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## RESEARCH ARTICLE

### EFFECTIVENESS OF PLANNED TEACHING PROGRAMME (PTP) ON PREVENTION OF WATERBORNE DISEASES AMONG SCHOOL CHILDREN

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#### ABSTRACT

**Introduction:** Access to healthful drinking water is a worrying health problem all around the globe. 2.5 billion children are affected with diarrhoea every year in South-East Asia and Sub-Saharan Africa. In India diarrhoea alone kills over 7,00,000 in one year. The objective of the study was to assess the potential of planned teaching programme (PTP) of knowledge on prevention of water borne disease among school children.

**Methods:** The study adopted quasi experimental, one group pre-test post-test design. 60 children studying at Sri Venkatramana Hr. Primary School, Kulai, Mangalore were chosen by stratified random sampling technique. Structured knowledge questionnaire 34 questions consisted of two parts i) Personal characteristics and ii) knowledge questionnaire on waterborne diseases was used to collect data. Each item had a score of one for the best answer and zero for the wrong answer. Thus altogether there were a maximum score of 34.

**Results:** Majority 60% of the participants were girls and 55% were at the age of 12 years. 93.3% of the participants belong to Hindu religion. 46.7% of participant's mother are daily wage earners and 33.3% father do private job. Among participants' parents, 40% of the mothers and 66.7% of the fathers have 5-10th standard education. 68.3% were from nuclear families and 63.3% depend on well as source of water. 86.7% using own latrines. The pre-test mean knowledge score (18.72) is greater than the post- test mean knowledge score (27.9) which indicate the effectiveness of intervention.

**Conclusion:** The study concluded that planned teaching programme had a major role in developing knowledge of children on prevention of water borne diseases.

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## INTRODUCTION

Water occupies 70 percent of the earth's surface area. But for human use small amount of fresh water only available. Water is vital for humans, animals, and agriculture. In developing countries, water-borne diseases are the leading illness factor among children and among water borne diseases diarrhoea holds first rank for causing death among children. (Pearce, 2006) Waterborne diseases are mainly acquired by drinking contaminated water. Waterborne diseases spread through many ways like contaminated water, poor environmental hygiene, poor personal hygiene, poor food hygiene etc (Gupta and (Mahajan, 2003) In India 21 percent of communicable diseases are related to water, out of these diseases, diarrhoea alone kills over 7,00,000 Indians in one year (estimated) – over 1,600 deaths each day.

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JNNURM had reported that in Dakshina Kannada, 2 cases of hepatitis A and 23 cases of acute diarrhoea among children. Major victims of diarrhoea are children under the age of five, inviting an urgent intervention in this issue. (DGHS, 2009) The pilot project to encourage use of safe water for drinking purposes in Krishnagiri district aimed at improving the level of safe drinking water and hygiene awareness among school children. Student committees formed under School Sanitation Hygiene Committee has educated students regarding safe drinking water along with demonstration of safe filling of water. It was found that the diarrhoeal cases reduced to 1/3<sup>rd</sup> of previous year and the school children were educating their parents and relatives on the importance of the safe drinking water. (UNICEF, 2009) From the findings cited above and other studies the investigator understood the fact that the waterborne diseases were common in rural areas and the children were the major victims. Investigator, during his practical posting observed that many children were absent from school with complaints of fever, vomiting and diarrhoea.

The investigator felt that, there was a need for an awareness program which would improve the knowledge on prevention of waterborne diseases among children.

### Statement of the problem

Effectiveness of planned teaching programme (PTP) on knowledge of prevention of water borne diseases among children in a selected rural upper primary school at Mangalore, Dakshina Kannada, Karnataka state

### Objectives

Objectives of the study were to:-

- Assess the existing knowledge on prevention of waterborne diseases among children in a selected rural upper primary school using structured knowledge questionnaire.
- Find the effectiveness of planned teaching programme (PTP) on prevention of waterborne diseases among children in a selected rural upper primary school with same structured knowledge questionnaire.

## MATERIALS AND METHODS

Evaluative approach was used in this study to attain the objective.

**Table 1. Demographic variables in frequency and percentage distribution**

S. No.	Demographic Variables	n=60	
		Frequency	Percentage
1.	Gender		
	Boy	24	40.0
	Girl	36	60.0
2.	Age in years		
	11	4	6.7
	12	33	55.0
	13	21	35.0
	More than 13	2	3.3
3.	Religion		
	Hindu	56	93.3
	Muslim	1	1.7
	Christian	3	5.0
4.	Occupation of mother		
	Daily wages	28	46.7
	Private employee	8	13.3
	Government employee	2	3.3
	Business woman	2	3.3
	House wife	20	33.3
5.	Occupation of father		
	Daily wages	18	30.0
	Private employee	20	33.3
	Government employee	10	16.7
	Business man	8	13.3
	Nil	4	6.7
6.	Educational status of the mother		
	No formal education	11	18.3
	1-4	20	33.3
	5-10	24	40.0
	PUC and above	05	8.4
7.	Educational status of the father		
	No formal education	7	11.7
	1-4	7	11.7
	5-10	40	66.7
	PUC and above	6	10.0
8.	Type of family		
	Nuclear	41	68.3
	Joint	10	16.7
	Extended	9	15.0
9.	Type of water facilities available for drinking		
	Well water	38	63.3
	Bore well water	6	10.0
	Panchayat tap water	13	21.7
	Other sources	3	5.0
10.	Type of latrine facilities		
	Sanitary latrine	52	86.7
	Common latrine	6	10.0
	Open field	2	3.3
11.	Are you using boiled water for drinking?		
	Yes	59	98.3
	No	1	1.7
12.	Any diarrhoeal diseases you suffered in last six months		
	Yes	9	15.0
	No	51	85.0

Design used for this study was quasi-experimental, i.e. one group pre-test post-test design. The study was conducted in Sri Venkatramana Higher Primary School, Kulai which comes under Surathkal PHC and under the jurisdiction of Mangalore BEO.60 children who were studying in 6<sup>th</sup> and 7<sup>th</sup> standard of selected rural upper primary school were selected as the samples. Stratified random sampling was used to select the samples. Population is divided into strata based on the class which they studying. Samples were selected from each stratum by using simple random technique.

### Selection and development of the tool

In this study the researcher used structured knowledge questionnaire which was developed by the investigator and validated by nine experts in the field of community health nursing and two experts in the field of community medicine, to collect data from the samples. The tools consist of two parts:

**Part I:** Personal characteristics: This was designed to elicit the personal information from respondents consisting of twelve items.

**Part II:** Structured knowledge questionnaire: This was designed to elicit the knowledge of children regarding prevention of waterborne diseases consisting of 34 items. The items in this part were divided into two main areas.

**Area I:** Knowledge on waterborne diseases consists of 22 items.

**Area II:** Knowledge on prevention of waterborne diseases consists of 12 items

Each item had a score of one for the correct answer and zero for the wrong answer. Thus altogether there were 34 items with a maximum total score of 34. Split half method was used to test reliability of structured knowledge questionnaire and the value was  $r=0.82$

**Table 2. Frequency and percentage distribution of subjects according to their knowledge on Prevention of waterborne diseases**

n =60			
Level of knowledge	Range of score (%)	Number of respondents	Percentage (%)
Poor	0 – 40	06	10.00
Average	41 – 60	37	61.66
Good	61 – 80	17	28.34
Excellent	81 – 100	00	00.00
Total		60	100.00

### Data collection procedure

Prior to data collection, permission was obtained from the Block Education Officer and Principal of school. Keeping in mind the ethical aspect of research, data was collected after obtaining written consent from the subjects. The respondents were assured the anonymity and confidentiality of the information provided by them. The researcher himself had collected data from 60 children. For maximum co-operation, the investigator himself introduced him to the respondents and willingness of the participants was ascertained. On seventh day, post-test was conducted for the respective samples by using the same structured knowledge questionnaire. The data was collected and recorded systematically on each item and was organised in a way that facilitated computer entry.

## RESULTS

The collected data analysed using descriptive and inferential statistics. Demographic variables were presented using frequency and percentage. Paired t test was used to identify the effectiveness of the intervention.

### Description of personal characteristics of school children

The distribution of participants according to their personal characteristics data is analysed by using descriptive statistics and was presented in terms of percentage.

Table 1 show that 60% of the samples were girls and 55% of them belongs to the age group of 12 years. Majority (93.3%) of the subjects belong to Hindu religion. About 46.7% of participant's mother are daily wage earners and 33.3% father do private job. Among participants' parents, 40% of the mothers and 66.7% of the fathers have 5-10th standard education. Most of the participants (68.3%) are living in nuclear families. Most (63.3%) of the participants depend on well water for drinking. Majority of participants (86.7%) were using own sanitary latrines. Most (98.3%) of the participants were using boiled water for drinking. Majority (85%) of the participants were not affected with any kind of diarrhoeal diseases in last six month.

### Assessment of the pre-test knowledge scores of school children on prevention of waterborne diseases

In order to assess the level of overall pre-test knowledge scores of subjects, the percentage scores were graded arbitrarily as follows: poor level of knowledge  $\leq 40\%$ , average knowledge 41-60%, good knowledge 61-80%, and excellent knowledge above 81%. Table 2 data shows that 61.66% of subjects had average knowledge and 28.34% had good knowledge and 10% had poor knowledge on prevention of waterborne diseases.

The findings revealed that school children were not having adequate knowledge regarding prevention of waterborne diseases. This indicates the need to educate the participants on prevention of waterborne diseases.

### Effectiveness of PTP on prevention of waterborne diseases

Table 3 data shows that the overall mean post-test knowledge of samples (27.9) was greater than the mean pre-test knowledge score (18.72). The SD of pre-test and post-test knowledge scores were 2.79 and 1.79 respectively. Mean difference between post-test and pre-test knowledge score was 9.18 that indicates the effectiveness of planned teaching programme.

**Table 3. Comparison of mean, mean deviation and SD of pre-test and post-test knowledge scores**

n=60			
	Mean	SD	Mean difference
Pre-test	18.72	2.79	9.18
Post-test	27.90	1.79	

**Table 4. Comparison of area-wise Mean, SD, Mean difference, mean% of pre-test and post-test knowledge scores of subjects on prevention of waterborne diseases**

n=60						
Area	Pre-test (A)		Post-test (B)		Effectiveness	
	Mean	SD	Mean	SD	Mean Difference	Mean%
Area I	10.90	2.40	17.12	1.5	6.22	28.32
Area II	7.81	1.34	10.78	1.03	2.97	24.71

**Table 5. Comparison of knowledge scores in pre-test with post-test and effectiveness of the study**

n=60					
	Mean	Mean deviation	SD	Mean difference	t-value
Pre-test	18.71	0.468	3.74	9.19	14.20*
Post-test	27.90	0.140	2.53		

\*significantat P<0.05

Table 4 shows that after the administration of planned teaching programme, Area-I 'knowledge on waterborne diseases' was (28.32%) with a mean difference of 6.22. Effectiveness in Area-II 'knowledge on prevention of waterborne diseases' was (24.71%) with a mean difference of 2.97. The results reveal that the area wise knowledge score was improved when compared to that of the pre-test knowledge scores. It revealed that the planned teaching programme was effective.

Table 5 revealed that the mean difference of post-test and pre-test knowledge score as 9.19. That shows the success of planned teaching programme on prevention of waterborne diseases among school children. Mean deviation of pre-test and post-test knowledge score was 0.468 and 0.14 respectively. The calculated 't' value (14.20, P<0.05) in knowledge aspect was greater than the table value 1.677 at 0.05 level of significance. Therefore research hypothesis was accepted indicating that gain in knowledge was not by chance. Hence it was concluded that there were very high significant gain in knowledge among subjects on prevention of waterborne diseases after the administration of planned teaching programme.

## DISCUSSION

The main objective of the study was to evaluate the effectiveness of planned teaching programme on prevention of waterborne diseases among children in the selected rural school. In order to attain the goal, quasi experimental study approach was adopted for this study. The analyses of the personal characteristics revealed that majority (60%) of the participants were females. Majority (55%) of the participants were at 12 years of age. Majority (93.3%) of the subjects belongs to Hindu religion. Majority (46.7%) of participant's mother were daily wage earners. Majority (33.3%) of participant's father were doing private job. Among participant's mothers most (40%) of the mothers had 5-10th standard education. Among participant's fathers most (66.7%) of the fathers had 5-10th standard education. Most of the participants (68.3%) were living in nuclear families. Most (63.3%) of the participants depend on well water for drinking.

Majority of participants (86.7%) are using own sanitary latrines. Most (98.3%) of the participants uses boiled water for drinking. Majority (85%) of the participants were not affected with any kind of diarrhoeal diseases in last six months. The findings revealed that there was notable difference between mean post-test score and mean pre-test score. Hence the study concluded that there was much effectiveness for the planned teaching programme in creating awareness among children.

The study findings were supported by a study conducted among school children in Tamil Nadu in 2008 among 50 children to assess the knowledge, attitude and practice on prevention of waterborne diseases. The pre-test results showed that 78% of children had poor knowledge and 22% had average knowledge regarding prevention of waterborne diseases. Educational programme was conducted and after one week post-test was done, the results revealed that 56% of the subjects had attained good knowledge and 44% had average knowledge about prevention of waterborne diseases. It suggests in order developing knowledge, educational programme have a major role (M, 2011).

## Conclusion

In accordance with the findings and the supported data, the study concluded that the increase in knowledge on waterborne disease among children occurred due to the planned teaching programme. The awareness programme can play a major role in prevention of water borne diseases in their future life.

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