sanitation in execution of program. There are number of waterborne and transmitted diseases which spread due to poor hygiene and sanitation. Diarrhea, cholera, worm infections and typhoid are few of them. The diseases associated with poor sanitation are particularly related with poverty, infancy and alone contributes about 10 percent of global burden of diseases. Observing good personal hygiene habits and ensuring proper sanitation arrangements has huge positive impact on health. The effect of noncompliance of basic guidelines is compounded in urban school children due to poor immunity, overcrowding, low socio economic background and improper diet. It increases their susceptibility to number of diseases, resulting in increased morbidity and mortality. This has direct effect and impact on their attendance, participation and learning in the school.

The school is a stepping stone in a child's life where lifelong responsibility for maintenance of individual personal hygiene and sanitation of surrounding is laid down. Schools are sacred since they provide an environment for acquiring skills and development of intelligence, which can be utilized by students to achieve their goals in life and develop as a good human being. A great deal of research tells us that schools can have a major effect on children's health, by teaching about health and promoting healthy behaviors. Moreover, young children today have bigger dreams than ever before and they are willing to go the extra mile to achieve their dreams. However, we need to keep them healthy so that they can stretch their wings and fly high. Therefore, hygiene, the science, art and practice of preserving one's health through acts of cleanliness is very important for

children. By practicing contributing acts of personal hygiene like regular brushing of teeth, bathing, proper washing of hands and cutting finger nails, children help to preserve their health and that of others around them. Another important issue i.e. Sanitation refers to provision of facilities and services for the safe disposal of human urine and faeces. Inadequate sanitation is a major cause of disease worldwide and improving sanitation is known to have significant beneficial impact on health both in households and across communities.

Keeping in mind that a child spends most of his/her crucial time in school and is consistently implicated in spreading communicable diseases, school is an ideal setting for health promotion. The aim of the study was to assess the present personal hygiene habits and sanitation practices among the students of an urban primary government school of Delhi. The results will help in understanding the factors influencing the personal hygiene habits and sanitation practices, thereby enabling recommendation of targeted interventions.

CHAPTER 2: LITERATURE REVIEW

WASH is the collective term for Water, Sanitation and Hygiene. Since they are dependent on each other, all three main/core issues are grouped for purpose of study, which represent a unique growing sector. Though study of every subject involves a separate field of work, it is interdependent on presence of other. For example, if there are no proper toilet facilities, the water sources would get contaminated. On the same lines without clean water, observing of basic hygiene practice is impossible. Water is a said to be a life, most essential element for the survival as well as development of children. In absence of water, it is not possible for children to stay alive or grow in a healthy manner. The rich natural water resources along with the corresponding services, results in reduction of poverty, act as catalyst for economic growth and help in achieving the sustainable environment. Similarly, Sanitation is also an essential for the survival and development of children. Incidentally huge number of people i.e. among 2.4 billion worldwide who do not use improved sanitation (a facility that safely separates human waste from human contact). 946 million people go out in the open for defecating, known as "open defecation". While progress has been made to improve access to sanitation in some parts of the world, still millions of children in poor and rural areas have been left behind. Something as simple as handwashing can save lives. Washing hands with soap at a critical times, like after going to the toilet or before eating, can have a significant impact on children's health. Good hygiene practices reduce the incidence of diseases such as pneumonia, trachoma, scabies, skin and eye infections and diarrhea-related diseases like cholera and dysentery. Research shows that regular handwashing with soap can reduce the number of incidents of diarrhea by fifty percent, which could be otherwise a fatal disease in all cases. The following is observed at global level:

- It is a huge disappointing fact that 663 million people do not have access to clean drinking water, even though the Millennium Development Goal target for clean water has been met in the year 2010.
- Out of 10 people living in the rural areas, 8 do not have access to clean water.
- The number of people using an untreated water from lakes and rivers, the most unsafe water source, is as high as 159 million.
- 33 percent people do not use the improved sanitation.
- 14 percent people still practice open defecation.
- *India, Indonesia, Nigeria, Ethiopia, Pakistan*, account for 75% of open defecation, at global level.

Poor sanitation, unsafe water and unhygienic practices affects the millions of children in the developing world to suffer from variety of diseases. Water- and sanitation-related disease though are preventable, remains one of the most significant child health problems worldwide. Diarrhea is one of the most serious of these diseases, which kills around 1,600 children each day. More than half of diarrheal disease deaths are attributed to unsafe drinking water, inadequate sanitation and poor hygiene. Children in developing countries typically have four to five bouts of diarrhea a year. Even when they don't kill, these diarrhea episodes can physically and mentally stunt children, affecting them for the rest of their lives. By weakening children, diarrhea increases mortality rates from other opportunistic diseases, including ARI (acute respiratory infections). ARI and diarrhea together account for two-thirds of all child deaths worldwide. Millions of other children are made sick, weakened or are disabled by other water- and sanitation-related diseases and infections including cholera, malaria, trachoma, schistosomiasis, worm infestations and guinea worm

disease. And in a growing number of countries, natural or man-made pollution of water sources with dangerous contaminants threatens millions of people.

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

Research shows that the presence of water, sanitation and hygiene in school results in a number of benefits for children. There has been a overall increase of 12 % attendance in primary schools (Grades 1-5).Findings of an assessment conducted in 540 schools in nine states Mid-Day Meal (MDM) program reveal that:

- Only (51%) of the schools have a designated handwashing space and in 44 % of the schools observed the handwashing space was being used.
- Only close to one in ten school (12%) of schools had soap/detergent available at the handwashing space.
- Nearly half (49%) of the students washed their hands using only water. Only two out of five (42%) students use soap /detergents. (Source: Hygiene Practices in Schools during mid-day meals, UNICEF-India Study 2009).

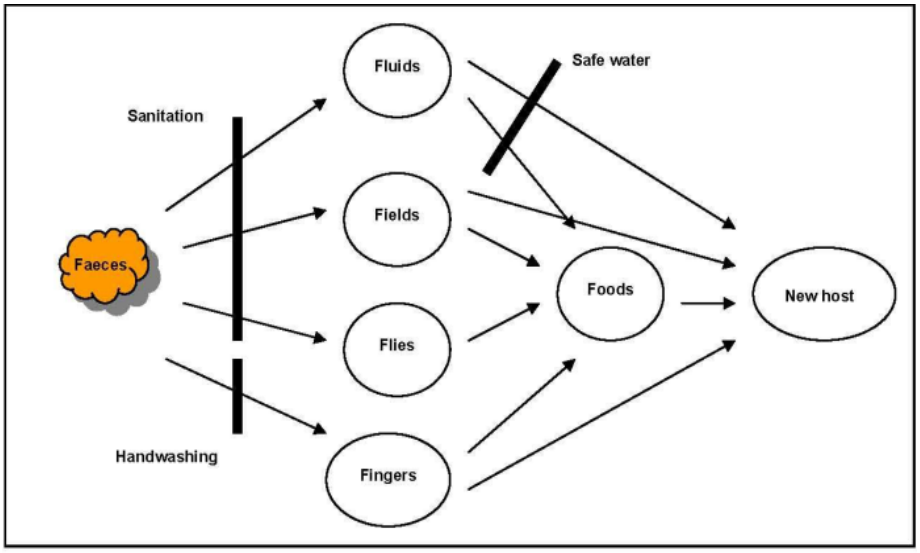
- Survey conducted in 392 schools in seven states in India reveal that nearly one third (32%) of the children wash hands with soap before eating.(Source :PAHELI Survey by Pratham under United Joint Program on Convergence(UNJPC),2012.

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

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

1) A causative or etiological agent.
2) A reservoir or source of infection of the causative agent.
3) A mode of escape from the reservoir.
4) A mode of transmission from the reservoir to the potential new hosts
5) A mode of entry into the new host.
6) A susceptible host

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



Source: after Wagner and Lanoix, 1958

Diagram: Fecal oral transmission of germs and how to break the transmission route

In 2007, UNICEF launched WASH program to promote hand washing and sanitation practices in low income countries including Ethiopia. It also declared October 15 as Global Hand Washing Day since 2008. Study on Knowledge and Practice done in Mumbai in 2016 indicates 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 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.

Most of the studies have analyzed the Hygiene and Sanitation practices separately. Since these two pillars of WASH are closely related, there is a need to conduct a study which simultaneously assess the prevailing practices, among school children in an urban setting. The study is an attempt in this direction.

CHAPTER 3: METHODOLOGY

1. STUDY AREA:

The study was carried out in Urban MC Primary School located in sector 16 G of Rohini, NW District of Delhi. The district is divided into Sarasvati Vihar, Rohini sub city and Kanjarwala. It is in a border district of Delhi which shares a boundary with Sonata and Bahadurgarh districts of Haryana. It has well developed communication network in terms of National and state Highways, largest Heliport and metro rail. Rohini sub city project was started by DDA in 1980 and is divided into more than 50 subsectors. Every sector of Rohini has four to five government schools. Sector 16 has three primary schools. The primary school selected for study has five grades i.e. class 1 to class 5. Every class is divided into 3-4 subsections with 25 students each. There are total 510 students and school is staffed with 16 teachers. The school complex is well built two story concrete structures with permeant structures. There are 17 class rooms catering for five grades and nursery class. The building houses Principals office, staff room, computer room and library. Three coolers are placed in school complex to cater for drinking water requirement. It has a separate toilet block. Sect 16 has large number of migratory population in and around it. The major slums are Shahabad Dairy, Daulatpur, Samaypur Badli and MCD slum colony.

2. STUDY PERIOD:

The study was done over a period of three months. In first month designing of study and pretesting was done. The collection of data was done during second month and analysis of data and drafting of report was done in third month.

3. STUDY DESIGN:

A School based cross-sectional descriptive study involving quantitative method was used to assess the personal hygiene habits and sanitation practices amongst the students of an urban primary government school of Delhi.

4. STUDY POPULATION:

The study population consists of class 3 to class 5 students present on the day of data collection.

5. INCLUSION AND EXCLUSION CRITERIA:

Those students present on the day of study and volunteered for participation in the study were only included. Those who were absent were not included. Students were also informed that they can leave if they wish to, in the middle of study.

6. SAMPLE SIZE:

Initially all students from nursery to class 5 i.e. total of 510 were planned, to be part of this study. However after piloting only class 3 to class5 i.e., 281 were decided to be included for quality inputs. On the day of data collection all 190 students present, consented and voluntarily participated in the study.

7. VARIABLES:

Assessment of personal hygiene habits was done by quantifying six main study variables whereas sanitation practices were assessed with help of three variable. There were total 31 questions.

PERSONAL HYGIENE HABITS: STUDY VARIABLES

S No	VARIABLES	QUESTIONS
1	Hand Washing Habits	Do you wash your hands before meals? How do you wash your hands before meals? Do you wash your hands after meals? How do you dry your hands after washing? Do you wash your hands after using toilet? How do you wash your hands after using toilet?
2	Eating Habits	How do you eat your lunch in school? When do you clean your lunch box? In which vessel do you eat food?
3	Brushing Habits	How many times a day do you brush your teeth? How do you clean your teeth? Do you clean your tongue after brushing?
4	Bathing Habits	Do you take bath daily? How do you take bath daily? Do you wash your hands and feet after going back home? Do you clean your ears with towel after having bath?
5	Dressing Habits	Do you change your uniform after going back home? Which clothes do you change in after going back home?
6	Nail and Hair care	How often do you trim your nails? Do you have lice in head?

SANITATION: STUDY VARIABLES

S NO	VARIABLES	QUESTIONS
1	Cleanliness	Do you have garbage around your house?
2	Waste Management	Do you have dustbin at your place? How do you dispose garbage after cleaning your house? How frequently do you clean your dustbin? What kind of toilet do you use?
3	Food and water	From where do you get drinking water? In which container do you store drinking water? Do you cover water container with lid? How do you take out water for drinking from the container? How do you store leftover food at home?

8. TOOLS AND TECHNIQUE:

For assessment of personal hygiene and sanitation a trisection questionnaire was designed. The details are as follows:

- Section 1.Demographic Characteristics. This section consists of demographic variables like age, gender, education, occupation, income and socioeconomic status.
- Section 2 Personal Hygiene Habits. This section had 20 questions related to Hand Washing Habits, Eating Habits, Brushing Habits, and Bathing Habits, Dressing Habits and Nail and Hair care.
- Section 3 Sanitation Practices. This section had 11 questions related to cleanliness, waste management and storage of food and drinking water.

9. PRETESTING:

Before commencement of data collection, the pretesting of instrument was carried out. The instrument was first drawn in English language, then translated into Hindi (Local Language) and thereafter translated back to English to test validity. One student per class and five students per grade were selected for pre testing of the questionnaire .The nomination was done by respective class teacher based on her knowledge of class. 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 responses was done and accordingly changes were done in the instrument.

10. PERMISSION:

A written permission was obtained from Assistant Director Education North Delhi Municipal Corporation prior to the commencement of the study. A written was also taken from the principal of school and other staff members. Since the students below 18 years was study population, an informed consent letter was designed in a 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. Also an assent section was incorporated in the questionnaire to seek permission and voluntary participation from students.

11. DATA ANALYSIS PLAN:

(a) Data Entry. All the responses were checked, coded and entered in SPSS (Statistical Package for the Social Services) version 16.The ideal answer was as expected /correct response, mentioned as one of answer to each question. This answer was given a score of 1 and the incorrect response was given a score of 0.

(b) Hygiene and Sanitation Scale. Based on this criterion, the simple frequencies for all the questions was calculated. Using the simple frequencies the mean score of all the questions was calculated on the scale of 0-10.The formula for calculation of mean score is as given below:

$$\frac{Expected\ Response}{Total\ Respondents} \times 10$$

For combined mean score of a single variable, total of all the expected responses of all the questions was done. This number was divided by total number of respondents and then was multiplied by 10.This gave the mean score of the variable as a whole. The formula is given below:

$$\frac{Total\ of\ all\ expected\ responses}{Total\ number\ of\ respondents \times total\ number\ of\ questions} \times 10$$

(c) Identification of Critical/Weak Areas.To further identify the critical areas/ weak areas, the rule of ten percent was followed. The rule states that the score will not be considered critical if it lies within the ten percent bracket of the mean score of the variable. This rule was followed with each indicator in both personal hygiene habits and sanitation practices.

12. ETHICAL CONSIDERATION:

Each and every participant was adequately informed about the purpose, benefit and risks of the study and his right to withdraw or discontinue and refuse to participate in study. A consent letter was designed for parents to obtain informed consent from them. The total description about the study, its use and importance in child's life was well explained in the

letter. The students were asked to get the consent letter signed/thumb impression on same from the parents. Separate permission was taken from the principal and class teacher. Since the children participating in study were minor and therefore could not give legal consent, an assent from them was obtained by duly incorporating same in questionnaire. A separate section was included in the questionnaire for children for this purpose.

CHAPTER 4: RESULTS

4.1 SOCIO DEMOGRAPHIC PROFILE OF PARTICIPANTS:

A total of 190 students were invited for participation in study .All of them participated in the study. Thus response rate was 100%.One hundred and five boys (53.3%) and eighty four (44.2) girls participated in the study. Majority of respondent were found in the age group of 8-10 years with mean of 10 years (SD =1.295 years). As far as educational status is concerned, maximum (81, 42.63%) participants were from 4th standard as compared to 3rd (44, 23.15%) and 5th standard (65, 34.21%). Total one hundred forty three (75.3%) students were from lower/upper lower socioeconomic strata. On family education front, 52(27.45%) mothers and 24(12.6%) fathers were uneducated. Most of the families had monthly income of 1866-5546 rupees.

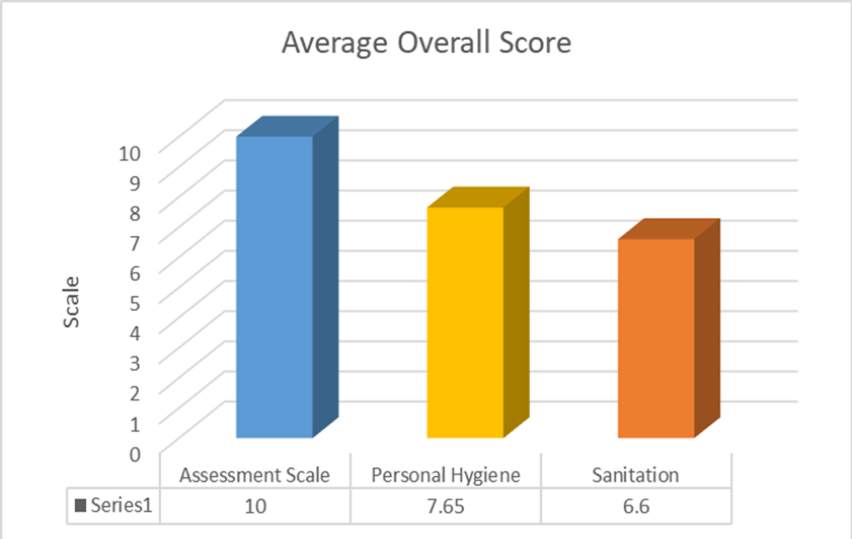
Table 4.1 Socio-demographic profile of the participants

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 EDUCATI0N**	**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%)
	• Unskilled	113(59%)	2(1.1%)
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 MEAN SCORE ON HYGIENE AND SANITATION SCALE:

The overall cumulative scores for personal hygiene habits and sanitation practices were calculated on the scale of 1-10. Personal hygiene scored 7.65 whereas sanitation scored 6.62.These scores were based on average of various contributing variables. Thus the overall standard of personal hygiene is better than sanitation practices.



Graph 4.2: Average overall score

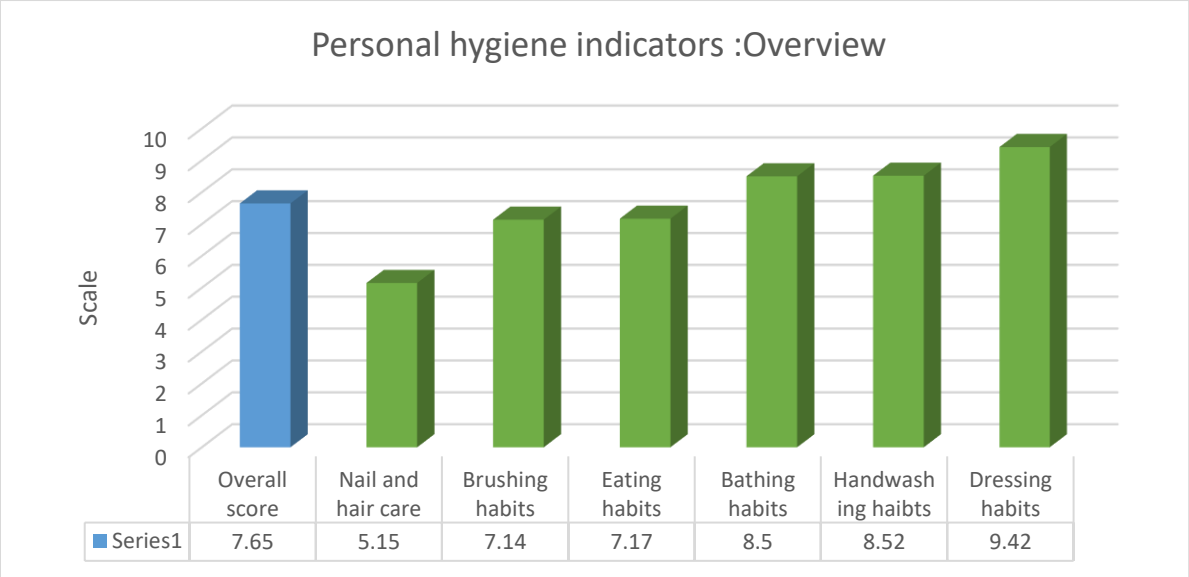
4.3 PERSONAL HYGIENE HABITS:

Total six main variables were considered foe assessment of personal hygiene habits.20 questions were grouped under these six variables addressing specific issues as follows:

Table 4.3: Study variables and specific issues

S NO	STUDY VARIABLE	SPECIFIC ISSUES
1	Hand washing habits	Before and after meals, Method, Drying, After toilets and Method.
2	Eating habits	Method of eating and cleaning of lunch box
3	Brushing habits	Frequency of Brushing, Method of cleaning teeth and tongue
4	Bathing habits	Frequency of bathing, Method, Washing of hand and feet after going home, cleaning of ear.
5	Dressing habits	Change of school uniform after going home and type of dress ,changed to
6	Nail and hair care	Frequency of nail trimming and presence of head lice

After grouping the questions under the variables, frequency of expected/correct response of individual question under each variable was calculated. The following graph shows the overview of all the variables of personal hygiene with mean score.



Graph 4.3: Status of personal hygiene habits

This shows overview of prevailing practices of personal hygiene habits in ascending order .Thus first three areas of Nail and Hair care, Brushing habits and eating habits require more attention. The details of each variable are as given below.

4.3.1 HAND WASHING HABITS:

Table 4.3.1: Status of hand washing habits

QUES.NO	QUESTIONS	FREQUENCY	MEAN	%
1	Washing of hands before meals.	168	8.84	88.4
2	Method of washing hands before meals.	161	8.47	84.7
3	Washing of hands after meals	166	8.73	87.3
4	Drying of hands after washing	169	8.89	88.9
5	Washing of hands after using toilet	154	8.10	81.0
6	Method of washing hands after using toilets	154	8.10	81.0
7	TOTAL SCORE OF ALL THE QUESTIONS	972	8.52	85.2

The total mean score of all the six questions of hand washing habits was calculated and turned out to be **8.52 on** the scale of 0-10.All the questions scored well except for hand washing after using toilet which presented with a score of **8.10**. However to identify the areas of concern, for targeted intervention rule of bracketing ten percent was applied. According to this rule any questioning scoring below **7.87** (8.52-0.85= 7.87) will be taken as critical area. Since no score was below 8.10 handwashing habits had no clearly defined area of concern. Focusing on the importance of handwashing with soap after using toilet can help in improving the results further.

4.3.2 EATING HABITS:

Table 4.3.2 Status of eating habits

QUES. NO	QUESTIONS	FREQUENCY	MEAN	%
7	Method of eating food in school	153	8.05	80.5
8	Method of cleaning lunch box	185	9.73	97.3
9	Type of vessel used for eating food during lunch	71	3.73	37.3
	TOTAL SCORE OF ABOVE QUESTIONS	409	7.17	71.7

The mean scores of eating habits comes out to be **7.17** on the scale of 0-10.To identify the critical areas, rule of ten percent was applied. Any score below **6.46** was considered below average and the area was designated as critical area. Of all the three questions, only one question i.e. "Which type of lunch box do you use for eating lunch?" scored less than half of the score **3.73**.The area has been identified as the critical area and will be further analyzed with different demographic factors to find out the possible cause: Table 4.3.2a shows cross tabulation of type of lunch box used with demographic factors. The results imply requirement of concentrated efforts on students below eight years of age(**2.3**) and also targeting male students in general**(3.2)**than girls**(4.4).**The intervention will include spreading awareness of harmful effects of eating in polybags or plastic lunch boxes.

Table 4.3.2a: Cross tabulation with demographic factors

S.No	DEMOGRAPHIC VARIABLE	TYPE OF LUNCH BOX USED	P-VALUE
1	**Gender**		**0.23**
	• Male	34/105 (3.2)	
	• Female	37/84 (4.4)	
2	**Age**		**0.54**
	• < 8 years	04/17(2.3)	
	• 8-10 years	39/101(3.8)	
	• >10 years	22/54(4.0)	
3	**Mother's Education**		**0.45**
	• Illiterate	36/52(6.9)	
	• Primary	33/70(4.7)	
	• Up to high school	33/53(6.4)	
	• High school and above	08/13(6.1)	
4	**Father's Education**		**0.57**
	• Illiterate	07/24(2.9)	
	• Primary	27/54(5.0)	
	• Up to high school	23/72(3.1)	
	• High school and above	06/18(3.3)	
5	**Mother's Occupation**		**0.57**
	• Unemployed	09/27(3.3)	
	• Employed	61/159(3.8)	
6	**Father's Occupation**		
	• Employed	63/168 (3.7)	-
7	**Socio-Economic Status**		**0.75**
	• Lower	03/16(1.8)	
	• Lower/Upper lower	57/143(3.9)	
	• Middle/Lower middle	09/27(3.3)	
	• Upper middle	02/03(6.6)	

4.3.3 BRUSHING HABITS:

Table 4.3.3: Status of brushing habits

QUES. NO	QUESTION	FREQUENCY	MEAN	%
10	Frequency of brushing	91	4.78	47.8
11	Method of cleaning teeth	171	9.0	90
12	Cleaning of tongue along with teeth	145	7.63	76.3
	TOTAL SCORE OF ABOVE QUESTIONS	407	7.14	71.4

During the assessment of the brushing habits the mean score for above three questions came out to be **7.14**.For identifications of critical areas, again the rule of ten percent was applied. Any score below **6.43** was put into the category of critical area. Out of three questions above two questions performed well except "How many times do you clean your teeth? "The cross tabulation of this weak area with demographic variables gives the following results.

Table 4.3.3a Cross tabulation with demographic variables

S.No	DEMOGRAPHIC VARIABLE	FREQUENCY OF BRUSHING	P-VALUE
1	**Gender**		**0.04**
	• Male	59/105(5.6)	
	• Female	32/84(3.8)	
2	**Age**		**0.17**
	• < 8 years	03/17(1.7)	
	• 8-10 years	48/101(4.7)	
	• >10 years	26/54(4.8)	
3	**Mother's Education**		**0.73**
	• Illiterate	22/52(4.2)	
	• Primary	27/70(3.8)	
	• Up to high school	20/51(3.9)	
	• High school and above	06/13(4.6)	
4	**Father's Education**		**0.28**
	• Illiterate	11/24(4.5)	
	• Primary	25/54(4.6)	
	• Up to high school	30/72(4.1)	
	• High school and above	12/18(6.6)	
5	**Mother's Occupation**		**0.77**
	• Unemployed	11/27(4.0)	
	• Employed	78/159(4.9)	
6	**Father's Occupation**		**-**
	• Employed	77/168(4.5)	
7	**Socio-Economic Status**		**0.60**
	• Lower	09/16 (5.6)	
	• Lower/Upper lower	68/143(4.7)	
	• Middle/Lower middle	14/27(5.1)	
	• Upper middle	0/3(0)	

The table above indicates an urgent need of increasing the awareness about brushing teeth twice daily among girls (**3.8).** The students below eight years of age need special attention .Also in this case parents can also be motivated to take up practice themselves and inculcate same in children also.

4.3.4 BATHING HABITS:

Table 4.3.4: Status of bathing habits

QUES. NO	QUESTION	FREQUENCY	MEAN	%
13	Daily bathing with soap	143	7.52	75.2
14	Method of bath taking	181	9.52	95.2
15	Washing of hands and feet after going home	159	8.36	83.6
16	Cleaning ear after having bath	163	8.57	85.7
	TOTAL SCORE OF THE ABOVE QUESTIONS	646	8.50	85

The overall score of bathing habit came to **8.5**. Individual score of question was compared with 7.65 after applying ten percent rule. Since all questions except 13 scored above 85 %, the habit of having daily bath needs attention .It is appropriate to mention here that during the interaction with teachers as well as students it was revealed that due to cold weather, inadequate bathing facilities and shortage of fuel for warming the option of not having a daily bath was adopted by the community.

4.3.5 DRESSING HABITS:

Table 4.3.5 Status of dressing habits

QUES. No	QUESTIONS	FREQUENCY	MEAN	%
17	Changing of uniform after going home	188	9.89	98.9
18	Clothes worn after changing uniform	170	8.94	89.4
	TOTAL SCORE OF ABOVE QUESTIONS	358	9.42	94.2

The analysis of dressing habits revealed that student the students follow a very good dressing habits.(9.42).There is no score below **8.48** indicates that providing little bit knowledge imparting on dressing habits will help in bridging the gap between observed score and expected score.

4.3.6 NAIL AND HAIR CARE HABITS:

Table 4.3.6 Status of nail and hair care habits

QUES. NO	QUESTIONS	FREQUENCY	MEAN	%
19	Trimming of nails	141	7.42	74.2
20	Presence of lice in hair	55	2.89	28.9
	TOTAL SCORE OF ABOVE QUESTIONS	196	5.15	51.5

There is considerably low score in this area compare to earlier five variables. The scores indicate that though adequate attention is being given to trimming of nails, the presence of lice is a matter of concern .The **71.1(100-28.9)** students complained to experience of having lice at least once. The score shows urgent need to intervene in this area. The cross tabulation further reveals following

Table 4.3.6a: Cross tabulation with demographic factors

S.No	DEMOGRAPHIC VARIABLE	DO YOU HAVE HEAD LICE	P-VALUE
1	**Gender**		**0.10**
	• Male	37/105(3.5)	
	• Female	18/84(2.1)	
2	**Age**		**0.56**
	• < 8 years	6/17(3.5)	
	• 8-10 years	25/101(2.4)	
	• >10 years	11/54(2.0)	
3	**Mother's Education**		**0.02**
	• Illiterate	07/52(1.3)	
	• Primary	22/70(3.1)	
	• Up to high school	19/51(3.7)	
	• High school and above	07/52(1.3)	
4	**Father's Education**		**0.33**
	• Illiterate	03/24(1.2)	
	• Primary	14/54(2.5)	
	• Up to high school	18/72(2.5)	
	• High school and above	07/18(3.8)	
5	**Mother's Occupation**		**0.56**
	• Unemployed	09/27(3.3)	

	• Employed	46/159(2.8)	
6	**Father's Occupation**		**-**
	• Employed	42/168(2.5)	
7	**Socio-Economic Status**		**0.54**
	• Lower	4/16(2.5)	
	• Lower/Upper lower	39/143(2.7)	
	• Middle/Lower middle	12/27(4.4)	
	• Upper middle	0/3(0)	

The cross tabulation indicates requirement of more educating girl students on head lice. The presence of mice is more in girls due to long hairs and improper maintenance.

4.4 VARIABLES OF SANITATION PRACTICES:

The assessment of sanitation practices was done through three main study variables. These are general cleanliness of area, waste management and food and water storage. There were total eleven questions pertaining to these variables. The details are as follows

Table 4.4 Variables and distribution of questions

S NO	STUDY VARIABLE	QUESTIONS
1	General cleanliness	Q 21
2	Waste management	Q23 TO Q26
3	Food and water storage	Q27 TO31

The frequencies, mean scores and percentage scores of above mentioned variables is as shown in tables below.

4.4. 1 CLEANLINESS:

Table4.4.1 Status of cleanliness

QUES. NO	QUESTIONS	FREQUENCY	MEAN	%
Q21	Presence of garbage around house	97	5.1	51%
	TOTAL SCORE OF ABOVE QUESTIONS		5.1	51%

In this variable two questions were framed. The second question i.e. “What kind of garbage is there around your home?” had no specific answer .For the above question, the score of **5.1** shows the presence of garbage in case of almost half of respondent. When asked about the type of waste present, majority of them **57.9%** responded that it was **Human Waste**. The table below shows the frequency distribution about type of waste present around the student’s houses:

Table 4.4.2 Status of types of wastes

S NO	TYPE OF WASTE	FREQUENCY	PERCENT
1	Human waste	110	57.9
2	Animal waste	27	14.2
3	Household waste	18	9.5
4	Clogged waster +waste	26	13.7
		190	100.0

4.4.2 WASTE MANAGEMENT:

Table 4.4.2 Status of waste management

QUES. NO	QUESTION	FREQUENCY	MEAN	%
Q23	Use of dust bins at home	165	8.68	86.8
Q24	Method of garbage disposal	175	9.21	92.1
Q25	Frequency of dust bin cleaning	117	6.15	61.5
Q26	Type of toilet used	174	9.15	91.5
	TOTAL SCORE OF ABOVE QUESTIONS	631	8.30	83.0

The overall score of waste management came out to be 8.3 The rule of ten percent resulted in fixing of base value at 7.47, any value below which the question will be taken as critical. The third question “How often do you clean your dust bin?” Has scored below 7.47.The score of 6.15 indicates average attention given to washing of dust bins. The intervention thus needs to be focused on importance of cleaning dust bin daily and its contribution to sanitation practices. The following table shows cross tabulation of demographic variables with weaker area:

Table 4.4.2a: Cross tabulation with demographic factors

S.No	DEMOGRAPHIC VARIABLE	HOW OFTEN DO YOU CLEAN YOUR DUSTBIN?	P-VALUE
1	**Gender**		**0.60**
	• Male	65/105 (6.1)	
	• Female	52/84 (6.1	
2	**Age**		**0.39**
	• < 8 years	09/17 (8.8)	
	• 8-10 years	58/101 (5.7)	
	• >10 years	35/54 (6.1)	
3	**Mother's Education**		**0.17**
	• Illiterate	32/52 (6.1)	
	• Primary	39/70 (5.5)	
	• Up to high school	38/51 (7.4)	
	• High school and above	07 /13(5.3)	
4	**Father's Education**		**0.82**
	• Illiterate	18 /24(7.5)	
	• Primary	32/54 (5.9)	
	• Up to high school	41/72 (5.6)	
	• High school and above	08/18 (4.4)	
5	**Mother's Occupation**		**0.94**
	• Unemployed	16/27 (5.9)	
	• Employed	100/159 (6.2)	
6	**Father's Occupation**		**-**
	• Employed	99/168 (6.2)	
7	**Socio-Economic Status**		**0.90**
	• Lower	11/16 (6.8)	
	• Lower/Upper lower	89/143 (6.2)	
	• Middle/Lower middle	16/27 (5.9)	
	• Upper middle	01/03 (3.3)	

4.4.3 FOOD AND WATER STORAGE:

Table 4.4.3 Status of Food and water storage

QUES.NO	QUESTION	FREQUENCY	MEAN	%
Q27	Source of drinking water	91	4.48	44.8
Q28	Storage vessel used for drinking water	103	5.42	54.2
Q29	Use of lid for covering vessel	177	9.31	93.1
Q30	Handling of drinking water	59	3.10	31.0
Q31	Storage of left over food	178	9.36	93.6
	TOTAL SCORE OF ABOVE QUESTIONS	608	6.40	64.0

For the assessment of the food and water storage practices at home, the frequencies of correct responses for the above questions was used to calculate mean score ,which came out to be 6.4 To

identify the critical/weak area, rule of ten percent was applied, according to which any value below 5.76 will be considered as a critical area.

4.4.3a Source of Drinking Water:

Table 4.4.3a Cross tabulation with demographic factors

S.No	DEMOGRAPHIC VARIABLE	SOURCE OF DRINKING WATER	P-VALUE
1	**Gender**		**0.56**
	• Male	50/105(4.7)	
	• Female	41/84(4.8)	
2	**Age**		**0.69**
	• < 8 years	7/17(4.1)	
	• 8-10 years	45/101(4.4)	
	• >10 years	25/54(4.6)	
3	**Mother's Education**		**0.24**
	• Illiterate	22/52(4.2)	
	• Primary	29/70(4.1)	
	• Up to high school	31/51(6.0)	
	• High school and above	8/13(6.1)	
4	**Father's Education**		**0.87**
	• Illiterate	11/24(4.5)	
	• Primary	24/54(4.4)	
	• Up to high school	30/72(4.1)	
	• High school and above	8/18(4.4)	
5	**Mother's Occupation**		**0.54**
	• Unemployed	13/27(4.8)	
	• Employed	77/159(4.8)	
6	**Father's Occupation**		**-**
	• Employed	73/168(4.3)	
7	**Socio-Economic Status**		**0.33**
	• Lower	10/16(6.2)	
	• Lower/Upper lower	63/143(4.4)	
	• Middle/Lower middle	17/27(6.2)	
	• Upper middle	01/03(3.3)	

When mean for source of water after cross tabulation with demographic factors was calculated any score/area below 4.78 was taken as possible area leading to weak/poor score. Students of all age need to have increased awareness about correct source of drinking water. Mother with higher education are more aware about the correct source of drinking water ,which is not the issue with the fathers .No sufficient difference was seen among employed and unemployed mothers. However a mixed trend was seen in different socioeconomic status. Low awareness was seen among lower/upper lower and upper middle class.

4.4.3b Storage of Drinking Water:

The correct way of storing water at home is either using earthen pot or steel vessel .This practice was reported to be low by females (5.1) and students up to age of 10 years.(2.9,5.2).The mothers who are illiterate are seen to be more poor performer(4.8).Very few fathers were of storing water correctly . A surprising trend was seen when unemployed mothers was seen following wrong practice (4.8).The reporting of correct practice was again low from the lower/upper lower section.

The results of crosstab with demographic variables is as shown in the table.

Table 4.4.3b Cross tabulation with demographic factors

S.No	DEMOGRAPHIC VARIABLE	STORAGE OF DRINKING WATER	P-VALUE
1	**Gender**		**0.12**
	• Male	59/105(5.6)	
	• Female	43/84(5.1)	
2	**Age**		**0.01**
	• < 8 years	5/17(2.9)	
	• 8-10 years	53/101(5.2)	
	• >10 years	32/54(5.9)	
3	**Mother's Education**		**0.65**
	• Illiterate	25/52(4.8)	
	• Primary	40/70(5.7)	
	• Up to high school	28/51(5.4)	
	• High school and above	9/13(6.9)	
4	**Father's Education**		**0.01**
	• Illiterate	11/24(4.5)	
	• Primary	37/54(6.8)	
	• Up to high school	28/72(3.8)	
	• High school and above	8/18(4.4)	
5	**Mother's Occupation**		**0.32**
	• Unemployed	13/27(4.8)	
	• Employed	89/159(5.5)	
6	**Father's Occupation**		**-**
	• Employed	73/168(4.3)	
7	**Socio-Economic Status**		**0.76**
	• Lower	09/16(5.6)	
	• Lower/Upper lower	76/143(5.3)	
	• Middle/Lower middle	15/27(5.5)	
	• Upper middle	02/03(6.6)	

4.4.3c Handling of Drinking Water:

The practice of handling water correctly i.e. using a long handled utensil or using tap to take out water from the vessel needs attention at all the demographic parameters. The table below (table 4.4.3d) shows the mean scores after cross tabulation with handling water practices. Very few areas scored above the mean score of 3.10. Students along with parents need to be given education on how to handle drinking water correctly.

Table 4.4.3c Cross tabulation with demographic factors

S.No	DEMOGRAPHIC VARIABLE	HANDLING OF DRINKING WATER	P-VALUE
1	**Gender**		**0.14**
	• Male	40/105(3.8)	
	• Female	18/84(2.1)	
2	**Age**		**0.76**
	• < 8 years	4/17(2.3)	
	• 8-10 years	25/101(2.4)	
	• >10 years	16/54(2.9)	
3	**Mother's Education**		**0.20**
	• Illiterate	13/52(2.5)	
	• Primary	19/70(2.7)	
	• Up to high school	20/51(3.9)	
	• High school and above	6/13(4.6)	
4	**Father's Education**		**0.05**
	• Illiterate	6/24(2.5)	
	• Primary	16/54(2.9)	
	• Up to high school	15/72(2.0)	
	• High school and above	5/18(2.7)	
5	**Mother's Occupation**		**0.15**
	• Unemployed	9/27(3.3)	
	• Employed	49/159(3.0)	
6	**Father's Occupation**		**-**
	• Employed	42/168(2.5)	
7	**Socio-Economic Status**		**0.44**
	• Lower	7/16(4.3)	
	• Lower/Upper lower	39/143(2.7)	
	• Middle/Lower middle	11/27(4.0)	
	• Upper middle	0/3(0)	

CHAPTER 5: DISCUSSION

This Government primary school based cross sectional study was done to assess the personal hygiene habits of students and sanitation practices followed at home front .The study took into account both major pillar of WASH program for assessment i.e. Personal hygiene and Sanitation. The corresponding nine study variables related to these two areas were accordingly assessed. This gave a clear picture of prevailing practices of followed in both areas. An attempt was then made to see the correlation of critical areas this with demographic variables, if any. Thereafter the strength of association was seen through statistical tests. The study **concluded in identification of seven critical areas and few relationships.**

The seven critical areas emerged in hygiene and sanitation, included use of plastic or polythene bags for eating lunch during midday meals, inadequate brushing, experiencing lice in head, inadequate cleaning of dustbins, and improper source of water, storing arrangement and incorrect handling of water.

The first study finding indicated that students are bringing plastic empty tiffin's of low quality to the school. The mid-day meal is served in these tiffin during lunch break at 1100 hr. Some of the students also use plastic bags to take the servings. The reason for this probably is the harmful effects of use of low quality of plastic material are not known to students as well as parents. Research shows that plastic components like Bisphenol A (BPA) and di-(2- ethylhexyl) phthalate (DEHP) have endocrine disrupting properties.

The habit of inadequate brushing may be attributable to lack of knowledge of benefits of brushing especially before going to bed. This has been reflected in finding that majority of them 52.2% (100-47.8) do not brush adequately. Thus there is requirement of educating them to improve the

habit of brushing. Further probing resulted in finding that the habit of adequate brushing is displayed more by Male students with association of P value as 0.04.

71.1 %(100-28.9) students complained of head lice problem which speaks a lot of poor personal hygiene in large number of students. The significant association of this with mother's education i.e. P value of 0.02 was seen. This area requires immediate attention since it affects other students also and therefore making mothers aware is important and urgent.

The root cause of not cleaning dust bin regularly also involves unawareness of parents on functional aspects waste management. The importance of subject require no overemphasis, since unclean dust bin provides conducive conditions to various vectors like flies, mosquitoes, mites and insects.

Three out of five study questions in food and water storage variable to include improper source, incorrect storage utensils and unhealthy water serving practices requires immediate attention to improve basic sanitation practices. Interestingly, the father's education was found to be associated with arrangement of storage of drinking water (P value 0.01) and handling of water (P value 0.05) during statistical analysis. The low community awareness of these fundamental issues affects health of entire community.

According to UNICEF hands washing before eating food and after use of toilets are most critical moments of hand washing. Hand washing is an important aspect of personal hygiene habits.

Picture: Group Handwashing (UNICEF)

Picture: Sanitation Status in India (UNICEF)

Picture: Lack of access to safe drinking water (UNICEF)

All over the world, the main reason of low rates of hand washing is simply it is not a habit Therefore intervention must not only focus on infrastructure but also behavioral aspects. During this study,88.4% students claimed washing hands before meals, which is comparable with study done in Kolkata where % was seen as 85.4%.The results in one study done in Chennai was found to be higher i.e.96.4% may be due to more awareness level. The results seen in studies done in Ethiopia and UAE concluded with 93.6% and 73% respectively.

Similarly the study result of washing hands by 81.0% students after visiting toilets was found comparable with study done in Mumbai where 76% claimed doing same. The study in Chennai claimed the 91.6 % may be due to more awareness .The study result of Ghana witnessed 88.3% students claiming washing hands after use of toilet which is very close to our findings considering geopolitical, cultural and educational differences.

The major variation was seen in the area of trimming of nails where study claimed 74.2% students regularly trimming nails as compare to 38.6 % in Ethiopia. There is also a large gap in critical area of experiencing head lice wherein 71.1% students claimed it at least once in life whereas in Chennai the score was found to be 48.8%. The difference is due to not taking regular bath especially in winter months, applying more oil which results in attracting more dust and close interpersonal contacts during playing.

The study findings cannot be generalized to all schools due to several limitations of the study. The study involves only one school and students from grade 3 to 5.Those who were present on the days of data collection contributed to the study inputs. The inputs were based on self-reporting and thus may have been influenced by varied factors itself.

After above critical areas analysis and comparisons with other studies, the evidence informed intervention, locally enforceable with low cost options can be designed. It would involve involvement of parents especially mothers for enhancing their awareness in general and knowledge in particular. Children are more receptive in school and the degree of peer influence is considerably high. The designing of suitable IEC material to develop requisite skills as well as influence minds of children to sensitize them to act as 'Change Agent' is therefore a prerequisite and should be adapted as game changer.

LIMITATIONS OF THE STUDY:

The study presents with certain limitations. The study population selected is small to draw a conclusion for total population. Also the study population was selected conveniently, so the generalizability of results cannot be defined. The data was collected only in the school premises and not the living area of the students. For personal hygiene data was collected using questionnaire

and observation was just done and not recoded somewhere. For Sanitation practices, no cross-check was done at student's house or through parents. The information given by student was considered as true. There are chances of false reporting or same reporting among students. Also, month wise periodic follow up was not done.

CHAPTER 6: CONCLUSION

1. **General Scoring**. The study resulted in assessment of present status of personal hygiene of students (7.65) and sanitation (6.66) practices at home. It has been seen that both these areas are affected by different factors and varies person to person. The success of study lies in scientific and analytical assessment of variables pertaining to these areas in a methodological manner. The development of scale enabled easy and quick comparisons amongst various habits as well as accurate determination of weaker/critical areas. This quantification of variables will help in designing of evidence informed intervention to apply concentrated efforts to achieve optimization of resources.
2. **Critical/ Weak Areas**. The study brought out the key areas which scored below the expected score. These areas require special attention so as to improve the overall score. The areas are a mix of both personal hygiene habits which a child follows and sanitation practices that s/he observes at home. When the personal hygiene habits of child were assessed, brushing and absence of lice scored the least scores. The frequency of brushing twice daily was as low as **4.78** (expected 6.4), whereas the absence of head lice till date was reported by very few students (**2.89,** expected score 5.1). The practices followed at home for sanitation includes more areas of concern, like use of steel tiffin and not polybag/plastic was seen in very few cases (**3.73**/6.5). Regular cleaning of dustbin at home was observed and reported by very few students (61% only). The major area that parents are required to address is source. Storage and handling of drinking water (**4.78**/6.4; **5.42**/6.4; **3.10**/6.4).
3. **Associations.** The significant association (P value less than 0.05) was observed during cross tabulation of Gender with Brushing Habits(0.04),Mothers Education with Nail and

Hair Care Habits (0.02) Students age and Fathers Education with Storage of Drinking Water, (Both 0.01), and Fathers Education with Drinking Water(0.05).

4. **Interventions.** The intervention thus should focus on above areas and giving due attention to other areas for achieving optimum results. The association emerged during the study with parents education implies the crucial role and responsibilities expected to be discharged by them in educating and skilling child. The teachers should empower students with awareness and knowledge to perform role of Change Agent
5. **Path Ahead.** The school provides an excellent platform to groom the young students which also leads to cost effective implementation of school health services. There is a requirement to also carry out assessment of Sanitation and Hygiene Education (SSHE) which was aimed to develop student's skills as well as ensuring behavior change at suitable level. Due to limitations of the study as mentioned earlier, it is also recommended that larger study involving multiple schools with mix of urban and rural background be carried out to get wider perspective for intervention and policy formulation.

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CHAPTER 8: ANNEXURES

Annexure I

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 का छात्र आपके बच्चे से उसकी व्यक्तिगत स्वच्छता एवं आस पास की स्वच्छता के विषय में कुछ जानकारी लेना चाहता 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:

Annexure II

सरकारी स्कूल के बच्चों में व्यक्तिगत एवं आस पास की स्वच्छता जानने हेतु प्रश्नाली

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

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

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