

# Effectiveness of Structured Teaching Programme on Knowledge Related to Health Hazards of Global Warming on Children Among High School Students in Selected Schools at Mysuru

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## Abstract:-

### ➤ *Aims and Objectives:*

The goal of the research study is to assess the effectiveness of structured teaching programme on knowledge related to health hazards of global warming on children among high school students.

### ➤ *Methods:*

Pre-experimental one group pre-test post-test design was recruited to assess the effectiveness of structured teaching programme on knowledge related to health hazards of global warming on children among high school students in selected schools at Mysuru.

In view of the nature of the problem and to accomplish the objectives of the study, a structured teaching programme was prepared focusing on knowledge related to health hazards of global warming on children. In order to evaluate the success of an organized education program, a knowledge questionnaire was created. With the help of mentors and subject-matter experts in the fields of statistics, pediatrics, and nursing, the tool's reliability ( $R=0.87$ ) was evaluated, and its validity was guaranteed.

A non-probability convenient sampling strategy was used to pick 100 high school students for the study at Shikshkarni Central School in Mysuru. To get the required information, a structured knowledge questionnaire was given. Descriptive and inferential statistics were used to analyze the data.

### ➤ *Result:*

The mean pre-test score for the knowledge assessment was 11.19, and the mean post-test score was 21.42. The average percentage change between the pre-test and post-test scores was 10.22. At a 5% level of significance, the computed Paired 't' value was 36.53. This demonstrated that the STP was successful in raising high school students' awareness of the health risks that climate change poses to children. Since there is a substantial difference between the mean pre-test and

mean post-test knowledge scores, the research hypothesis (H1) is accepted.

### ➤ *Interpretation and Conclusion:*

The results of this study showed that high school pupils were well-informed on the health risks that climate change poses to children. A major public health risk to all living children now and in the future is global climate change. As a result of children's anatomical, cognitive, immunologic, and psychological variations, the climatic emergencies intensify a wide range of environmental exposures that might harm kids both directly and indirectly. To gauge high school students' knowledge of the harmful consequences of climate change on children and to raise awareness among this vulnerable population, the current study was carried out.

**Keywords:-** STP; Knowledge; Livestock; Stunting; PTSD; Heat stress; Trafficking.

## I. BACK GROUND OF THE STUDY

The environment is a gift from nature that supports life on earth, but regrettably, due to global warming, the ecosystem is currently deteriorating. The constant rise in earth's temperature caused by greenhouse gases is known as global warming. It is rising due to factors such as overpopulation, urbanization, industrialization, rapid globalization, pervasive poverty and inequality, non-sustainable consumption, trans-boundary chemical transport, increased use of biotechnology, deforestation, use of fossil fuels, landfills, mining, fertilizer use, consumption of meat, decomposing organic matter and natural gas extraction, forest fires, permafrost, sunspots, water vapour, and carbon dioxide released by animals in the environment, among others.

As a result of global warming, vulnerable population like children are more likely to suffer from physical and psychological health problems like heat stroke, dehydration, asthma, allergies, water and food borne illnesses, infectious diseases spread by mosquitoes and ticks, increased

susceptibility to injury or death, post traumatic stress, caregiver loss, disrupted education, and displacement.

Since children will be the generation's leaders, it is our responsibility to instill the best knowledge in them so that they can grow up to be responsible citizens. The schools are the place where numerous young minds are inculcated with values of education and related practices so as to develop future responsible citizens. Hence educating kids across all age groups and at all levels of schooling is important to prepare them to be able to live more sustainable lives as they occupy major proportion of the global population.

## II. NEED FOR THE STUDY

The environmental challenges are a magnificent global problem because of many contributing factors. The impact of global warming on national economies and health is felt by every nation on every continent, making alternative sustainable technologies absolutely necessary to protect mother nature.

According to a report given by Netherlands Environmental Assessment Agency, India has registered largest increase in Green House Gas (GHG) emissions by an alarming rate of 4.7% in 2016.

According to a World Bank assessment from June 2018, climate change might cost India 2.8% of its GDP and result in worse living standards for nearly half of its people by 2050.

A team of climate change specialists from the World Health Organization (WHO) determined that global warming causes about 1,50,000 deaths worldwide annually, according to an article in the journal "Scientific American".

Infections caused by waterborne bacteria that cause diarrhoea are more common due to rising temperatures, and the WHO estimates that children carry 88% of the burden of disease associated with climate change. By 2030, compared to a world without climate change, it is predicted that there will be an additional 48,000 cases of diarrheal disease and around 95,000 cases of childhood under nutrition mortality among children under the age of 15.

The Karnataka State Pollution Control Board has suggested a few state action plans on climate change, such as starting a successful awareness campaign through the media and educational institutions about the general environment, climate change, and traditional practices on nature conservation through textbooks on a regular basis at schools, colleges, and community levels. Additionally, it has advised schools to make climate change, pollution avoidance, and environmental protection their key curricular topics.

In light of the substantial scientific knowledge regarding the risks and causes of climate change, neglecting to act would be unfair to our children. Every person on this earth has a moral obligation to protect the environment, and

the next generation deserves to live in a world without the deadly consequences of climate change. Objectives:

- To assess the pre-test knowledge related to health hazards of global warming on children among high school students.
- To assess the effectiveness of structured teaching programme on knowledge related to health hazards of global warming on children among high school students.
- To find the association between the pre-test knowledge score and the selected demographic variables related to health hazards of global warming on children among high school students.

### ➤ Hypothesis:

The following hypothesis was formulated for the study and tested at 0.05 level of significance.

- *H1:*

There is a significant difference between pre-test and post-test knowledge score on knowledge related to health hazards of global warming on children among high school students.

- *H2:*

There is a significant association between pre-test knowledge score on knowledge related to health hazards of global warming on children and selected demographic variables.

## III. MATERIALS AND METHODS USED

### ➤ Sources of Data:

The study was carried out in Shikshkarni Central School, Mysuru.

### ➤ Demographic Variables:

The demographic factors of the high school students in the study included age, gender, class, domicile, mother's educational status, father's educational status, prior knowledge of the health risks of global warming on children, and information source.

### ➤ Research Design:

Pre-experimental research methodology was used in this investigation. Pre-post test design for one group.

### ➤ Research Setting:

Study was carried out at Shikshkarni Central School, Mysuru

### ➤ Population:

The population of this study consisted of high school pupils.

- *Sampling:*

- *Sample Size:*

100 high school students who met the inclusion criteria made up the sample size.

- *Sampling Technique:*  
The data was obtained by employing Non probability convenient sampling technique.

- ✓ *Sampling Criteria:*
- ✓ *Inclusion Criteria:*
- ✓ *High school students enrolled in selected high schools at Mysuru.*
- ✓ *High school students willing to engage in the study.*
- ✓ *Exclusion Criteria:*
- ✓ *High school students unavailable at the time of the study.*
- ✓ *Instruments used:*
- ✓ *Description of the Tool:*
- ✓ *Section 1: Demographic variables*
- ✓ *Section 2: Structured knowledge questionnaire*

- ✓ *Section 3: Development of STP*

- *Organization of the Findings:*  
The organization and presentation of the data analysis were as follows:

- ✓ Section A: Description of demographic variables.
- ✓ Section B: Knowledge of high school students related to health hazards of global warming.
- ✓ Section C: Effectiveness of structured teaching program on knowledge related to health hazards of global warming on children among high school students.
- ✓ Section D: The association between pretest knowledge scores and selected demographic variables.

Table 2 Distribution of Frequency and Percentage analysis of Demographic Variables n=100

Sl. No.	Characteristics	Participants	
		Frequency	Percent %
1	<b>Age group (years)</b>		
	a) 13-14	41	41
	b) 14-15	59	59
2	<b>Gender</b>		
	a) Male	46	46
	b) Female	54	54
3	<b>Class</b>		
	a) 8 <sup>th</sup>	33	33
	b) 9 <sup>th</sup>	33	33
	c) 10 <sup>th</sup>	34	34
4	<b>Residence</b>		
	a) Rural	19	19
	b) Urban	81	81
5	<b>Mother's education</b>		
	a) Illiterate	0	0
	b) Primary	10	10
	c) High school	25	25
	d) PUC	40	40
	e) Graduation and above	25	25
6	<b>Father's education</b>		
	a) Illiterate	0	0
	b) Primary	5	5
	c) High school	15	15
	d) PUC	34	34
	e) Graduation and above	46	46
7	<b>Previous information</b>		
	a) Yes	81	81
	b) No	19	19
	<b>Source of information</b>		
	a) News paper and magazine	27	30
	b) Radio and Television	14	15
	c) Internet and Social media	48	53

		<b>100</b>	<b>100</b>
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**Table-2** reveals that 59(59%) participants were in the age group of 14-15 years; 54(54%) were male; 34(34%) were studying in 10<sup>th</sup> standard; 81(81%) were from urban area; 41(41%) participant’s mothers have pre-university education and 46(46%) participant’s father’s educational status is degree and above; 81(81%) of participants have previous information on the topic and 48(53%) participants received information from internet and social media.

➤ *Section B: Knowledge of high school students related to health hazards of global warming on children. n=100*

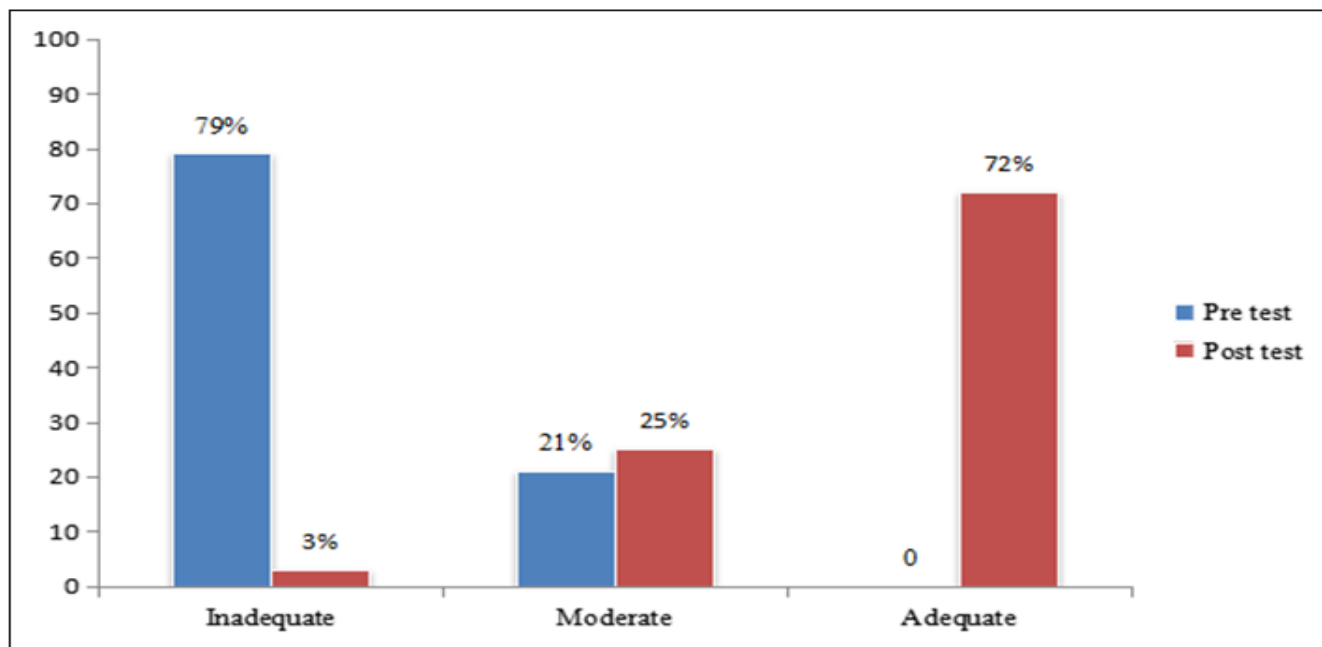


Fig 3 Distribution of High School Students According to Pretest and Post Test Level of Knowledge Score

Data from the above figure depicts that in pretest 71(71%) participants had inadequate knowledge, 29(29%) participants had moderate knowledge and none of them had adequate knowledge related to health hazards of global warming on children. In post test 72(72%) participants had adequate knowledge and 25(25%) participants had moderate knowledge and 3(3%) participants had inadequate knowledge.

➤ *Section C: Effectiveness of structured teaching programme on knowledge related to health hazards of global warming on children among high school students.*

The paired ‘t’ value was computed to determine the effectiveness of structured teaching programme on knowledge related to health hazards of global warming on children among high school students. The following research hypothesis was stated.

- *H<sub>1</sub>: There is significant difference between mean pre-test and mean post-test knowledge score.*

Table 3 Effectiveness of Structured Teaching Programme on Knowledge Related to Health Hazards of Global Warming on Children among High School Students. n = 100

Aspects	Max. Score	Participants Knowledge				Paired ‘t’ test
		Mean	SD	Mean %	SD %	
Pre-test	30	11.19	1.82	37.3	6.06	36.53
Post-test	30	21.42	3.59	71.4	11.96	
Enhancement	30	10.22	5.86	34.06	19.53	
Significance at 5% level		t' (0.05,99df) = 1.96				

Data in table 3 illustrates that the mean post-test knowledge score (21.42) was higher than the mean pre-test knowledge score (11.19). The mean difference between pre-test score and post test score was (10.22). Paired ‘t’ test knowledge score was t’=36.53 is significant at 0.05% level. Hence research hypothesis H<sub>1</sub> was accepted. This infers that the STP was effective in increasing the knowledge related to health hazards of global warming on children among high school students.

➤ Section D: The Association between Pretest Knowledge scores and Selected Demographic Variables.

Table 3 Association between Pre-Test Knowledge Scores and Selected Demographic Variables n= 100

Demographic variables	Pre-test knowledge score		Chi square value	df	Table value	Remarks
	Inadequate	Moderate				
<b>Age group (years)</b>						
a) 13-14	30	11	0.159	1	P<0.05 (3.841)	NS
b) 14-15	41	18				
<b>Gender</b>						
a) Male	31	15	0.538	1	P<0.05 (3.841)	NS
b) Female	40	14				
<b>Class</b>						
a) 8th	25	8	2.588	2	P<0.05 (5.991)	NS
b) 9th	20	13				
c) 10th	26	8				
<b>Residence</b>						
a) Rural	9	10	6.362*	1	P<0.05 (3.841)	Significant
b) Urban	62	19				
<b>Mother's education</b>						
a) Primary/High school	20	15	5.021*	1	P<0.05 (3.841)	Significant
b) PUC/Graduation and above	51	14				
<b>Father's education</b>						
a) Primary/High school	10	10	4.219*	1	P<0.05 (3.841)	Significant
b) PUC/Graduation and above	59	21				
<b>Previous information</b>						
a) Yes	55	26	0.24	1	P<0.05 (3.841)	NS
b) No	14	5				
<b>Source of information</b>						
a) Newspaper and magazine/Radio and Television	30	11	0.059	1	P<0.05 (3.841)	NS
b) Internet and Social media	34	14				
*Significant at 5% Level			NS: Non-significant			

It is evident from the Table.3 that the association between the residence ( $\chi^2=6.362$ ), mother’s educational status ( $\chi^2=5.021$ ), father’s educational status ( $\chi^2=4.219$ ) with the level of pretest knowledge score was statistically significant, whereas the association between the age ( $\chi^2=0.159$ ), gender ( $\chi^2=0.538$ ), class ( $\chi^2=2.588$ ), previous knowledge ( $\chi^2=0.240$ ), source of information ( $\chi^2=0.059$ ) with the level of pretest knowledge score was statistically not significant. Hence the research hypothesis  $H_2$  was accepted for residence, mother’s educational status, father’s educational status and  $H_2$  was not accepted for age, gender, class, previous information and source of information.

**IV. CONCLUSION**

The present study was conducted to assess the effectiveness of structured teaching programme on knowledge related to health hazards of global warming on children among high school students at Shikshkarni Central School. The study's findings were used to draw the

conclusions that are listed below. It also highlighted the study's restrictions in terms of data collection and information source.

- High school students' pre-test understanding of the health risks that climate change poses to children was insufficient, but their post-test knowledge showed a considerable improvement.
- The mean pre-test knowledge score was 11.19, whereas the mean post-test knowledge score was 21.42, according to the analysis of the mean and SD of the knowledge scores from the pre-test and post-test. The knowledge level significantly increased throughout the post-test, as evidenced by the Paired't' test result of 36.53, proving the effectiveness of the structured teaching program.
- This study demonstrated a statistically significant relationship between residence, mother's educational status, and father's educational status and level of pre-test knowledge score.

## RECOMMENDATIONS

➤ *On the basis of Findings of the Study the following Recommendations were Made.*

- A similar study can be replicated on a larger sample who represent diverse demographics.
- A similar study might be carried out with the aid of SIM, booklets, and pamphlets, among other techniques..
- A comparable study might be carried out among students in pre-university and undergraduate programs.
- A comparative study can be conducted to assess the knowledge related to health hazards of global warming on children between rural an urban high school students.
- To determine the success in terms of information retention among high school students and to restart health promotion teaching services, a follow-up study might be carried out.

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