



## **Assessment of the Level of Knowledge and Practices on Hand Hygiene among School going Children at Selected Districts, Tamil Nadu, India**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Background:** The practice of hand washing is a simple effective way to prevent infection cleaning of the hands can prevent the spread of germs and micro organisms. Hand hygiene is recognized as a leading measure to prevent cross –transmission of microorganism. Infection due to microbes is a evolving problem in worldwide and horizontal transmission of bacterial organisms to cause a high mortality rate increased. Hand washing with soap and water can prevent a significant proportion of childhood diarrhoea and respiratory infections, the two main global causes of child mortality.

**Objectives:** The objectives were to assess the existing level of knowledge and practice of school going children on hand washing, to find out the correlation between level of knowledge and practice on hand washing among school going children and to find out the association between level of knowledge and practices of school going children on hand washing with their selected demographic variables.

**Methods:** A quantitative evaluative approach with descriptive research design was adopted. 50 school going children were selected by the purposive sampling technique.

**Results:** The collected data was tabulated and analyzed. Descriptive and inferential statistics were

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used. In the level of knowledge majority of the school going children (52%) had inadequate knowledge, 28% of them were had moderately adequate knowledge and only 20% of them had adequate knowledge. The mean knowledge score on hand washing was 10.4 and the standard deviation was 4.31. The mean practice score on hand washing was 21.52 and the standard deviation was 7.4.

**Conclusion:** The study results shows that most of the school children were having inadequate knowledge and less desirable practices of hand washing. A structured teaching program on hand washing is very important for incorporating the knowledge among school children

*Keywords: Hand hygiene; school going children; knowledge and practice.*

## 1. INTRODUCTION

Hand washing is the most effective way to prevent the transmission of infectious diseases. Hand washing is the act of cleaning one's hands with or without the use of water or liquid, or with the use of soap for the purpose of removing soil, dirt, and micro-organism. Good hand washing can prevent the communicable diseases like diarrhoea, influenza, E. coli, streptococcal diseases, and the common cold. The rate of infection is steadily increasing in hospitals and communities. Therefore, the purpose of this learning module is to provide infection control practices and proper hand washing techniques. The proper hand washing helps to reduce the occurrences of diarrhea and the respiratory infections. A cross sectional study was conducted among school children. Totally 340 children were participated. The children were selected by means of convenient sampling technique. The researcher was assessed the level of hand washing practices among school children. The study results shows that about 99.4% of the children were having the practice of hand washing before meal and the 92.4% of the children were having the habit of hand washing after the defecation. Only 47% of the children were regularly washed their hands with soap and water due to unavailability of the soap. It shows that the hand washing practices was poor among school children and not used proper techniques [1].

The survey was conducted among 85 school age children regarding hand washing techniques. The pre test knowledge was assessed after that 4 hours and 8 hours of teaching and training on hand washing was conducted. In the pre test totally 166 children was participated, in the post test of 4 hours of training programme 74 children and the 8 hours of training 35 children were participated. The results shows that the knowledge on hand hygiene was significantly

increased after 4 and 8 hours of teaching programme [2].

A study by Priyanka P et al focused on knowledge and practice of school children, the study was conducted among the 2283 children. The data was collected using interview schedule. The results showed that 54% of the children were reported that history of illness in the last one month, 81.45% of the children took medical leave for their sickness. 34% of the children were had inadequate knowledge on hand washing. The researcher suggested that infrastructure modification and the structured education are needed to improve their hand washing knowledge & practices [3].

A randomized quasi experimental study was conducted to assess the effectiveness of teaching on hand hygiene. The knowledge was assessed by structured questionnaire. The sample size was 200. The pre test score showed that the children were not aware of hand hygiene. The pre test mean score was  $6.15 \pm 1.95$  and the post test score was  $16.25 \pm 1.83$ , the t value was 18.62, it was statistically significant in improving the knowledge [4].

### 1.1 Statement of the Problem

Assessment of the level of knowledge and practice on hand hygiene among school going children at selected district namely (Vellore, Villupuram, and Nagapattinam) Tamilnadu, India.

### 1.2 Objectives

To assess the existing level of knowledge on hand hygiene among school going children. To assess the existing level of practices on hand washing among school going children. To find out the correlation between level of knowledge and practice on hand hygiene among school going children. To find out the association between level of knowledge on school going children on hand

hygiene with their selected demographic variables. To find out the association between level of practices on school going children on hand hygiene with their selected demographic variables.

**2. MATERIALS AND METHODS**

A Qualitative – Evaluative approach was selected with Descriptive Research Design was adopted for this study. The study was conducted among school going children in the age of 10-12 years who were available during data collection in three districts namely (Vellore, Villupuram and Nagapattinam), Tamil Nadu, India. The population of the present study was school going children in the age of 10-12 years. The target population for this study was school going children in the age of 10-12 years who were fulfilling the inclusion criteria and who were available during the data collection procedure in three districts. The study includes the school going children who were in the age group of 10-12 years and who were having android mobile phone with WhatsApp facility. The study excludes the school going children who were not willing to participate in this study. 50 school going children were selected by purposive sampling technique based on a set of pre-determined inclusion criteria.

**2.1 Research Tool**

**PART-I:** Selected demographic variables of school going children such as age, gender, education, area of residence, source of information on hand washing.

**PART-II:** Structured interview schedule consists of 20 questions regarding hand .

**Scoring interpretation**

Score	Percentage	Inference
0-9	<50%	Inadequate knowledge
10-15	50-75%	Moderately adequate knowledge
16-20	76-100%	Adequate knowledge

**PART III:** The structured rating scale consists of 10 questions regarding hand hygiene practices.

**Scoring interpretation**

Score	Percentage	Inference
< 20	<50%	Less desirable practice
20-30	50-75%	Desirable practice
>30	>75%	More Desirable Practice

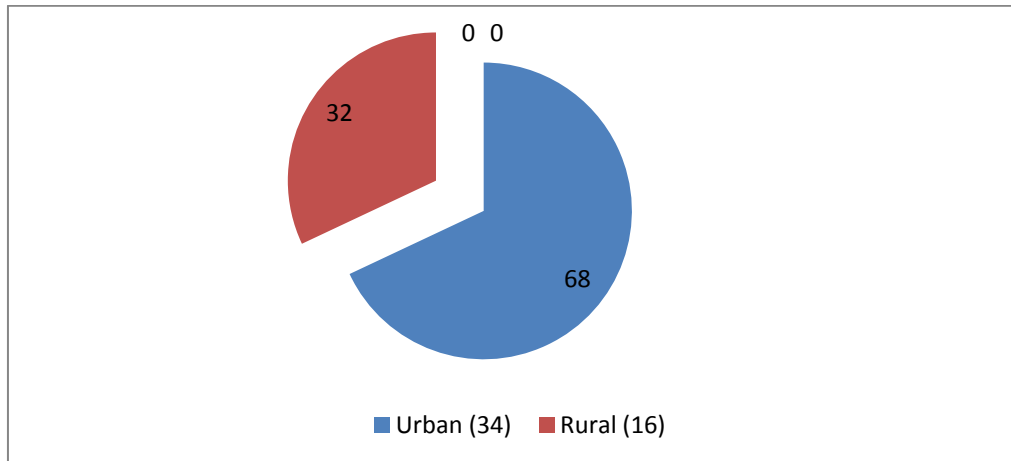
**2.2 Data Collection Procedure**

The data was collected by interview through Whatsapp video call using android mobile phone. In this present study the researchers were assessed the knowledge and practice of school going children on hand hygiene by conducting structured interview using demographic variables performance, structured interview schedule on knowledge regarding hand hygiene and structured rating scale on practice regarding hand hygiene.

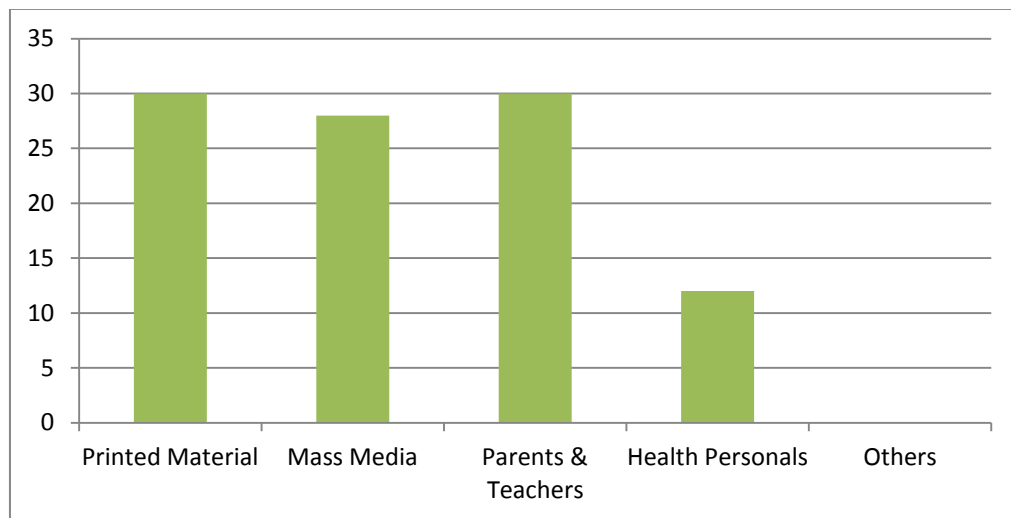
**3. RESULTS**

**Table 1. Frequency and percentage distribution of demographic variables of school-going children**

Sr. no.	Demographic variables	Frequency	Percentage
1.	Age in years		
	a)10	16	32%
	b)11	14	28%
2.	Gender		
	a)Male	23	46%
	b)Female	27	54%
3.	Education		
	a)5 <sup>th</sup> & 6 <sup>th</sup>	25	50%
	b)7 <sup>th</sup> & 8 <sup>th</sup>	25	50%



**Fig. 1. Frequency and percentage distribution of area of residence of school going children**



**Fig. 2. Frequency and percentage distribution of source of information of school-going children on hand hygiene**

**Table 2. Frequency and percentage distribution of level of knowledge on hand hygiene among school going children N=50**

Level of knowledge	Frequency	Percentage	Level of practice	Frequency	Percentage
Inadequate	26	52%	Less desirable practice	28	56%
Moderately adequate	14	28%	Moderately desirable practice	13	26%
Adequate	10	20%	More Desirable practice	9	18%

**Table 3. Correlation between level of knowledge and practice scores of hand hygiene among school going children N=50**

SI. No	Variables	Mean	Standard Deviation	Correlation (r)
1	Knowledge score	10.4	4.36	
2	Practice score	21.52	7.4	0.568

**Table 4. Association between the selected demographic variables of school going children and their level of knowledge on hand hygiene N=50**

Sl.no	Demographic Variables	Category	No.of Sample	Level of knowledge			X <sup>2</sup>	P value
				Inadequate	Moderately adequate	Adequate		
1	Age in years	10	10	5	3	2	85.318	9.49 is significant.
		11	17	8	5	4		
		12	23	13	6	4		
2	Gender	Male	23	12	7	4	8.718	5.99 is significant.
		Female	27	14	7	6		
3	Education	5 <sup>th</sup> & 6 <sup>th</sup>	25	14	6	5	9.787	5.99 is significant.
		7 <sup>th</sup> & 8 <sup>th</sup>	25	12	8	5		
4	Residence	Urban	34	16	10	8	9.031	5.99 Is significant
		Rural	16	10	4	2		
5	Source of information	Printed material	15	8	4	3	20.39	15.51 is significant.
		Mass Media	14	7	5	2		
		Parents and teachers	15	8	3	4		
		Health personnel	6	3	2	1		
		Others	0	0	0	0		

**Table 5. Association between the selected demographic variables of school going children and their level practice on hand hygiene N=50**

Sl.no	Demographic Variables	Category	No.of Sample	Level of practice			X <sup>2</sup>	P value
				Less desirable practice	Moderately desirable practice	Desirable practice		
1	Age in years	10	10	8	1	1	86.658	9.49 is significant
		11	17	10	5	2		
		12	23	10	7	6		
2	Gender	Male	23	13	6	4	17.208	5.99 is significant.
		Female	27	15	7	5		
3	Education	5 <sup>th</sup> & 6 <sup>th</sup>	25	16	7	2	13.441	5.99 is significant.
		7 <sup>th</sup> & 8 <sup>th</sup>	25	12	6	7		
4	Residence	Urban	34	17	10	7	13.818	5.99 is significant.
		Rural	16	11	3	2		
5	Source of	Printed	15	9	5	1	15.51	

Sl.no	Demographic Variables	Category	No.of Sample	Level of practice			X <sup>2</sup>	P value
				Less desirable practice	Moderately desirable practice	Desirable practice		
	information	material						is significant.
		Mass Media	14	7	4	3		
		Parents and teachers	15	9	2	4	29.1	
		Health personnel	6	3	2	1		
		Others	0	0	0	0		

#### 4. DISCUSSION

The study results shows that most of the school going children in the age group of 12 years (40%) , 28% of the school going children were in the age of 11 years and 32% Of the school going children in the age group of 10 years. Regarding the gender the majority of school going children were females (54%) and 46% Of school going children were males. Regarding the education the majority of the school going children were 5<sup>th</sup> and 6<sup>th</sup> standard (50%) and 7<sup>th</sup> and 8<sup>th</sup>standard (50%).Regarding the area of residence the majority of school going children were from urban area (68%) and 32% of them were from rural area. Source of information shows that the majority of school going children were gained information on hand washing from printed material and from teachers & parents (30%), 28%of them from mass media and 12% were received information from health care personnel.

The study results shows that 52% of school going children had inadequate knowledge, 28% of school going children had moderately adequate knowledge and only 20% of them had adequate knowledge on hand washing. This might be due to their educational level, lack of knowledge on hand washing. The study results shows that 56% of school going children had less desirable practice, 26% of school going children had desirable practice and only 18% had more desirable practice on hand washing.

Results Show the mean and standard deviation of level of knowledge and practice scores of hand washing among school going children. Mean knowledge score was 10.4 and standard deviation was 4.36. Mean practice score was 21.52 and standard deviation was 7.4. And also the study results shows the correlation between the knowledge and practice scores  $r=0.568$ . And there is a positive correlation between knowledge and practice of hand washing. It shows that as knowledge increases practice also increases. Hence the research hypothesis H1 is strongly accepted.

The results shows that there was a significant association between selected demographic variables and the knowledge of school children on hand washing. Hence the hypothesis H2 was accepted. The results shows also revealed that there was a significant association between selected demographic variables and the practice of school children on hand washing. Hence the hypothesis H3 was accepted.

#### 5. CONCLUSION

Hand washing is a basic preventive measure in reducing the several infectious diseases. The adequate knowledge on hand washing is vital among the school children in reducing the infectious related morbidity and mortality among school children. The study results shows that most of the school children were having inadequate knowledge and less desirable practices of hand washing. A structured teaching program on hand hygiene is very important for incorporating the knowledge among school children thereby we can prevent several infectious diseases and we can promote optimal growth and development of the school going children.

#### CONSENT AND ETHICAL APPROVAL

Obtained ethical clearance from the human ethical clearance committee, (776/IHEC/ 12-19 dt. 31.01.2020). Participant information sheet and informed consent was distributed to the study participants and after obtaining the approval the researchers enrolled study participants and the data was collected.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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