

## A QUASI –EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON HAND WASHING TECHNIQUES TO PREVENT GASTROINTESTINAL INFECTIONS AMONG SCHOOL GOING CHILDREN IN SELECTED SCHOOL SONPAT, HARYANA

**Author's Name:** Meena Rani

**Affiliation:** PhD Scholar (JJTU, Jhunjhunu, Rajasthan), Vice-principal, RP INDERPERASTHA INSTITUTE OF MEDICAL SCIENCES, Bastara, Karnal, India

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### *Abstract*

*When though proper hand washing is the most effective and easiest way to prevent many diseases, unfortunately many people do not practice hand washing correctly. The worldwide Global Hand Washing Day campaign which targets school children as the most effective agents for behavior change is both evidence of this problem and an attempt to address it. In this study the researcher aimed to assess the effectiveness of structured teaching programme on hand washing techniques to prevent gastrointestinal infections among school going children. Research design adopted for this study was quasi experimental design, samples for the study was selected through convenient sampling technique. Total sample size for the study was 100. Pre-test was done to the subjects in both group and Experimental group subjects received structured teaching programme regarding hand washing techniques to prevent gastrointestinal infections. Control group subjects do not received any special interventions. On the seventh day from the pre-test researcher took post-test among subjects in both the group to assess the effectiveness of the effectiveness of structured teaching programme on hand washing techniques to prevent gastrointestinal infections. Data collected were analyzed with the help of descriptive and inferential statistics. Mean post –test score in experimental and control group was 25.72 and 13.71 respectively. The mean difference score was 12.01. The standard deviation scores in experimental group was 2.170 and for control group 9.131. The 't' value was 59.524 which was statistically significant at the 'P' value 0.000. This study imposes importance of suitable health teaching intervention through proper structure to the school children, for enhancement concerning hand hygiene among them, all over the country.*

**Keywords:** Hand washing, structured teaching programme, gastrointestinal problems and school going children's

### **INTRODUCTION**

Hand washing is the act of washing hands with plain or antimicrobial soap and water and it is the single most preventive measure for reducing the spread of contagious diseases. In fact skin is the body's first line of defense against bacteria, therefore careful attention to hand care is an essential part of the hand hygiene program. The presence of dermatitis, cracks, cuts or abrasions can trap bacteria and compromise hand hygiene (Core, 2002). According to CDC report estimates each year nearly 2 million patients in the United States get an infection in hospitals, and about 90,000 of these patients die as a result of their infection. More widespread use of hand hygiene products that improve adherence to recommended hand hygiene practices will promote patient safety and prevent infections (Core, 2002).

The two biggest killers of children in the developing world today are diarrheal disease and respiratory tract infections (Assefa M, Kumie A, 2014). The simple act of washing hands with soap can cut diarrhea risk by almost half, and respiratory tract infection by a third. There is improvement on morbidity and

mortality rates but still diarrheal diseases are responsible for 21% of all deaths and 2.5 million deaths per year which has either direct or indirect relation with poor hand washing. In developing countries, there were 3.2 episodes of diarrhea per child per year in under five children with mortality rate of 4.9 children per 1000 per year (Araoye MO, 2003).

About 1.8 million children under the age of 5 die each year from diarrheal diseases and pneumonia, the top two killers of young children around the world. Children at day care and kindergartens are at higher risk of getting infections. The contributory factors are overcrowding, lack of understanding on basic hygiene and lack of natural immunity to viruses and bacteria. Microorganisms spread via direct or indirect contact and also by air, food and vectors. Preventive strategies should be directed at interrupting the chain of transmission, of which hand hygiene is the single most effective and cheapest measure available. Hand washing with soap could protect about 1 out of every 3 young children who get sick with diarrhea and almost 1 out of 5 young children with respiratory infections like pneumonia<sup>4</sup>

### NEED FOR THE STUDY

Proper hand washing is one of the best ways to prevent the spread of infection. It is especially important at school, where small children are in constant contact with each other, often spreading micro-organisms. More over many children don't wash their hands before eating after using the toilets and after playing at the ground in school. Hand washing is significantly important in children as they are vulnerable to illness since they are very playful and more exposed to dirt, soil and other source of infections (Snow M, White G, Kim H., 2008)

A study conducted by the United Nations Children's Fund (UNICEF) and the Ethiopian Ministry of Health found that study participants in rural Ethiopia had poor status regarding knowledge, attitudes, and practices (KAP) of hygiene (Vivas AP, et al 2005). Approximately, 60% of children surveyed did not know about the possible transmission of diseases through human waste (Assefa and Kumie, 2014).

Despite the proven importance and benefits of washing hand, proper handwashing is not as pervasive as desired to prevent infections until now, especially in the developing countries that bear the greatest burden of infectious diseases. A survey undertaken in Bangladesh indicated that handwashing practice with soap before eating was much lower than after defecation, and a gap persists between perception and practice of proper handwashing practices with soap. Another observational study in rural Bangladesh showed that 14% of all persons washed both hands with soap after defecation, while <1% used soap and water for washing hand before eating (Cho YM, Seo YH, Park MJ. 2018). Several studies addressed hand hygiene among different population in Bangladesh; however, hand hygiene studies among college or university students are very limited.<sup>10,13,14</sup> Although the morbidity and mortality associated with respiratory and gastrointestinal illnesses among university students are relatively low, these infections may contribute to absenteeism along with sickness presenteeism, which can ultimately affect academic performance and efficiency<sup>15</sup> and can also be associated with outbreaks of viral gastroenteritis, upper respiratory tract infections, and group B streptococcal colonization in this setting (Saeed MMAS, Noushin RT.).

### REVIEW OF LITERATURE

#### Best M, Neuhauser D. (2003)

Faecal coli form bacteriological counts were reported to be high for both left and right hands. About 85% of women studied who lived in slums and 41% of rural women washed their hands using only water. However, most women rubbed their hands on the ground, or used soil, and rinsed them with water during

post-defecation hand washing. Most women claimed that they could not afford to buy soap. Experimental trials showed that use of soap, ash or soil gave similar results when women washed their hands under the same conditions. The washing of both hands, rubbing of hands, and the amount and quality of rinsing water used were found to be important determinants in the reduction of bacterial counts on hands. Although hand washing messages have been revised by most of the main programmers after these studies, there is scope for further improvement, as well as evaluation of their impact.

### **Tambekar DH, Shirsat SD. (2009)**

The study determined: (1) presence of *Escherichia coli* on the hands of 126 primary school pupils, (2) knowledge, awareness and hygiene practices amongst pupils and teachers and (3) the school environment through observation. Pupil appreciation of hygiene issues was reasonable; however, the high percentage presence of *E. coli* on hands (71%) and the evidence of large-scale open defaecation in school grounds revealed that apparent knowledge was not put into practice. The standard of facilities for sanitation and hygiene did not significantly impact on the level of knowledge or percentage of school children's hands harboring fecal bacteria. Evidence from pupils and teachers indicated a poor understanding of principles of disease transmission. Latrines and hand-washing facilities constructed were not child friendly. This study identifies a multidisciplinary approach to improve sanitation and hygiene practices within schools.

**Akter T, Ali AM (2014)** a cross-sectional descriptive study about hand washing practice, the prevalence of proper hand washing, and related factors among sixth grade of elementary students in Selat sub-district, Indonesia. A self administered questionnaire was administered to 274 students at seven schools randomly selected by proportion to size from five villages. Data were analyzed using descriptive statistics, Chi square tests, and multiple logistic regression to explore associations between the various study factors (i.e. socio-demographic characteristics, attitudes, subjective norms, perceived control, and availability of facilities). Nine combinations of hand washing emerged from this study which combined washing hands by using water and soap with two critical events: before eating and after visiting the toilet. Only 40.5% of the respondents washed their hands properly. Availability of clean water (Adj OR = 4.24, 95% CI = 1.92-9.35) and soap (Adj OR = 5.55, 95% CI = 2.36-13.08) at hand washing stands were found to be significant predictors of proper hand washing, when adjusted with other factors.

## **RESEARCH METHODOLOGY**

### **Target Population**

In this study the target population was school going children's.

### **Sampling Technique**

The samples for the current study were done by convenience sampling method.

### **Sample Size**

Size of the sample for the present study was 100. Each group had 50 samples.

### **Inclusion and Exclusion Criteria**

#### **Inclusion Criteria**

1. All the school children who were studying III to V standard at selected schools
2. Children who were aged between 9 to 11 years.
3. Children who were able to speak read and write Punjabi and English

### Exclusion Criteria

1. Children who were not willing to participate in this study
2. School children who were on leave.

### DATA ANALYSIS AND INTERPRATION

**Table 1: Frequency and Percentage Distribution of Subjects in Experimental and Control Groups:  
(N = 100)**

S. No	Demographic Variables	Frequency (Percentage)	
		Experimental Group	Control Group
1.	Age (Years):		
	▪ 9	16 (32%)	16 (32%)
	▪ 10	23 (46%)	19 (48%)
	▪ 11	11 (22%)	15 (30%)
2.	Gender:		
	a. Male	30 (60%)	26 (52%)
	b. Female	20 (40%)	24 (48%)
3.	Class:		
	a. 3 <sup>rd</sup> standard	16 (32%)	16 (32%)
	b. 4 <sup>th</sup> standard	23 (46%)	19 (48%)
	c. 5 <sup>th</sup> standard	11 (22%)	15 (30%)
4.	Education of Father		
	a. Illiterate	3 (6%)	3 (6%)
	b. 1 <sup>st</sup> to 10 <sup>th</sup> standard	17 (34%)	26 (52%)
	c. 6 (12%)	16 (32%)	
	d. 11 <sup>th</sup> to 12 <sup>th</sup> standard	24 (48%)	11 (22%)
	d. Graduate and above		
5.	Education of Mother		
	• Illiterate	10 (20%)	9 (18)
	• 1 <sup>st</sup> to 10 <sup>th</sup> standard	27 (54%)	17 (34%)
	• 13 (26%)	9 (18%)	
	• 11 <sup>th</sup> to 12 <sup>th</sup> standard	0 (0%)	15 (30%)
	• Graduate and above		
6.	Occupation of Father		
	a. Government employee	12 (24%)	7 (14%)
	26 (42%)	24 (28%)	
	b. Private employee	8 (16%)	11 (22%)
	c. Self employed	4 (8%)	8 (16%)
	d. Labourer		
7.	Occupation of Mother		
	a. Government employee	4 (8%)	5 (10%)
	19 (38%)	17 (34%)	
	b. Private employee	7 (14%)	10 (20%)
	c. Self employed	20 (40%)	18 (36%)

	d. Home maker		
8.	Type of Family		
	a. Nuclear	13 (26%)	15 (30%)
	b. Joint	22 (44%)	23 (46%)
	c. Extended	15 (30%)	12 (24%)
9.	Family Monthly Income (Rupees)		
	a. ≤5000	16 (32%)	16 (32%)
	b. 5001-10000	20 (40%)	23 (46%)
	c. 10001-15000	14 (28%)	11 (22%)
	d. ≥ 15001	0 (0%)	0 (0%)
10.	Hand washing facilities at home	21 (46%)	34 (68%)
	a. Tap water and soap	29 (58%)	16 (32%)
	b. Only water		
11.	Hand washing facilities at school	35 (70%)	14 (28%)
	1. Tap water and soap	15 (30%)	36 (72%)
	2. Only water		
12.	Source of Information		
	1. Electronic media	15 (30%)	10 (20%)
	2. Printed media	8 (16%)	13 (26%)
	3. Family/friends	11(22%)	7 (14%)
	4. Teachers	16 (32%)	20 (40%)

The above table shows the frequency and percentage distribution of subjects according to socio-demographic variables in experimental and control group.

With regard to age of the subjects in experimental group, majority of the subjects were in the age 10 years 23 (46%). Subjects in age 9 years were 16 (32%). In the control group maximum number of subjects 19 (48%) belongs to 10 years of age.

Gender of the subjects in experimental group shows that majority 30 (60 %) were males and females were 20 (40%). In control group majority of the subjects 26 (52%) were males and females were 24 (48%),

Class of the subjects reveals majority of the subjects in experimental group 26 (46%) were studying 4<sup>th</sup> standard. In control group majority 19 (48%) of the subjects were in 4<sup>th</sup> standard. Subjects in 3<sup>rd</sup> standard were 16 (32%) in experimental group and control group respectively.

With regard to education of father 24 (48%) had graduate and above education. Subjects who studied 1<sup>st</sup> to 12<sup>th</sup> standard were 17 (34%) in control group. Similarly in control group majority of the subjects fathers education 26 (52%) were studied 1<sup>st</sup> to 10<sup>th</sup> standard. Those who had education between 11<sup>th</sup> to 12<sup>th</sup> standard were 16 (32%).

With regard to education of mother 27 (54%) had 1<sup>st</sup> – 10<sup>th</sup> standard. Subjects who studied 11<sup>th</sup> to 12<sup>th</sup> standard were 13 (26%) in control group. Similarly in control group majority of the subjects mothers education 17 (34%) were studied 1<sup>st</sup> to 10<sup>th</sup> standard. Those who had education as graduation and above



were 15 (30%).

Occupation of father says in experimental group majority of the subjects 26 (42%) were working in private. Those who working in government were 12 (24%), similarly in control group majority of the subjects 18 (48%) were private employee. Subjects who were self-employed were 11 (22%).

Occupation of mother shows in experimental group majority of the subjects 19 (38%) were working in private. Those who were home maker 20 (40%). similarly in control group majority of the subjects 18 (36%) were home maker. Subjects who were in private were 17 (34%).

With regard to type of family, subjects in experimental group majority 22 (44%) were belongs to joint family and those who belongs to extended family were 15 (30%).in the control group majority of the subjects 23 (46%) were from joint family and 15 (30%) of the subjects were from nuclear family.

Family monthly income of the subjects shows in experimental group majority 20 (40%) were having income between 5001 - 10,000 Rs in control group majority of the subjects had family income 5001 - 10000 Rs were 11 (22%).

Regarding hand washing facilities at home, majority of the subjects in experimental group uses only water 29 (58%) and others uses water and soap 21 (46%). In control group majority of the subjects 34 (68%) uses water and soap and others 16 (32%) were using water only.

With regard to hand washing facilities at school among subjects in experimental group majority 35 (70%) were using only water and others 15 (30%) were using soap and water. In control group majority of the subjects 36 (72%) had using soap and water. Others 14 (28%) were using only water.

Source of information regarding hand washing shows in experimental group majority of the subjects 16 (32%) obtained information from teachers, subjects who got information from electronic media were 15 (30%). In control group subjects majority 20 (40%) had gained information from teachers and 13 (26%) were gained information's through print media.

**Table - 2: Frequency and Percentage Distribution of Subjects  
According to Pre-test knowledge in Experimental and Control Group.  
(N = 100)**

S. No	Pre-test Level of Knowledge	Experimental Group		Control Group	
		f	%	f	%
1.	Poor (1 - 10)	38	76	50	100
2.	Average (11 - 20)	12	24	0	0
3.	Good (21 - 30)	0	0	0	0

The above table shows the pre-test level of knowledge regarding hand washing technique with regard to prevention of gastrointestinal problems among subjects in experimental and control group.

In experimental group, majority of the subjects 38 (76%) were having poor level of knowledge and those subjects with average level of knowledge were 12 (24%). None of the subjects were with good level of knowledge.

In control group, all the 50 (100%) of the subjects were having poor level of knowledge.

**Table - 3: Frequency and Percentage Distribution of Subjects According to Post-test knowledge in Experimental and Control Group.**

(N = 100)

S. No	Pre-test Level of Knowledge	Experimental Group		Control Group	
		f	%	f	%
1.	Poor (1 - 10)	0	0	41	82
2.	Average (11 - 20)	0	0	9	18
3.	Good (21 - 30)	50	100	0	0

The above table shows the post-test level of knowledge regarding hand washing technique with regard to prevention of gastrointestinal problems among subjects in experimental and control group.

In experimental group, all the 50 (100%) of the subjects were having good level of knowledge

In control group, majority of the subjects 41 (82%) had poor knowledge and those who were with average level of knowledge were 9 (18%).

**Table - 4 : Mean, Mean Difference, Standard deviation and paired 't' test value regarding pre-test and post-test knowledge among subjects in experimental group.**

(N = 50)

S. No	Test	Mean	Mean Difference	Standard Deviation	't' test	'P' Value
1.	Pre-Test	9.78	16	2.234	40.415*	0.000
2.	Post-Test	25.78		2.053		

\*- Significant at 'P' value less than 0.05

## DISCUSSION

In this study the researcher aimed to assess the effectiveness of structured teaching programme on hand washing techniques to prevent gastrointestinal infections among school going children. Research design adopted for this study was quasi experimental design, samples for the study was selected through convenient sampling technique. Total sample size for the study was 100. Pre-test was done to the subjects in both group and Experimental group subjects received structured teaching programme regarding hand washing techniques to prevent gastrointestinal infections. Control group subjects do not received any special interventions. On the seventh day from the pre-test researcher took post-test among subjects in both the group to assess the effectiveness of the effectiveness of structured teaching programme on hand washing techniques to prevent gastrointestinal infections. Data collected were analysed with the help of descriptive and inferential statistics.

## CONCLUSION

The study finding proved that the structured teaching program administered by the researcher was effective to increase the knowledge of school children's in selected schools regarding prevention of gastrointestinal problems. There was difficulty to gather all the students in a single class room because of different time table with the teacher cooperation, the researcher could make it possible. The findings of the study has implication in different field of nursing that is nursing practice, nursing education, nursing administration and nursing research. The pediatric health nurses should take an initiate and imparting

knowledge, practice and attitude to school children through periodical health education program in the school, hospitals and community settings. The paediatric health nurses have major role in creating awareness of healthy hand washing practice to reduce the mortality and morbidity among school children.

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