



Effectiveness of a structured teaching program on knowledge and practice of school children regarding environmental sanitation and prevention of dengue fever at rural areas of Belagavi district

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Abstract

Background: Environment is one of the determinants of health of individual, family and community at large. People's health is affected by the quality of place they live and work, air they breathe, the water they drink and the food they consume. It is the environment which predisposes people to various agents it may have and may cause any disease or health problems.

Objectives: To assess the knowledge and practice of school children regarding Environmental sanitation and prevention of dengue fever in terms of pre-test and post test knowledge, attitude and practice scores and to evaluate the effectiveness of structured teaching program on knowledge and practice of school children regarding environmental sanitation and prevention of dengue fever by comparing pre-test and post-test knowledge scores.

Methodology: A quantitative approach with pre experimental one group pretest post test design was adopted for the study. The samples from the selected primary schools of rural areas of Belagavi district were selected using convenient sampling technique. The sample consisted of 50 primary school children. The tools used for data collection was knowledge questionnaire and structured practice scale.

Results: The study result reveal that, With regard to pre test level of knowledge it shows that, maximum 27(54%) respondents were having average knowledge, 17 (34%) respondents were having poor knowledge and remaining 6(12%) of respondents were having good knowledge and during post-test maximum 34(68%) of respondents were having average knowledge and 16(32%) of respondents were had good knowledge. With regard to pre test level of practice it shows that, majority 25(50%) respondents were having moderate practice, 21(42%) of respondents were having poor practice and remaining 4(8%) were having good practice. During post-test maximum 39 (78%) of respondents were having moderate practice, 6(12%) of respondents were had good practice and 5(10%) of respondents were had poor practice. The statistical paired 't' implies that the difference in the pretest and post-test value was found statistically significant at 5% level ($p < 0.05$) with a paired 't' value of 13.84 and 13.22 for knowledge and practice respectively. There exists a statistical significance in the difference of knowledge score indicating the positive impact of structured teaching program.

Conclusion: The overall pretest knowledge and practice of primary school students regarding environmental sanitation and prevention of dengue fever were average and moderate respectively. There is a need for teaching program regarding environmental sanitation and dengue fever among primary school children.

Keywords: Knowledge, practice, environmental sanitation, dengue fever, structured teaching program, primary school children

Introduction

Environment is one of the determinants of health of individual, family and community at large. People's health is affected by the quality of place they live and work, air they breathe, the water they drink and the food they consume. It is the environment which predisposes people to various agents it may have and may cause any disease or health problems. The quality of environment is deteriorating very fast especially because of population explosion industrialization and urbanization, deforestation, automobiles, nuclear technology and green revolution [1].

Environmental sanitation is a set of actions geared towards improving the quality of environment and reducing the amount of disease. By doing so, the hope is that living condition will improve and health problems will decreases [2].

The work Prevention of dengue fever commonly refers to the combination of practices or behaviors related associated

with the preservation of health and living in healthy manner. The work prevention of dengue fever usually focuses on personal prevention of dengue fever and it includes the cleanliness of the body, hair, feed, fingers, cloths what we use and menstrual prevention of dengue fever [3].

Enhancement in people's knowledge, skill and practices related to prevention of dengue fever can modify a person's behaviour towards healthy practices those focus on promotion of prevention of dengue fever. This can be achieved by carrying out hygienic education and aim of this should be transfer of knowledge, understanding of prevention of dengue fever and associated health risks in order to help people change their behaviour to use better hygienic practices [4].

Dengue, the mosquito borne disease, transmitted by the bites of Aedes mosquitoes, primarily Aedes aegypti and Aedes albopictus, is considered the most prevalent human arboviral infection worldwide. Approximately, 3.8 billion

people dwelling in 128 countries are perceived to be in danger of dengue infection. According to the WHO, every year about 20,000 deaths occurred on account of dengue globally. The cause of dengue fever (DF) is the infection with any one of the 4 serotypes (DENV-1, 2, 3, and 4) of dengue virus and the DF may appear as fatal disease characterized by dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS) [5].

The incidence and transmission of dengue is influenced by a variety of factors such as uncontrolled population growth, urbanization, deterioration in waste management systems and lack of effective vector control. Due to inadequate water supply, water storage practice is also regarded as a major contributor to dengue epidemics. Moreover, illiteracy, poverty and social inequalities have been associated with poor dengue management [6].

Since no effective vaccine is currently available to prevent dengue, the only possible mode of prevention is vector control. In a prior study, it was revealed that perception of dengue disease risk was much lower, while knowledge of dengue disease among community members has generally been high [7]. For this, community participation is essential at the ground level. The successful participation largely depends on peoples' knowledge, awareness and attitude towards this disease. Effective dengue prevention and control is an important concern today in Bangladesh as there is an ongoing challenge to ensure proper treatment and prevention options despite having continued progress in dengue research throughout the world [8].

Peoples knowledge and their practices can be effectively changed by improvement of their awareness by educating them, therefore, the objective of this study was to assess the effectiveness of a structured teaching program on knowledge and attitude of school children regarding environmental sanitation and prevention of dengue fever at rural areas of Belagavi district.

Objectives

1. To assess the knowledge and practice of school children regarding Environmental sanitation and prevention of dengue fever in terms of pre-test and post test knowledge, attitude and practice scores.
2. To evaluate the effectiveness of structured teaching program on knowledge and practice of school children regarding environmental sanitation and prevention of dengue fever by comparing pre-test and post-test knowledge scores.
3. To find the association between the pre-test knowledge and practice scores of school children regarding environmental sanitation and prevention of dengue fever and selected demographic variables.

Hypothesis

H₁: The mean post test knowledge scores of school children regarding environmental sanitation and prevention of dengue fever, who have undergone the structured teaching program, will be significantly higher than their mean pre-test knowledge scores at 0.05 level of significance.

H₂: The mean post test practice scores of school children regarding environmental sanitation and prevention of dengue fever who have undergone the structured teaching program will be significantly higher than their mean pre-test

knowledge scores at 0.05 level of significance.

H₃: The levels of knowledge of school children regarding environmental sanitation and prevention of dengue fever will be significantly associated with their selected personal variables at 0.05 level of significance.

H₄: The levels of practice of school children regarding environmental sanitation and prevention of dengue fever will be significantly associated with their selected personal variables at 0.05 level of significance.

Methodology

Research Approach: Quantitative Research Approach

Research Design: Exploratory descriptive design

Sampling technique: Non-Probability; Convenient Sampling Technique

Sample size: 50

Setting of study: Selected rural areas of Belagavi district

Method of data collection: Interview technique

Tools used

Part I: Demographic data

It consists of 8 items related to demographic data which includes Age, gender, year of study, religion, place of residence, family income, type of family and previous knowledge regarding environmental hygiene.

Part II: Structured knowledge questionnaire

This section consists of 36 structured items with the multiple options to assess the knowledge of school children's regarding environmental sanitation and prevention of dengue fever. The right answer will be scored as 'one' mark and the wrong answer will be scored as 'zero' comprising the maximum score of 36. The total score is arbitrarily divided as Poor Knowledge (0-12), Moderate Knowledge (13-24) and good Knowledge (25-36).

Part III: Structured Practice scale

This section consists of 32 structured practice based knowledge items with three options always, sometimes and never. A score value 2 will be allotted for each Always response given, score 1 will be allotted for the response Sometimes and score 0 will be allotted for the response never. The total practice score is 0-64. Which are further arbitrarily divided into three levels-

- 0-21 = Poor practice
- 22-42 = Moderate Practice
- >43 = Good practice

Procedure of data collection

Data was collected after obtaining administrative permission from selected primary schools of selected rural community of Belagavi district. The investigator personally explained the participants the need and assured them of the confidentiality of their responses. Data was collected by face to face interview by researcher. The data analysis was done by using both descriptive and inferential statistics.

Results

a. The findings related to socio-demographic variables of participants

Study comprised of 50 participants. The socio demographic variables are presented in following table.

Table 1: Frequency & Percentage Distribution of participants according to socio demographic variables n=50

Sl No	Demographic variables	Frequency (f)	Percentage (%)
Age in years			
1	a) 9 - 10	15	30
	b) 11 -12	16	32
	c) 13 -14	19	38
Gender			
2	a) Male	30	60
	b) Female	20	40
Year of study			
3.	a. 4 th std	13	26
	b. 5 th std	17	34
	c. 6 th std	13	26
	d. 7 th std	7	14
Religion			
4	a. Hindu	30	60
	b. Muslim	14	28
	c. Christian	06	12
	d. Others	00	00
Family Income / Month			
5	a) Below 10,000/-	12	24
	b) 10,001- 20,000/-	25	50
	c) 20,001- 30,000/-	08	16
	d) 30,001 & above	05	10
Type of family			
6	a) Nuclear	23	46
	b) Joint	18	36
	c) Extended	09	18
Previous knowledge regarding environmental hygiene			
7	a) Yes	31	62
	b) No	19	38

b. Findings Related To Knowledge and practice on environmental hygiene and prevention of dengue fever

Table 2: Mean, median, mode, standard deviation and range of pre test and post test knowledge scores of Respondents n = 50

Area of Knowledge	Number of Items	Mean	Median	Mode	Standard deviation	Range
Pre test	36	14.74	14	11	5.03	8-27
Post test	36	20.76	20	18	4.71	13-29

Table 2 reveals pre test knowledge score of respondents regarding environmental sanitation and prevention of dengue fever, it shows that; The pretest knowledge scores respondents mean was 14.74,

median was 14, mode was 11 with standard deviation 5.03 and score range was 8.27.

The post test knowledge scores respondents mean was 20.76, median was 20, mode was 18 with standard deviation 4.71 and score range was 13-29.

Table 3: Mean, median, mode, standard deviation and range of pre test and post test practice scores of Respondents n = 50

Area of practice	Number of Items	Mean	Median	Mode	Standard deviation	Range
Pretest	32	24.88	25	25	9.70	11-53
Post test	32	30.64	29.50	23	9.11	16-55

Table 3 reveals pretest and post test attitude score of respondents regarding environmental sanitation and prevention of dengue fever, it shows that;

In pre test, respondents mean was 24.88, median was 25, mode was 25 with standard deviation 9.70 and score range was 11-53.

In post test, respondents mean was 30.64, median was 29.50, mode was 23 with standard deviation 9.11 and score range was 16-55.

c. Distribution Respondent’s Pretest And Post Test Scores According To Their Level Of Knowledge And Practice
A) Knowledge Scores

Table 4: Frequency and Percentage distribution of respondents according to level of Knowledge regarding environmental sanitation and prevention of dengue fever n=50

Level of Knowledge					
Pre test			Post test		
Poor f (%)	Average f (%)	Good f (%)	Poor f (%)	Average f (%)	Good f (%)
17(34%)	27 (54%)	06(12%)	00	34 (68%)	16 (32%)

The data presented in the Table 4 depicts the respondent’s level of knowledge during pretest and post test regarding environmental sanitation and prevention of dengue fever; With regard to pre test level of knowledge it shows that, maximum 27(54%) respondents were having average knowledge, 17 (34%) respondents were having poor knowledge and remaining 6(12%) of respondents were having good knowledge.

During post-test maximum 34(68%) of respondents were having average knowledge and 16(32%) of respondents were had good knowledge.

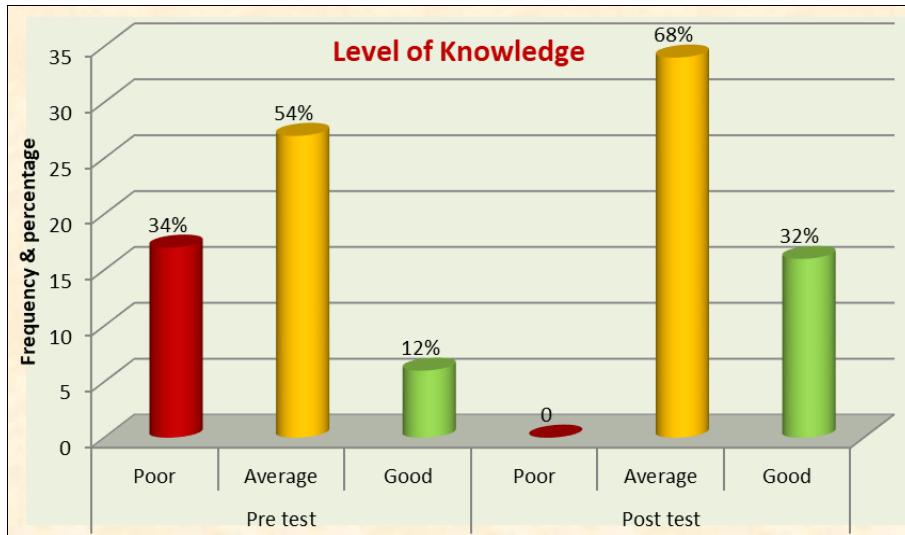


Fig 1: Pre test and post test level of knowledge

B) Practice Scores

Table 5: Frequency and Percentage distribution of respondents according to level of practice regarding environmental sanitation and prevention of dengue fever n=50

Level of Practice					
Pre test			Post test		
Poor f (%)	Moderate f (%)	Good f (%)	Poor f (%)	Moderate f (%)	Good f (%)
21 (42%)	25 (50%)	04(8%)	05 (10%)	39 (78%)	06 (12%)

The data presented in the Table 5 depicts the respondent’s level of practice during pretest and post test regarding environmental sanitation; With regard to pre test level of practice it shows that, majority 25(50%) respondents were having moderate practice, 21(42%) of respondents were having poor practice

and remaining 4(8%) were having good practice. During post-test maximum 39 (78%) of respondents were having moderate practice, 6(12%) of respondents were had good practice and 5(10%) of respondents were had poor practice.

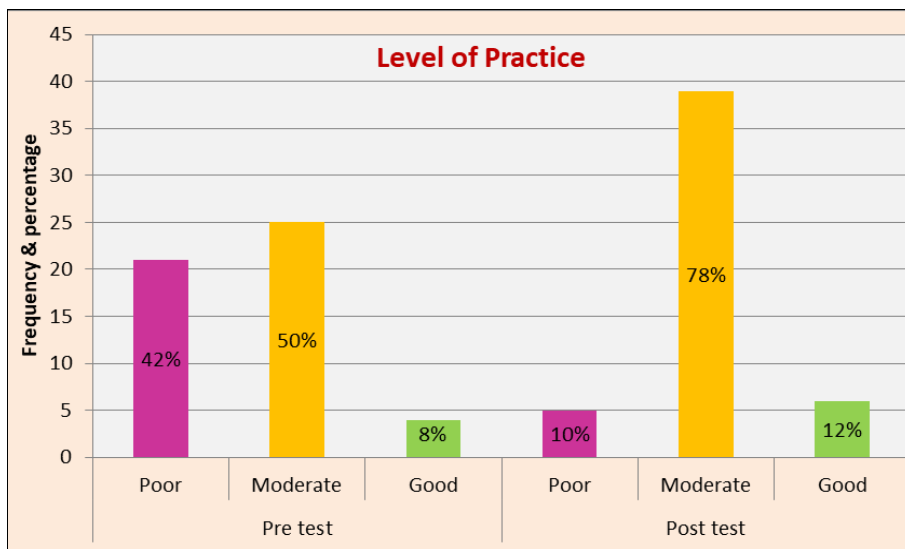


Fig 2: Pre test and post test level of practice

d. Effectiveness of structured Teaching Program

Table 6: Mean, standard deviation, standard error of difference and ‘t’ value of pre-test and post-test knowledge and practice scores N=50

Area	Aspects	Mean	Sd	SEMD	Paired t Test
Knowledge	Pre-test	14.74	5.03	0.43	13.84*
	Post-test	20.76	4.71		
Practice	Pre-test	24.88	9.70	0.43	13.22*
	Post-test	30.64	9.11		

* Significant at 5% level

Table 6 indicates the overall mean knowledge and practice scores of pre-test and post-test scores –

Knowledge

With respect to knowledge scores of participants, the findings reveal that the post-test mean knowledge scores was found higher [mean=20.76, SD of 4.71] when compared with pre-test mean knowledge score value which was 14.74 with SD of 5.03.

The statistical paired ‘t’ implies that the difference in the pretest and post-test value was found statistically significant at 5% level ($p < 0.05$) with a paired ‘t’ value of 13.84. There exists a statistical significance in the difference of knowledge score indicating the positive impact of structured teaching program.

Hence, the research hypothesis H_1 is supported. This indicates that the enhancement in knowledge is not by chance and the primary school students who exposed to teaching program on environmental sanitation, significantly improved in their knowledge.

Practice

With respect to practice scores of participants, the findings reveal that the post-test mean practice scores was found higher [mean=30.64, SD of 9.11] when compared with pre-test mean practice score value which was 24.88 with SD of 9.70.

The statistical paired ‘t’ implies that the difference in the pretest and post-test value was found statistically significant at 5% level ($p < 0.05$) with a paired ‘t’ value of 13.22. There exists a statistical significance in the difference of practice score indicating the positive impact of structured teaching program.

Hence, the research hypothesis H_2 is supported. This indicates that the enhancement in practice is not by chance and the primary school students who exposed to structured teaching program on environmental sanitation, significantly improved in their practice.

e. Association Between Level Of Knowledge, Attitude And Selected Socio Demographic Variables

The computed Chi-square value for association between level of knowledge of primary school students regarding environmental sanitation and prevention of dengue fever and their selected demographic variables is found to be statistically significant at 0.05 levels for gender and is not found statistically significant for other socio demographic variables. Therefore, the findings partially support the hypothesis H_3 , inferring that primary school students level of knowledge regarding environmental sanitation and

prevention of dengue fever is significantly associated only with gender.

The computed Chi-square value for association between level of practice of primary school students regarding environmental sanitation and prevention of dengue fever and their selected demographic variables is found to be statistically significant at 0.05 levels for year of study and previous knowledge regarding environmental sanitation and is not found statistically significant for other socio demographic variables. Therefore, the findings partially support the hypothesis H_4 , inferring that primary school students level of practice regarding environmental sanitation is significantly associated only with year of study and previous knowledge regarding environmental sanitation.

Conclusion

The overall pretest knowledge and practice of primary school students regarding environmental sanitation and prevention of dengue fever were average and moderate respectively. There was a need for teaching program regarding environmental sanitation and dengue fever among primary school children. Post test results showed significant improvement in the level of knowledge, attitude and practice regarding environmental sanitation. Thus, it can be concluded that structured teaching program was effective to increase and update their knowledge, attitude and practice on environmental sanitation.

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