



# A STUDY TO ASSESS THE EFFECTIVENESS OF HAND HYGIENE PRACTICE AMONG ELEMENTARY SCHOOL AGE CHILDREN AT SELECTED SCHOOL IN KOMARAPALAYAM, NAMAKKAL DISTRICT

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## ABSTRACT

**Background:** School children may lack the ability to execute their own personal hygiene and understand the value of proper hygiene, thus cares must provide constant care and monitoring. In this regard, the integration of adequate hygiene, diet, and vaccination delivery (age-dependent) to establish a foundation for healthy age-appropriate growth, development, and immune response must be emphasized. Hand hygiene is one of the most important aspects of infection control since it has been shown to greatly minimize the risk of infection cross-transmission in healthcare facilities. Infectious infections could be avoided by practicing proper hand hygiene at home and at school. The aim of this study was the effectiveness of hand hygiene practice among school age children at selected schools.

**Objectives:** (1) To assess the pretest level of practice among elementary school age children. (2) To assess the post test level of practice among elementary school age children. (3) To assess the effectiveness of hand hygiene practice among elementary school age children. (4) To associate the Post test level of practice among elementary school age children with their selected demographic variables. **Methodology:** The Quasi-experimental one group pre and post -test research design was selected for this study. A total of 50 school age children selected by using simple random sampling technique. Individual consent both verbal and written was obtained from school age children. The participant information sheet was provided and written consent was obtained from school age children. Demographic variables were collected using Interview schedule. Assessment of the pretest level of practice among school age children by the observational checklist of the practice of hand hygiene. The interventions on structured teaching programme and demonstration for the school children. After the intervention, Posttest assessment of level of practice among school age children by the observational checklist of the practice of hand hygiene. The collected data were computerized and analyzed using SPSS version 25. The data was analyzed using descriptive statistics (distribution, mean, standard deviation) and inferential statistics (paired t test, and chi-square value test). **Results:** The result shows in pretest, majority of school age children 30(60%) had Poor level of practice and 20 (40%) had Average level

of practice and in post- test, majority of school age children 35 (70%) had Good level of practice and 15(30%) had average level of practice. **Conclusion:** The study concludes that that video teaching program and demonstration was more effective on improves practice level regarding hand hygiene school age children.

**Keywords:** Hand Hygiene, Practice, Elementary School Age Children, Kumarapalayam.

## INTRODUCTION

Personal hygiene is important at all phases of life, but healthy hygiene habits should begin in childhood. Hand hygiene is especially important for youngsters, who are more susceptible to infections carried by filthy hands. Hand washing is acknowledged to be one of the most effective and least disruptive hygiene-promoting behaviors, and it can help prevent the spread of a variety of infectious diseases. The act of washing one's hands using regular or antibacterial soap and water is known as hand washing. Hand washing, especially before eating, is regarded to be one of the first lines of defense against a variety of infectious diseases in children, teenagers, and adults. (Nurul Azmawati Mohamed, Shalinawati Ramli, Anis Hafizah Azmi and Mohd Dzulkhairi Mohd Rani, 2022)

Hand hygiene interventions are any approaches used to promote hand hygiene behavior. In educational contexts, hand hygiene interventions that might improve psychosocial variables like behavioral capacity, attitudes, and subjective norms are commonly used. In addition, including behavior modification approaches and play into hand hygiene interventions for children yields effective results in terms of encouraging hand hygiene behavior and building self-efficacy in hand washing. Many of these studies that used hand hygiene interventions in educational settings on children examined success in reducing infectious associated absenteeism, infections, hand hygiene compliance, and microbiological effect. (Glenda Dangis et al., 2023)

## NEED FOR THE STUDY

Hand washing is a taught behavior, it is essential to acquire effective, proper hand cleaning as a youngster so that it becomes a habit throughout life. This practice is especially important for school-aged children, who may face a greater burden of hygiene-related ailments than adults. Though the demand for hand washing is greater in underdeveloped nations, the practices were found to be inadequate due to a lack of infrastructure, knowledge, or a combination of the two. Though many studies are conducted in the area of hand hygiene, the researcher could not find any valid study to effectiveness of hand hygiene practice among school age children at selected schools. Hence, the researcher felt the need to assess the effectiveness of hand hygiene practice among school age children at selected school in Kumarapalayam, Namakkal District.

## OBJECTIVES

1. To assess the pre-test level of hand hygiene practice among school age children.
2. To assess the post-test level of hand hygiene practice among school age children.
3. To assess the effectiveness of hand hygiene practice among school age children at selected schools.
4. To associate the Post-test level of hand hygiene practice among school age children with their selected demographic variables.

## HYPOTHESIS

- H<sub>1</sub>** - There will be a significant difference between pretest and posttest level of hand hygiene practice among school age children.
- H<sub>2</sub>** - There will be a significant association between the posttest level of practice among school age children with their selected demographic variables.

## RESEARCH APPROACH

The research approach is the most essential part of any research. The entire study is based on it. The choice of appropriate approach depends on the purpose of the study. It helps the researcher with suggestions of possible conclusions to drawn from the data.

The research design was used in this study is Quantitative research approach.

## RESEARCH DESIGN

The research design was the overall plan for obtaining answers to the questions being studied and for handling some of the difficulties encountered during the research process. Research design is the architectural backbone of the study (**Polit, 2008**)

The research design is the plan, structure and strategy of investigation of answering the research question. It is the overall plan or blue print, the researcher select to carry out the study. In this study, **Pre-experimental one group pre and post -test research design was used.**

Pre – Test	Intervention	Post – Test
Assess the pre test level of practice among school age children	Effectiveness of Structured teaching programme and demonstration of hand hygiene practice among school age children at selected school in Kumarapalayam, Namakkal District.	Assess the post test level of practice among school age children

## RESEARCH VARIABLE

**Dependent Variable** Improve the level of level of hand hygiene practice among school age children.

**Independent Variable** Effectiveness of video teaching programme and demonstration of hand hygiene practice among school age children at selected school in Kumarapalayam, Namakkal District

**Extraneous Variable** Demographic variables among elementary school age children.

## STUDY SETTING

The setting is selected based on acquaintance of the investigator with the institution, feasibility of conducting the study, availability of the sample, permission and proximity of the setting to investigation. The study will be conducted at JKKN Matriculation School in Kumarapalayam, Namakkal District.

## SAMPLE SIZE

Sample size is the number of subjects involved in the study. Sample size consists of 50 Elementary school age children at JKKN Matriculation School in Kumarapalayam, Namakkal District.

**SECTION - I: DESCRIPTION OF THE DEMOGRAPHIC VARIABLES AMONG SCHOOL AGE CHILDREN****Table - 1**

**Frequency and percentage distribution of demographic variables among school age children (N=50)**

S.No.	Demographic Variables	Frequency (N)	Percentage (%)
1	<b>Age in years</b>		
	- 8 years	11	22
	- 9 years	14	28
	- 10 years	19	38
	- 11 years	6	12
2	<b>Gender</b>		
	- Male	21	42
	- Female	29	58
3	<b>Place of residence</b>		
	- Urban	7	14
	- Rural	43	86
4	<b>Educational status of father</b>		
	- Non formal education	5	10
	- Primary education	7	14
	- High school education	20	40
	- Higher secondary school education	11	22
	- Graduate	7	14
5	<b>Educational status of mother</b>		
	- Non formal education	3	6
	- Primary education	14	28
	- High school education	19	38
	- Higher secondary school education	10	20
	- Graduate	4	8
6	<b>Occupational status of father</b>		
	- Government sector	9	18
	- Private sector	16	32
	- Self employed	22	44
	- Unemployed	3	6
7	<b>Occupational status of mother</b>		
	- Government sector	2	4
	- Private sector	5	10
	- Self employed	7	14
	- Home maker	36	72
8	<b>Family income per month in rupees</b>		
	- Below Rs.5000	3	6

S.No.	Demographic Variables	Frequency (N)	Percentage (%)
	- Rs.5001-10000	9	18
	- Rs.10001-15000	31	62
	- Rs.15001 and above	7	14
<b>9</b>	<b>Type of family</b>		
	- Nuclear	42	84
	- Joint	8	16
	- Extended	0	0
<b>10</b>	<b>Number of siblings</b>		
	- 1	36	72
	- 2	14	28
	- More than 2	0	0

**Table 1** shows frequency and Percentage wise Distribution of socio-demographic variables among school age children. Out of the 50 school age children who were interviewed,

- Majority of the school children 19 (38%) of study population were in the age group are 10 years.
- Most of the school children were female 29 (58%).
- Most of the school children comes under rural family 43 (86%).
- Most of the school children, Educational status of father were High school education 20 (40%).
- Majority of the school children, Educational status of mother were High school education 19 (38%).
- Most of the school children, Occupational status of father were Self-employed 22 (44%).
- Most of the school children, Occupational status of mother were Home maker 36(72%).
- Most of the school children were family income per month in rupees is 31 (62%) in rupees 10001-15000.
- Majority of the school children were nuclear family 42 (84%).
- Majority of the school children, Number of siblings were one 36 (72%).

## SECTION II: ASSESSMENT OF PRE-TEST AND POST-TEST OF THE LEVEL OF PRACTICE AMONG SCHOOL AGE CHILDREN.

Table - 2

Frequency and percentage wise distribution of pre-test and post-test of the level of practice among school age children

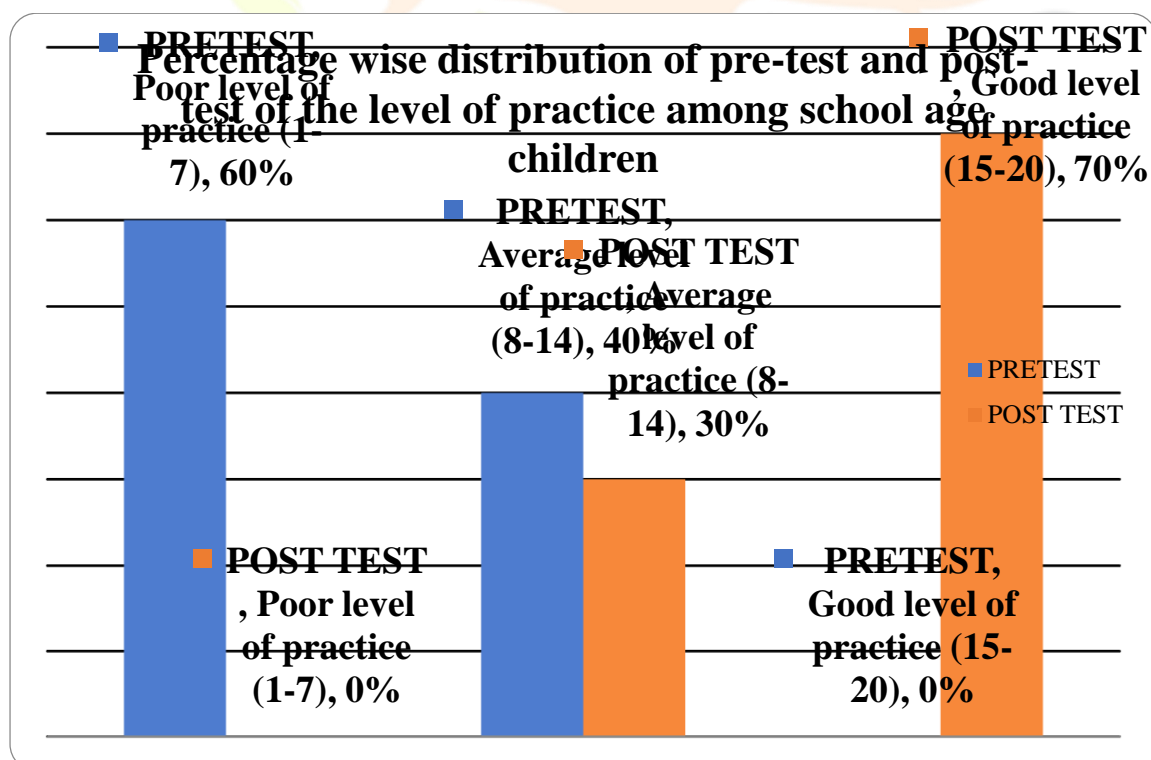
(N=50)

LEVEL OF PRACTICE	PRETEST		POST TEST	
	N	%	N	%
Poor level of practice (1-7)	30	60	0	0
Average level of practice (8-14)	20	40	15	30
Good level of practice (15-20)	0	0	35	70
<b>Mean Standard deviation</b>	8.42±3.246		15.44±3.131	

**Table – 2:** shows that frequency and percentage wise distribution of pre-test and post-test of the level of practice among school age children.

**In pretest,** Majority of school age children 30(60%) had Poor level of practice and 20(40%) had Average level of practice and the mean and standard deviation of level of practice among school age children is (8.42±3.246) and **In post- test,** Majority of school age children 35 (70%) had Good level of practice and 15(30%) had Average level of practice and the mean and standard deviation of level of practice among school age children is (15.44±3.131) respectively.

**Figure - 2:** Percentage wise distribution of pre-test and post-test of the level of practice among school age children



## SECTION III: EFFECTIVENESS OF HAND HYGIENE PRACTICE AMONG SCHOOL AGE CHILDREN AT SELECTED SCHOOLS.

**Table – 3**  
**Effectiveness of hand hygiene practice among school age children**  
**at selected school**

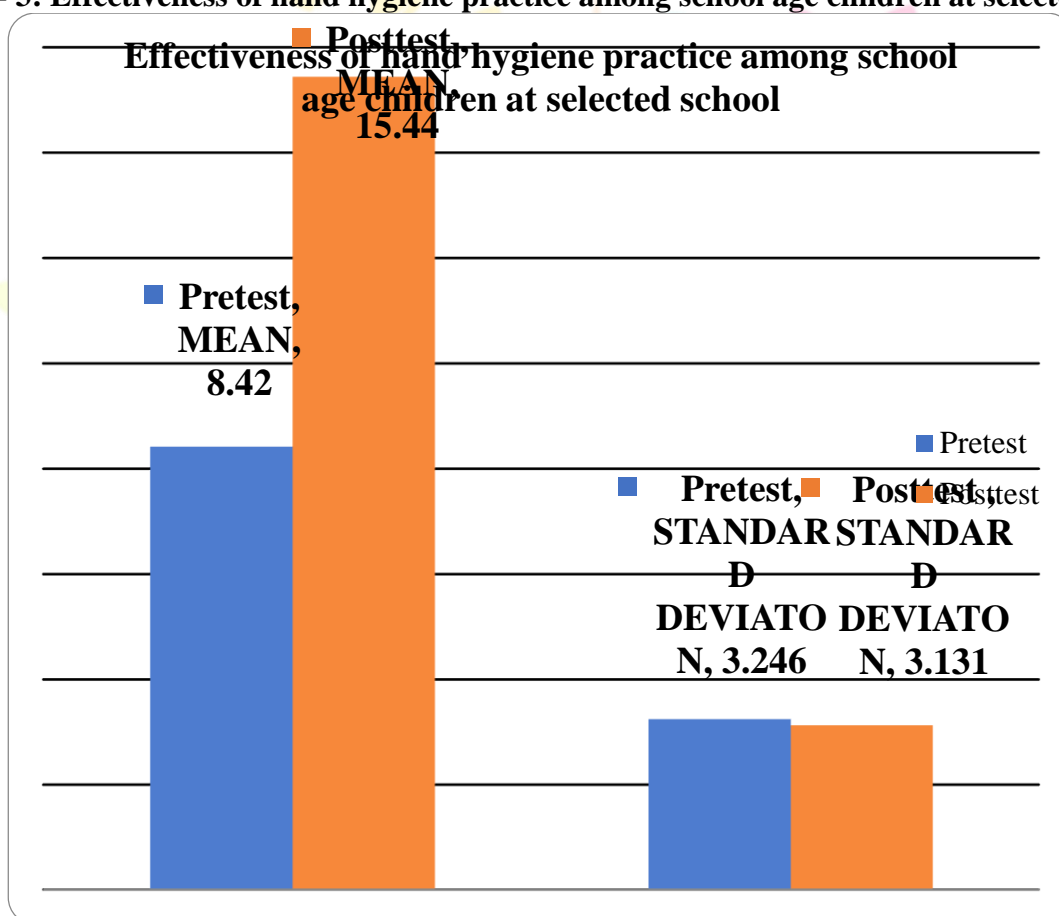
(N=50)

Level of Practice	Test	Mean	Standard Deviaton	Mean Difference	't' value Paired -t test	Df	'p' Value
	Pretest	8.42	3.246	7.02	17.14	49	<b>0.000**</b> <b>HS</b>
	Posttest	15.44	3.131				

**\*\* -  $p < 0.001$  highly significant**

**Table - 3** shows that, the mean score of Effectiveness of hand hygiene practice among school age children at selected school in the pre-test was  $8.42 \pm 3.246$  and the mean score in the post- test was  $15.44 \pm 3.131$ . The calculated *paired' test* value of  $t = 17.14$  shows *statistically highly significant* difference of effectiveness of hand hygiene practice among school age children at selected schools.

**Figure - 3: Effectiveness of hand hygiene practice among school age children at selected school**



**SECTION IV: ASSOCIATION BETWEEN THE POSTTEST LEVEL OF PRACTICE AMONG SCHOOL AGE CHILDREN WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.**

Table - 4

Association between the post test level of practice among school age children with their selected demographic variables

(N=50)

S. No.	Demographic Variables	Post Test Level of Practice				Chi-square $X^2$ and P value
		Average Level		Good Level		
		N	%	N	%	
<b>1</b>	<b>Age in years</b>					$X^2=8.24$ Df=3 p =0.041 *S
	- 8 years	3	20	8	22.9	
	- 9 years	8	53.3	6	17.1	
	- 10 years	4	26.7	15	42.9	
	- 11 years	0	0	6	17.1	
<b>2</b>	<b>Gender</b>					$X^2=5.35$ Df=1 p =0.021 *S
	- Male	10	66.7	11	31.4	
	- Female	5	33.3	24	68.6	
<b>3</b>	<b>Place of residence</b>					$X^2=0.008$ Df=1 p =0.929 NS
	- Urban	2	13.3	5	14.3	
	- Rural	13	86.7	30	85.7	
<b>4</b>	<b>Educational status of father</b>					$X^2=9.34$ Df=4 p =0.053 NS
	- Non formal education	2	13.3	3	8.6	
	- Primary education	2	13.3	5	14.2	
	- High school education	10	66.7	10	28.6	
	- Higher secondary education	1	6.7	10	28.6	
	- Graduate	0	0	7	20	
<b>5</b>	<b>Educational status of mother</b>					$X^2=9.46$ Df=4 p =0.05 *S
	- Non formal education	2	13.3	1	2.9	
	- Primary education	5	33.4	9	25.7	
	- High school education	8	53.3	11	31.4	
	- Higher secondary education	0	0	10	28.6	
	- Graduate	0	0	4	11.4	
<b>6</b>	<b>Occupational status of father</b>					$X^2=6.81$ Df=3 p =0.078 NS
	- Government sector	0	0	9	25.7	
	- Private sector	6	40	10	28.6	
	- Self employed	9	60	13	37.1	
	- Unemployed	0	0	3	8.6	
<b>7</b>	<b>Occupational status of mother</b>					$X^2=3.64$ Df=3 p =0.302 NS
	- Government sector	0	0	2	5.7	
	- Private sector	0	0	5	14.3	
	- Self employed	2	13.3	5	14.3	
	- Home maker	13	86.7	23	65.7	
<b>8</b>	<b>Family income per month in rupees</b>					$X^2=7.25$ Df=3
	- Below Rs. 5000	0	0	3	8.6	



S. No.	Demographic Variables	Post Test Level of Practice				Chi-square X <sup>2</sup> and P value
		Average Level		Good Level		
		N	%	N	%	
	- Rs. 5001-10000	0	0	9	25.7	p =0.064 NS
	- Rs. 10001-15000	13	86.7	18	51.4	
	- Rs. 15001 and above	2	13.3	5	14.3	
<b>9</b>	<b>Type of family</b>					<b>X<sup>2</sup>=4.08</b> <b>Df=1</b> <b>p =0.043</b> <b>*S</b>
	- Nuclear	15	100	27	77.1	
	- Joint	0	0	8	22.9	
	- Extended	0	0	0	0	
<b>10</b>	<b>Number of siblings</b>					<b>X<sup>2</sup>=8.33</b> <b>Df=1</b> <b>p =0.004</b> <b>*S</b>
	- 1	15	100	21	60	
	- 2	0	0	14	40	
	- More than 2	0	0	0	0	

*\*-p < 0.05 significant, \*-p < 0.001highly significant, NS-Non significant*

The Table 4 depicts that the demographic variable **Age in years, Gender, Educational status of father, Educational status of mother, Type of family and Number of siblings** had shown statistically significant association between the posttest level of practice among school age children with their selected demographic variables.

The other demographic variables had not shown statistically significant association between the posttest levels of practice among school age children's with their selected demographic variables.

## MAJOR FINDINGS OF THE STUDY

The frequency and Percentage wise Distribution of socio-demographic variables among school age children. Out of the 50 school age children who were interviewed, majority of the school children 19 (38%) of study population were in the age group are 10 years. most of the school children were female 29 (58%), most of the school children comes under rural family 43 (86%), most of the school children, Educational status of father were High school education 20 (40%), majority of the school children, Educational status of mother were High school education 19 (38%), most of the school children, Occupational status of father were Self employed 22 (44%), most of the school children, Occupational status of mother were Home maker 36(72%), most of the school children were family income per month in rupees is 31 (62%) in rupees 10001-15000, majority of the school children were nuclear family 42 (84%), majority of the school children, Number of siblings were one 36(72%).

The frequency and percentage wise distribution of pre-test and post-test of the level of practice among school age children. **In pre test**, Majority of school age children 30 (60%) had Poor level of practice and 20 (40%) had Average level of practice and the mean and standard deviation of level of practice among school age children is (8.42±3.246) and **in post- test**, Majority of school age children 35 (70%) had Good level of practice and 15 (30%) had Average level of practice and the mean and standard deviation of level of practice among school age children is (15.44±3.131) respectively.

The mean score of Effectiveness of hand hygiene practice among school age children at selected school in the pre-test was 8.42±3.246 and the mean score in the post- test was 15.44±3.131. The calculated **paired 't' test** value of t = 17.14 shows **statistically highly significant** difference of effectiveness of hand hygiene practice among school age children at selected schools.

The demographic variable **Age in years, Gender, Educational status of father, Educational status of mother, Type of family and Number of siblings** had shown statistically significant association between the post test level of practice among school age children with their selected demographic variables.

## SUMMARY

### **The First and second objective of the study was to assess the pretest level of practice among school age children**

The frequency and percentage wise distribution of pre-test and post-test of the level of practice among school age children. **In pretest**, Majority of school age children 30(60%) had Poor level of practice and 20(40%) had Average level of practice and the mean and standard deviation of level of practice among school age children is  $(8.42 \pm 3.246)$  and **In post- test**, Majority of school age children 35 (70%) had Good level of practice and 15(30%) had Average level of practice and the mean and standard deviation of level of practice among school age children is  $(15.44 \pm 3.131)$  respectively.

### **The third objective of the study was to evaluate the effectiveness of hand hygiene practice among school age children at selected schools.**

The mean score of Effectiveness of hand hygiene practice among school age children at selected school in the pre-test was  $8.42 \pm 3.246$  and the mean score in the post- test was  $15.44 \pm 3.131$ . The calculated *paired 't' test* value of  $t = 17.14$  shows *statistically highly significant* difference of effectiveness of hand hygiene practice among school age children at selected schools.

*Hence  $H_1$  is there will be a significant difference between pretest and posttest level of practice among school age children was accepted and null hypothesis was rejected. The intervention of structured teaching programme and demonstration is more effective among school age children.*

### **The fourth objective of the study was to associate the Posttest level of practice among school age children with their selected demographic variables.**

The demographic variable *Age in years, Gender, Educational status of father, Educational status of mother, Type of family and Number of siblings* had shown statistically significant association between the posttest level of practice among school age children with their selected demographic variables.

The other demographic variables had not shown statistically significant association between the posttest level of practice among school age children's with their selected demographic variables.

*Hence  $H_2$  is there will be a significant association between the posttest level of practice among school age children with their selected demographic variables was accepted and null hypothesis was rejected.*

## CONCLUSION

The present study to assess the effectiveness of hand hygiene practice among school age children at selected school in Kumarapalayam, Namakkal District.

The result shows in pre test, majority of school age children 30(60%) had Poor level of practice and 20(40%) had Average level of practice and in post- test, majority of school age children 35 (70%) had Good level of practice and 15(30%) had Average level of practice.

The result of this study showed that structured teaching program and demonstration was more effective on improves practice level regarding hand hygiene school age children.

## NURSING IMPLICATIONS

The findings of study have scope in following area nursing education, nursing practice, nursing administration and nursing research.

### **Nursing Education**

- Nurse educators can motivate student nurses to set up a hand-hygiene campaign for schoolchildren.
- The nursing education faculty might encourage the students to plan engaging health programmes for parents that cover proper hand washing practices in order to get them to use them.
- Nurses should be taught in nursing programmes how to inspire instructors to increase their students' understanding of and proficiency with hand-hygiene.

### **Nursing Practice**

- The pediatric health nurses should take the lead in educating school children about health issues through regular health education programmes in the community, hospitals, and schools.
- The pediatric health nurses play a significant part in raising awareness of good hand-hygiene habits to lower schoolchildren's mortality and morbidity.

### **Nursing Administration**

- Nurse administrators can plan lectures on infection control and the value of hand-hygiene for students.

- Nurse Managers can encourage the nurses to plan health fairs and quizzes for school children at least twice a year to encourage them to wash their hands.
- Nurse administrators can educate students about the negative effects of improper hand-hygiene.

### Nursing Research

- The findings of the study add to the scientific body of professional knowledge upon which future research can be built.
- Carry out additional research in different settings, using the above findings as a baseline.
- Increasing the scientific body of professional knowledge on which future research can be based.

### LIMITATIONS

- The study is limited to selected school in Kumarapalayam.
- The study is limited to 50 school aged children.
- The duration of the study is delimited to 4 weeks.

### RECOMMENDATIONS

Based on findings of the present study, the following recommendations have been made,

- A similar study can be undertaken with large number of samples which might lead to generalization.
- A similar study can be conducted in another setting.
- The study can be replicated with large sample size.
- A comparable study might be carried out to evaluate the mothers of school-aged children's knowledge and behavior about hand-washing technique..
- A study can be carried out with school children of various ages.
- It is possible to compare the school children from rural and urban areas.
- To learn more about parents' and teachers' understanding of the practice of hand washing, a study might be carried out.

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