



RESEARCH ARTICLE



EFFECTIVENESS OF SCHOOL HEALTH EDUCATION PROGRAM ON PERSONAL HYGIENE AMONG SECONDARY SCHOOL CHILDREN IN RURAL GUNTUR-A PRE AND POST DESIGN

Mounika Duddukuri^{1*} | Bommireddy Vikram Simha¹ | Darisi Raghu Deep¹
| Abhilash Gade¹ | Sneha Maguluru¹ | Anand Babu B¹

¹SIBAR Institute of Dental Sciences

Abstract

Purpose of the Study: Personal hygiene is the initial step towards good health and to protect from disease. It is generally recognized that childhood is the appropriate time for children to learn about hygiene. It plays a major role to promote healthy life. This study was performed to measure the existing level of knowledge and practice related to bathing, oral hygiene, trimming nails and washing hair regularly and hand washing. Most common disease occurring in school children namely diarrhoea and its causes, ill effects, treatment is also discussed. **Materials and Methods:** A cross-sectional descriptive study was conducted on 415 students of government and private schools of Guntur district. All the students were given a prepared questionnaire (pre-test). The intervention was given by lecture, PowerPoint presentation and demonstration for 30 minutes on personal hygiene and health related conditions due to poor hygiene. Again, the same questionnaire was given (post-test). **Results:** 415 students were included in our study. The knowledge of the students regarding general body cleanliness was 92.7% in government school and 85.7% in private school during post test as compared to 43.6% in government school and 59.2% in private school during pre-test. Knowledge about eating less food in diarrhea was positive in 59.1% of students in government school and later increased to 81.8% during post test evaluation. Only 31.8% of students in government accepted that diarrhea can kill children (pre-test) while 88.2% (post-test) children were aware of this fact. Most of the students were found washing their hands before meal. **Conclusion:** Majority students were practicing hygienic methods after the study. Evaluation of the personal hygiene among school children must be done periodically.

Keywords: hygiene, students, knowledge, health, clean, diarrhea

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1 | INTRODUCTION:

The word hygiene is derived from the name of the early Greek deity of healthful living “Hygeia”. Hygiene refers to the practices related to the safety of health and healthy living⁽¹⁾.

Personal hygiene is the most important step for being healthier. Hygiene practices are considered as anticipatory measures to reduce the occurrence and dissemination of disease. Inadequate salubrious surroundings and poor hygiene practices play main roles in the increasing of contagious diseases⁽²⁾. 62% of deaths in Africa and 31% of deaths in South East Asia are caused by infectious diseases⁽³⁾.

The basics of lifelong responsibility for the maintenance of personal hygiene are taught in the childhood itself which is important for the development of positive standards about health and the use of health amenities⁽¹⁾. Many diseases affecting school children can be prevented by promotion of hygienic practices through appropriate health education. The one who possesses health hygiene habits at a young age will assist an older children transition into adult hygiene behaviours. Hygiene usually comprises bathing at least twice a day, washing the hands when necessary, washing ones clothing, washing the hair, brushing the teeth twice daily in the morning and before going to bed, proper rinsing of mouth after meals, cutting the nails regularly, caring for the gums. It also includes keeping surfaces in the home and workplaces, including bathrooms, clean and pathogen-free⁽²⁾. School children particularly are at risk to neglect of basic personal hygiene. The consequences in terms of diseases and fatality are also more severe in them compared to adults⁽²⁾. The increase of communicable diseases among school children due to scarce hygienic surroundings and poor personal hygiene practices remains a concern on the public health program in developing countries. Poor practice, knowledge and attitudes of personal hygiene such as hand washing play major roles in the high frequency of communicable diseases. Certainly, hands are the single most important route for transmission of infection in the home and public, as they are regularly in direct contact with eyes nose and mouth⁽²⁾. They also contact with water and food that is consumed daily. Hand washing with

soap has been reported to reduce diarrheal illness by 44%⁽²⁾. Proper hand hygiene practices encouraged to school children through education has been reported to be associated with low incidence of communicable diseases. Significance of proper hand washing along with its importance in lessening of communicable diseases such as diarrhoea and respiratory infections has been emphasised in several studies. In year 2004, the government of India has started a Total Sanitation and Hygiene Education (SSHE) which emphasizes skill based child to child hygiene education among school going children for behaviour change⁽⁴⁾.

Oral health maintenance is an integral part of good health status. Outdated methods of using finger or wooden sticks are not encouraged as it is less effective for proper mouth cleaning. Proper rinsing with tooth brush and paste is recommended. There is increase in prevalence of dental caries in some developing countries.

The major cause of morbidity and mortality among children are acute respiratory and intestinal infections⁽⁵⁾. Diarrhea is one of the common problems faced by children. Globally, there an estimated 2 billion cases of diarrheal disease occur each year, and 1.9 million children under the age of 5 years, mostly in developing countries, die from diarrhea⁽⁶⁾. Children should be adequately educated regarding fatal effects due to diarrhea and care that has to be taken during that time.

Considering the above background, this study was undertaken with the following objectives:

- To find out the current knowledge and practices regarding personal hygiene among secondary school children.
- To identify any fallacy among them regarding the maintenance of personal hygiene

Supplementary information The online version of this article (<https://doi.org/10.15520/ijmhs.v11i03.3252>) contains supplementary material, which is available to autho-rized users.

Corresponding Author: *Mounika Duddukuri*
SIBAR Dental College
Email: duddukurimounika@gmail.com

- To identify knowledge regarding health related conditions
- To educate and promote good personal hygiene behaviour among them

2 | MATERIALS AND METHODS:

It is a school based interventional study conducted in Zilla Parishad High school (government) and Sidhartha High school (private) in rural Guntur. About 415 students belonging to classes 7th 8th and 9th were included in the study. Students of 10th class were purposely excluded with an idea of not disturbing the academic curriculum of these students who were to appear for their board examinations shortly.

A self-administered semi-structured questionnaire was prepared in English and was translated into the local language (Telugu) keeping semantic equivalence. The face and content validity of the questionnaire was checked by experts in the department of Public Health dentistry in Sibar Institute of Dental Sciences, Guntur. A pilot study was done among 30 students and the students were asked whether they could understand the whole content in the questionnaire. After confirming that the questionnaire is clear to understand by the students, the main study was conducted in duration of November to December-2019.

The questionnaire contains two sections

Section 1: Student's identification in the form of class and roll number along with socio demographic particulars and

Section II: Comprises of 18 questions regarding knowledge on personal hygiene in daily life

Pretest evaluation

Self introduction about the investigator and information regarding nature of the study was explained to the students. Informed consent was sought from each student, and the pretest self administered questionnaire comprising both Section I and II was given to them after instructing all participants regarding the importance of providing accurate information.

Module for intervention

Analysis of their knowledge obtained from the pretest questionnaire was done and utilized for preparing the teaching module. It contained information about personal hygiene in their routine daily life and the health related conditions if the person is unhygienic.

Method of intervention

The intervention was given by lecture, PowerPoint presentation and demonstration for 30 minutes on personal hygiene and health related conditions due to poor hygiene.

Post-test evaluation

Evaluation of the educational intervention program was assessed by conducting post-test using self-administered questionnaire comprising only Section II after 15 days.

3 | DATA ANALYSIS:

A scoring system was developed to assess pre and post education knowledge by assigning for every correct response a values of '1' and for every wrong response a value of '0' is given.

Data was analyzed using SPSS version 20 software (IBM Corp. Released 2011. IBM SPSS statistics for windows, Version 20.0). The difference in knowledge between private and government schools both before and after the intervention were measured using Pearson chi square test to determine significant change, if any, between pre-test and post-test knowledge response on each subtopic as well as change in attitude towards the knowledge on personal hygiene and health related conditions due to poor hygiene. $P \leq 0.05$ was considered significant. Excluding the incomplete questionnaire the total questionnaire used for analysis was 333.

Ethical Consideration: -

The proposal for the study was approved by the Institutional Ethics Committee Of Sibar Institute of Dental Sciences. Informed verbal consent was obtained from the Principal and class teachers of seventh eighth and ninth grades of the school.

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4 | RESULT

Out of 415 students 146 students are government students and 269 students are private school students. However only 110 and 223 students from government and private schools respectively were included in the final analysis and 36 students from government school and 46 students from private schools were absent at baseline data collection or returned incompletely answered questionnaires thus making the final sample to be 333.

In government school, out of 110 students, 31(28.1%) students were from 7th standard, 45(40.9%) were 8th standard and 34(30.9%) were 9th standard. There were 56(50.9%) females and 54(49.09%)males.

From table 1: In government school, during pre intervention 93.6% of students take bath twice daily after post intervention 72.7% of students take bath daily and 27.3% of them take bath when they feel unclean. In pre test 86.4% of students had knowledge of cutting and cleaning finger nails is good for health and in post intervention 91.8% of students agreed that cutting and cleaning finger nails is good for health. 81.8% in pre intervention agreed that washing hair regularly is a part of cleanliness and in post intervention 93.6% agreed that washing hair regularly is a part of cleanliness. 84.5% of students in pre intervention says that nail biting is not healthy for teeth and in post intervention 88.2% agreed that nail biting is not healthy for teeth. 74.5% of students in pre intervention will clean their teeth twice daily and in post intervention 82.7% of students clean their teeth twice daily. 61.8% of students in pre intervention stated that cleaning teeth with tooth paste and brush is not enough to prevent teeth from cavities and in post intervention 90.9% of students agreed that cleaning teeth with tooth paste and brush is not enough to prevent teeth from cavities. 81.8% of students in pre intervention says that they rinse mouth with water after meal and in post intervention 98.2% of students rinse their mouth with water after meal. 89.1% during pre intervention 100% of students in post intervention agreed that washing hands before meals is necessary. 81.8% of students in pre intervention and 90.9% of students in pre intervention stated that washing hands when there

is no visible dirt is necessary. 30% of students in pre intervention agreed that they do open urination and in post intervention 87.3% says they will not do open urination. 81.8% of students at the time of pre intervention do not practice open defecation and at the time of post intervention 86.4% of students do not practice open defecation. 93.6% of students in pre intervention wash their hands with soap after defecation and in post intervention 99.1% wash their hands with soap after defecation. 90.9% of students in pre intervention says that changing clothes every day is necessary and in post intervention 93.6% of students agreed that changing clothes every day is necessary. 70% of students in pre intervention says that wound is safe when it is covered and in post intervention 92.7% of students says that wound is safe when it is covered. About knowledge on how diarrhea spreads 79.1% students said due to eating unwashed fruits and 44.5% said due to sun stroke and 66.4% said due to dirty and long nails and 75% said due to when flies land on food and 74.5% said due to eating heavy food 77.3% said due to eating food with unwashed hands and 69.1% said due to drinking dirty water in pre intervention and in post intervention 81.8% said due to unwashed fruits and 85.5% said due to sun stroke and 83.6% said due to dirty and long nails and 87.3% said when flies land on food and 90% said due to eating heavy food 82.7% said due to eating food with unwashed hands and 92.7% said due to drinking dirty water. Data reveal that about 80% children were aware about washing hands with soap after defecation in pre intervention and 98.2% of students were aware of washing hands with soap after defecation in post intervention. 61.8% of students had knowledge on ORS in pre intervention and 87.3% had knowledge on ORS in post intervention. 31.8% of students in pre intervention had knowledge that diarrhoea kills children and 88.2% of students in post intervention had knowledge that diarrhoea kills children

In private school, out of 223 students, 94(44.7%) students were from 7th standard, 66(30%) were 8th standard and 63(28.2%) were 9th standard. There were 117(53.1%) females and 106(47.5%) males. In pre intervention 90.1% of students take bath twice daily after post intervention 58.3% of students take bath daily and 41.3% do when they feel themselves

unclean. In pre test 94.2% of students had knowledge of cutting and cleaning finger nails is good for health and in post intervention 95.5% of students agreed that cutting and cleaning finger nails is good for health. 90.6% in pre intervention agreed that washing hair regularly is a part of cleanliness and in post intervention 93.3% agreed that washing hair regularly is a part of cleanliness. 91% of students in pre and post intervention says that nail biting is not healthy for teeth. 53.4% of students in pre intervention will clean their teeth twice daily and in post intervention 67.7% of students clean their teeth twice daily. 62.3% of students in pre intervention stated that cleaning teeth with tooth paste and brush is not enough to prevent teeth from cavities and in post intervention 90.1% of students agreed that cleaning teeth with tooth paste and brush is not enough to prevent teeth from cavities. 86.5% of students in pre intervention says that they rinse mouth with water after meal and in post intervention 95.1% of students rinse their mouth with water after meal. 98.7% of students in pre intervention agreed that washing hands before meals is necessary and 99.1% in post intervention agreed that washing hands before meals is necessary. 87.4% of students in pre intervention and 97.3% of students in pre intervention stated that washing hands when there is no visible dirt is necessary. 78.5% of students in pre intervention agreed that they do not do open urination and in post intervention 84.3% says they will not do open urination. 83.4% of students at the time of pre intervention do not practice open defecation and at the time of post intervention 92.8% of students do not practice open defecation. 96.4% of students in pre intervention wash their hands with soap after defecation and in post intervention 97.3% wash their hands with soap after defecation. 99.1% of students in pre intervention and 100% in post intervention said that changing clothes everyday is necessary. 56.1% of students in pre intervention says that wound is safe when it is covered and in post intervention 64.1% of students says that wound is safe when it is covered. 84.3% of students in pre intervention says that hands contain most germs and in post intervention 85.2% says that hands contain most germs. knowledge on how diarrhea spreads 63.2% students said due to eating unwashed fruits and 55.2% said due to sun stroke and 50.7% said due to

dirty and long nails and 78.5% said due to when flies land on food and 65.5% said due to eating heavy food 71.3% said due to eating food with unwashed hands and 73.1% said due to drinking dirty water in pre intervention and in post intervention 77.6% said due to unwashed fruits and 61.9% said due to sun stroke and 75.3% said due to dirty and long nails and 88.8% said when flies land on food and 71.3% said due to eating heavy food 77.6% said due to eating food with unwashed hands and 83% said due to drinking dirty water. Data revealed that about 94.6% children were aware about washing hands with soap after defecation during post-intervention. 86.5% of students had knowledge on ORS in pre intervention and 95.5% had knowledge on ORS in post intervention. 74% of students in pre intervention had knowledge that diarrhoea kills children and 94.6% of students in post intervention had knowledge that diarrhoea kills children.

While evaluation pre and post intervention statistics in table 2, it is found that there is significant change regarding knowledge about personal hygiene in post intervention evaluation when compared to pre intervention statistics in both government and private schools which indicates both the schools have participated actively in the study

5 | DISCUSSION

This study was conducted in secondary school children as they are the most important segment of population that intend to receive information from various sources like family, school, society and government. Those children who are healthy transform into strong adults which not only benefit themselves but also the developing countries as they become future active participants⁽⁷⁾.

From table 1: knowledge that personal hygiene is about general body cleanliness was found in 43.6% in government school and 40.8% in private school children during pre test while 7.3% in government school and 14.3% in private school agreed this in post test due to

Table 1: Differences in Pre and Post intervention responses in Private and Government schools

Question	Government					Private					
		Pre-Intervention		Post-Intervention		P value	Pre-Intervention		Post-Intervention		P value
1)Do you think personal hygiene is about general body cleanliness?	yes	62	56.4	8	7.3	0.000	91	40.8	32	14.3	0.000
	no	48	43.6	102	92.7		132	59.2	191	85.7	
2)How many times do you take bath daily?	once	5	4.5	0	0	0.000	8	3.6	1	0.4	0.000
	twice	103	93.6	80	72.7		201	90.1	130	58.3	
	When you feel unclean	2	1.8	30	27.3		14	6.3	92	41.3	
3)Do you thinkcutting and cleaning finger nails is good for health?	Yes	95	86.4	101	91.8	0.194	210	94.2	213	95.5	0.548
	No	15	13.6	9	8.2		13	5.8	10	4.5	
4) Do you think washing hair regularly is a part of cleanliness?	Yes	90	81.8	103	93.6	0.008	202	90.6	208	93.3	0.297
	No	20	18.2	7	6.4		21	9.4	15	6.7	
5) Do you think nail biting is healthy for your teeth?	Yes	17	15.5	13	11.8	0.432	20	9	20	9	1.000
	No	93	84.5	97	88.2		203	91	203	91	
6) How many times you will clean your teeth ?	Once	27	24.5	5	4.5	0.000	98	43.9	60	26.9	0.001
	Twice	82	74.5	91	82.7		119	53.4	151	67.7	
	After eating anything	1	0.9	14	12.7		6	2.7	12	5.4	
7)Do you think cleaning your teeth with tooth paste and brush is enough to prevent teeth from cavities?	Yes	42	38.2	10	9.1	0.000	84	37.7	22	9.9	0.000
	No	68	61.8	100	90.9		139	62.3	201	90.1	
8) Do you rinse your mouth with water after meal?	Yes	90	81.8	108	98.2	0.000	193	86.5	212	95.1	0.02
	No	20	18.2	2	1.8		30	13.5	11	4.9	
9) Do we need to wash our hands before meals?	Yes	98	89.1	110	100	0.000	220	98.7	221	99.1	0.653
	No	12	10.9	0	0		3	1.3	2	0.9	
10) Do we need to wash our hands when there is no visible dirt?	Yes	76	69.1	104	94.5	0.000	195	87.4	217	97.3	0.000
	No	34	30.9	6	5.5		28	12.6	6	2.7	
11) Do you have bathrooms in your house?	Yes	103	93.6	104	94.5	0.775	210	94.2	216	96.9	0.170
	No	7	6.4	6	5.5		13	5.8	7	3.1	
12) Do you practiceopen urination at public places?	Yes	33	30	14	12.7	0.002	48	21.5	35	15.7	0.114
	No	77	70	96	87.3		175	78.5	188	84.3	
13) Do you practice open defecation at public places?	Yes	20	18.2	15	13.6	0.357	37	16.6	16	7.2	0.002
	No	90	81.8	95	86.4		186	83.4	207	92.8	
14)Do you think washing your hands with soap after defecation is necessary?	Yes	103	93.6	109	99.1	0.031	215	96.4	217	97.3	0.587
	No	7	6.4	1	0.9		8	3.6	6	2.7	
15) Are the following statements Yes or No ?											
You should change your underclothes everyday?	Yes	100	90.9	103	93.6	0.449	221	99.1	223	100	0.055
	No	10	9.1	7	6.4		2	0.9	0	0	
All germs are very harmful	Yes	68	61.8	90	81.8	0.001	129	57.8	134	60.1	0.630
	No	42	38.2	20	18.2		94	42.2	89	39.9	
personal cleanliness is sufficient to maintain good health	yes	78	70.9	12	10.9	0.000	79	35.4	68	30.5	0.268
	No	32	29.1	98	89.1		144	64.6	155	69.5	
A wound is safe when it is covered	Yes	77	70	102	92.7	0.000	125	56.1	143	64.1	0.082
	No	33	30	8	7.3		98	43.9	80	35.9	
Your hands contain the most germs	Yes	79	71.8	101	91.8	0.000	188	84.3	190	85.2	0.792
	No	31	28.2	9	8.2		35	15.7	33	14.8	
16)Can diarrhea spread by											
Eating unwashed fruits	Yes	87	79.1	90	81.8	0.610	141	63.2	173	77.6	0.001
	No	23	20.9	20	18.2		82	36.8	50	22.4	
Due to sun stroke	Yes	49	44.5	94	85.5		123	55.2	138	61.9	0.149

	No	61	55.5	16	14.5	0.000	100	44.8	85	38.1	
Dirty and long nails	Yes	73	66.4	92	83.6	0.003	113	50.7	168	75.3	0.000
	No	37	33.6	18	16.4		110	49.3	55	24.7	
When flies land on food	Yes	75	68.2	96	87.3	0.001	175	78.5	198	88.8	0.003
	No	35	31.8	14	12.7		48	21.5	25	11.2	
Eating heavy food	Yes	82	74.5	99	90	0.003	146	65.5	159	71.3	0.186
	No	28	25.5	11	10		77	34.5	64	28.7	
Eating food with unwashed hands	Yes	85	77.3	91	82.7	0.312	159	71.3	173	77.6	0.129
	No	25	22.7	19	17.3		64	28.7	50	22.4	
Drinking dirty water	Yes	76	69.1	102	92.7	0.000	163	73.1	185	83	0.012
	No	34	30.9	8	7.3		60	26.9	38	17	
17) If someone gets diarrhea											
a) Eats less food	Yes	65	59.1	90	81.8	0.000	193	86.5	207	92.8	0.029
	No	45	40.9	20	18.2		30	13.5	16	7.2	
b) Wash hands after defecation	Yes	88	80	108	98.2	0.000	199	89.2	211	94.6	0.037
	No	22	20	2	1.8		24	10.8	12	5.4	
c) Use ORS	Yes	68	61.8	96	87.3	0.000	193	86.5	213	95.5	0.001
	No	42	38.2	14	12.7		30	13.5	10	4.5	
18) Can diarrhea kill children?	Yes	35	31.8	97	88.2	0.000	165	74	211	94.6	0.000
	No	97	88.2	13	11.8		58	26	12	5.4	

McNemar's Test, $P \leq 0.05$ was considered significant

Table 2: Differences in responses between private and government schools at different time points

Question	Pre-Intervention				Post-Intervention						
	Options	Government	Private	P value	Government	Private	P value				
1 Do you think personal hygiene is about general body cleanliness?	Yes	62	56.4	91	40.8	0.007	102	92.7	40	17.9	0.009
	No	48	43.6	132	59.2		8	7.3	183	82.1	
2 How many times do you take bath daily?	Once	5	4.5	19	8.5	0.092	0	0	0	0	0.010
	Twice	103	93.6	191	85.7		80	72.7	130	58.3	
	When you feel unclean	2	1.8	13	5.8		30	27.3	93	41.7	
3 Do you think cutting and cleaning finger nails is good for health?	Yes	95	86.4	208	93.3	0.038	101	91.8	222	99.6	0.000
	No	15	13.6	15	6.7		9	8.2	1	0.4	
4 Do you think washing hair regularly is a part of cleanliness?	Yes	90	81.8	202	90.6	0.022	103	93.6	219	98.2	0.028
	No	20	18.2	21	9.4		7	6.4	4	1.8	
5 Do you think nail biting is healthy for your teeth?	Yes	17	15.5	25	11.2	0.273	13	11.8	2	0.9	0.000
	No	93	84.5	198	88.8		97	88.2	221	99.1	
6 How many times you will clean your teeth?	once	27	24.5	149	66.8	0.000	5	4.5	7	3.1	0.555
	Twice	82	74.5	71	31.8		91	82.7	179	80.3	
	After eating anything	1	0.9	3	1.3		14	12.7	37	16.6	
7 Do you think cleaning your teeth with tooth paste and brush is enough to prevent teeth from cavities?	Yes	42	38.2	178	79.8	0.000	10	9.1	18	8.1	0.753
	No	68	61.8	45	20.2		100	90.9	205	91.9	
8 Do you rinse your mouth with water after meal?	Yes	90	81.8	166	74.4	0.133	108	98.2	219	98.2	0.987
	No	20	18.2	57	25.6		2	1.8	4	1.8	
9 Do we need to wash our hands before meals?	Yes	98	89.1	220	98.7	0.000	110	100	223	100	***
	No	12	10.9	3	1.3		0	0	0	0	
	Yes	76	69.1	155	69.5		104	94.5	211	94.6	

10 Do we need to wash our hands when there is no visible dirt?	No	34	30.9	68	30.5	0.938	6	5.5	12	5.4	0.978
11 Do you have bathrooms in your house?	Yes	103	93.6	219	98.2	0.028	104	94.5	216	96.9	0.305
	No	7	6.4	4	1.8		6	5.5	7	3.1	
12 Do you practice open urination at public places?	Yes	33	30	103	46.2	0.005	14	12.7	21	9.4	0.354
	No	77	70	120	53.8		96	87.3	202	90.6	
13 Do you practice open defecation at public places?	Yes	20	18.2	36	16.1	0.640	15	13.6	7	3.1	0.000
	No	90	81.8	187	83.9		95	86.4	216	96.9	
14 Do you think washing your hands with soap after defecation is necessary?	Yes	103	93.6	206	92.4	0.676	109	99.1	217	97.3	0.286
	No	7	6.4	17	7.6		1	0.9	6	2.7	
15 Are the following statements Yes or No ?											
a) You should change your underclothes everyday	Yes	100	90.9	221	99.1	0.000	103	93.6	222	99.6	0.001
	No	10	9.1	2	0.9		7	6.4	1	0.4	
b) All germs are very harmful	Yes	68	61.8	162	72.6	0.044	90	81.8	207	92.8	0.002
	No	42	38.2	61	27.4		20	18.2	16	7.2	
c) Personal cleanliness is sufficient to maintain good health	Yes	78	70.9	142	63.7	0.190	12	10.9	42	18.8	0.065
	No	32	29.1	81	36.3		98	89.1	181	81.2	
d) A wound is safe when it is covered	Yes	77	70	88	39.5	0.000	102	92.7	204	91.5	0.695
	No	33	30	135	60.5		8	7.3	19	8.5	
e) Your hands contain the most germs	Yes	79	71.8	174	78	0.212	101	91.8	204	91.5	0.917
	No	31	28.2	49	22		9	8.2	19	8.5	
16 Can diarrhea spread by											
a) Eating unwashed fruits	Yes	87	79.1	111	49.8	0.000	90	81.8	196	87.9	0.134
	No	23	20.9	112	50.2		20	18.2	27	12.1	
b) Due to sun stroke	Yes	49	44.5	105	47.1	0.662	94	85.5	194	87	0.699
	No	61	55.5	118	52.9		16	14.5	29	13	
c) Dirty and long nails	Yes	73	66.4	114	51.1	0.008	92	83.6	200	89.7	0.114
	No	37	33.6	109	48.9		83.6	16.4	23	10.3	
d) When flies land on food	Yes	75	68.2	163	73.1	0.350	96	87.3	205	91.9	0.175
	No	35	31.8	60	26.9		14	12.7	18	8.1	
e) Eating heavy food	Yes	82	74.5	146	65.5	0.94	99	90	190	85.2	0.224
	No	28	25.5	77	34.5		11	10	33	14.8	
f) Eating food with unwashed hands	Yes	85	77.3	153	68.6	0.100	91	82.7	195	87.4	0.245
	No	25	22.7	70	31.4		19	17.3	28	12.6	
g) Drinking dirty water	Yes	76	69.1	176	78.9	0.049	102	92.7	185	83	0.015
	No	34	30.9	47	21.1		8	7.3	38	17	
17 If someone gets diarrhea											
a) Eats less food	Yes	65	59.1	184	82.5	0.000	90	81.8	214	96	0.000
	No	45	40.9	39	17.5		20	18.2	9	4	
b) Wash hands after defecation	Yes	88	80.0	179	80.3	0.954	108	98.2	217	97.3	0.625
	No	22	20	44	19.7		2	1.8	6	2.7	
c) Use ORS	Yes	68	61.8	178	79.8	0.000	96	87.3	210	94.2	0.030
	No	42	38.2	45	20.2		14	12.7	13	5.8	
18 Can diarrhea kill children?	Yes	35	31.8	165	74	0.000	97	88.2	203	91	0.413
	No	75	68.2	58	26.0		13	11.8	20	9	

McNemar's Test, $P \leq 0.05$ was considered significant

the fact that not only one's self but also the surroundings must be clean. Overall 60% of children in developing countries had changed to good hygienic practices and self-care measures by best health education by teachers and health-care professional⁽⁸⁾. In our study more than half of the students during pre-intervention itself agreed that bathing twice a day, trimming nails and washing hair regularly is a part of their basic personal hygiene which is similar to the findings in a study conducted by Oyibo⁽⁸⁾ in where maximum students (97.4%) had the knowledge regarding this and contrary to the study conducted by M Sarkar among primary school children living in a slum of Kolkata where less than half the students were aware regarding this basic knowledge. In a study conducted by Ansari and Wharbe⁽²⁾ only 47% of the students washed their hair regularly. Maximum of the students in our study reported that they take bath regularly which is almost similar to the findings in study conducted by Ansari and Warbhe⁽²⁾ where 81% students used to take bath regularly. In private school 53.4% of the students cleaned their teeth twice daily whereas in a study conducted by Ansari and Wharbe⁽²⁾ only 31% of the students brushed their teeth twice daily which is considered as a standard protocol. During post interventional assessment about 67.7% of the students mentioned that they were brushing their teeth twice daily. Manjunath and Kumar⁽⁹⁾ conducted study on school children which showed 68% brush teeth before going to bed followed by 31.8% in the morning.

In our study, almost all the students during pre and post intervention agreed that they would wash their hand before meals and after defecation which is similar to the findings in the study conducted by Vivas⁽¹⁰⁾ in Angolela, Ethiopia where majority of students reported washing hands before meals and contrary to the study conducted by Mohammad AH among school children in rural area of Bangladesh where more than 50% of the children mentioned that they did not clean their hands with soap before meal intake and after defecation

.In a study conducted by Dongre et al. (2007) in rural India documented that 63.6% school going children (6-14 years) had practice of hand washing with soap after defecation and 67.8% had clean and cut nails before initiating hygiene education⁽⁴⁾. During pre

intervention 69.1% of the students in government school mentioned that hands should be washed even when there is no visible dirt and this percentage increased to 87.4% which emphasized that children had acquired significant knowledge regarding importance of hand washing in our study. Basic oral hygiene practices like brushing teeth twice daily, use of floss and maintaining healthy gums are also educated to the students.

With the increase in population in cities and towns, more attention was given to hygiene and health. As a result, there was an increase in global attention towards reducing the practice of open defecation. Majority of the students in our study during post intervention agreed that they had stopped urinating and defecating at public places which prevent flies landing on these dirty areas thus creating healthy and sanitary environment not only to students but also to the general population.

In our study, during pre-intervention majority of the students did not have the knowledge regarding causes, ill effects and treatment of diarrhea common problem which is faced most often by the students belonging to this age group and majority of them are unaware of the fact that severe diarrhea is lethal whereas after post-intervention there is significant increase in knowledge regarding this.

Since high students may not have complete knowledge regarding personal hygiene and are more often prone to infections and transmissible diseases, personal hygiene is not only a subject to theoretically learn but also needs to be practiced in day to day life. Keeping this in view, dentists can play crucial role in preparing the school children regarding good hygiene practices.

6 | CONCLUSION

Children are more likely to grasp and adopt healthy practices at a younger age if properly educated. They can also become agents of change by spreading this education to their family and community. Insanitary condition is one of the major causes of diseases. As a result basic hygiene which should be implemented daily for their well being is taught to the children.

Diarrhea, which is the most common problem faced by children, is also included in our study and children are well educated regarding this. According to recent study by the WHO, due to lack of cleanliness and hygienic conditions, there is a loss of Rs. 6500 every year to each Indian and Swatch Bharat Mission tries to prevent this loss (11). Hence children are also educated regarding this aspect. Oral hygiene techniques which can be practiced at ease are also taught to the students. Periodic personal hygiene education is needed to emphasize

hygienic practices

7 | ACKNOWLEDGEMENT

We authors would like to express our gratitude to Dean Dr. Krishna Prasad Sibar Institute of Dental Sciences Guntur for providing assistance during this short term research project. The completion of this undertaking could not have been possible without the participation and assistance of so many people whose name may not all be enumerated. Their contribution are sincerely appreciated and gratefully acknowledged.

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How to cite this article: Duddukuri M., Simha B.V., Deep D.R., Gade A., Maguluru S., Babu B A. **EFFECTIVENESS OF SCHOOL HEALTH EDUCATION PROGRAM ON PERSONAL HYGIENE AMONG SECONDARY SCHOOL CHILDREN IN RURAL GUNTUR-A PRE AND POST DESIGN.** *Innovative Journal of Medical and Health Science*. 2021;1–11. <https://doi.org/10.15520/ijmhs.v1i1i03.3252>