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## A comparative study to assess the effectiveness of warm and tepid sponging in reducing hyperthermia among children between the age group of 1-5 years

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### Abstract

**Statement of Problem:** A comparative study to assess the effectiveness of Warm and Tepid Sponging in Reducing Hyperthermia among Children between the age group of 1-years.

**Objectives:** a) To assess the level of body temperature before and after warm sponging among children belonging to Experimental Group I. b) To assess the level of body temperature before and after tepid sponging among children belonging to Experimental Group II. c) To compare the effectiveness of warm and tepid sponging in reducing hyperthermia among children in Experimental group I and experimental group II. d) To associate the effectiveness of warm sponging in reducing hyperthermia with selected demographic variables. e) To associate the effectiveness of tepid sponging in reducing hyperthermia with selected demographic variables.

**Methodology:** The research design selected for the study was quasi experimental design (two group pretest and posttest design) sample size for this study was 50 out of which 25 belong to experimental group I and 25 belongs to experimental group II who are selected by purposive sampling technique. Temperature was monitored using a digital thermometer, temperature recording data sheets and demographic variables were used to collect data.

**Results:** Descriptive and inferential statistics were used to analyze the data. The independent 't' test was performed to compare the post test value of warm and tepid sponging in experimental group I and experimental group II. The calculated value of 't' was 1.4 and respectively which is greater than the table value. This shows that there was significant difference in post test value of experimental group I and experimental group II.

**Conclusion:** Warm sponging and tepid sponging were effective in reducing the body temperature, where as warm sponging had an additive effect and prevented further rise in body temperature for longer period of time when compared to tepid sponging and children experience little or no discomfort with warm sponging.

**Keywords:** Warm sponging, tepid sponging, hyperthermia, children

### Introduction

Every year of a child's life is precious but when it comes to development, the first five years are the most important. It is when they develop physical, mental and social skills that remain with them for life. Fever remains the most common concern prompting parents to present their child to the hospitals. A high temperature can be alarming. It indicates the presence of a serious illness. The hypothalamus controls body temperature and it increases the body temperature as a way to fight the infection.

Fever is a common response of the body to infection. It makes people feel unwell and can result in serious complications such as convulsions. Although the mainstays of antipyretic treatments are drugs such as paracetamol and ibuprofen, physical methods are also used. Physical methods for cooling are often recommended for treating fever. The methods that are cheap, readily available and most commonly used include; tepid sponging, bathing, fanning, and cooling blankets. Tepid sponging and bathing are widely used by caregivers and doctors.

### Need for the Study

Emergent management of pediatric patients with fever is a common challenge. Children with fever account for as many as 20 to 30% of pediatric emergency department (ED) visits, and the underlying disorder in these cases range from mild conditions to the most serious of bacterial and viral illnesses.

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The incidence of hospital-acquired fever ranged from 2% to 17%. Fever was attributed to infection in 37% to 74% patients, where as an on infectious etiology was identified in 3% to 52%

External cooling is the treatment of choice for hyperthermia. This can be managed by the use of hot or warm water application, especially warm water application which reduces fever by improving the blood circulation by vasodilatation there by increasing the heat lose. So studies need to be conducted about the temperature of water that needs to be used for sponging considering the comfort of child with fever. So researcher felt the need for compare whether effect of worm of tepid sponging causes fastest reduction of temperature and maintain comfort of child.

**Statement of the Problem**

A comparative study to assess the effectiveness of Warm and Tepid Sponging in Reducing Hyperthermia among Children between the age group of 1-5 years in selected Hospital

**Objectives of the Study**

- To assess the level of body temperature before and after warm sponging among children belonging to Experimental Group I
- To assess the level of body temperature before and after tepid sponging among children belonging to Experimental Group II
- To compare the effectiveness of warm and tepid sponging in reducing hyperthermia among children in Experimental group I and experimental group II
- To associate the effectiveness of warm sponging in

- reducing hyperthermia with selected demographic variables
- To associate the effectiveness of tepid sponging in reducing hyperthermia with selected demographic variables

**Hypothesis**

There is significant difference between the effects of warm and tepid sponging in minimizing Hyperthermia

**Methodology**

**Research Design**

Comparative experimental research approach was considered to be the most appropriate to achieve the objectives of this study.

**Sample Size-50 children**

The sample size included for the study consist of 50 samples, out of which 25 children belong to Experimental Group I and 25 children belong to Experimental Group II.

**Sampling Technique**

Purposive sampling technique was used for selection of samples from the population of the study.

**Description of Tool**

The tool consists of the demographic data, and temperature recording data sheet to assess the temperature by using Digital Thermometer.

**The Data Sheet**

Temperature recording data sheet was used in the study.

**Table 1:** Temperature recording data sheet was used in the study

S. No.	Pretest Temperature	Data Sheet Post Test Temperature				
		0 minutes	15 minutes	30 minutes	45 minutes	Remarks

**Major finding of study**

Distribution of Statistical Value of Hyperthermia Before and After Application of Warm Sponging for Children Belonging to Experimental Group

**Experimental Group I: Paired ‘t’ Test**

The comparative mean values, standard deviation and ‘t’ test values between pre and posttest value of application of warm sponging for children belonging to Experimental Group I was given below (n =25).

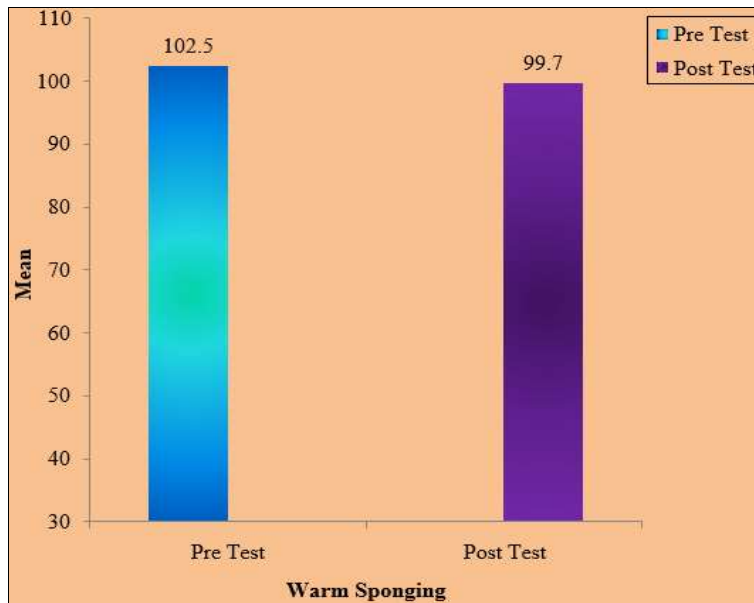
**Table 2:** The comparative mean values, standard deviation and ‘t’ test values between pre and posttest value of application of warm sponging for children belonging to Experimental Group I was given below

S. No.	Temperature (Warm Sponging)	Mean	SD	(n =25)
				Paired ‘t’ test
1	Pretest	102.5	0.16	18.75*
2	Posttest	99.7	0.11	

\*significant at 0.05 level

Table shows that the calculated ‘t’ value is 18.75 at p = 0.05 level of significance, which is greater than the table value (t = 2.064). This shows that there was a high significant difference exists between the pretest and posttest score of

temperature in reducing Hyperthermia. This implies that there was a great influence of application of warm sponging in reducing hyperthermia.



**Fig 1:** Distributions of mean Pretest and Post Test Score of Warm Sparging Among Experimental Group I

Distribution of statistical value of hyperthermia before and After Application of Tepid Sparging for Children Belonging to Experimental Group II.

**Experimental Group II: Paired ‘t’ Test**

The comparative mean values, standard deviation and ‘t’ test values between pre and posttest value of application of Tepid sparging for children belonging to Experimental Group II was given below: (n =25)

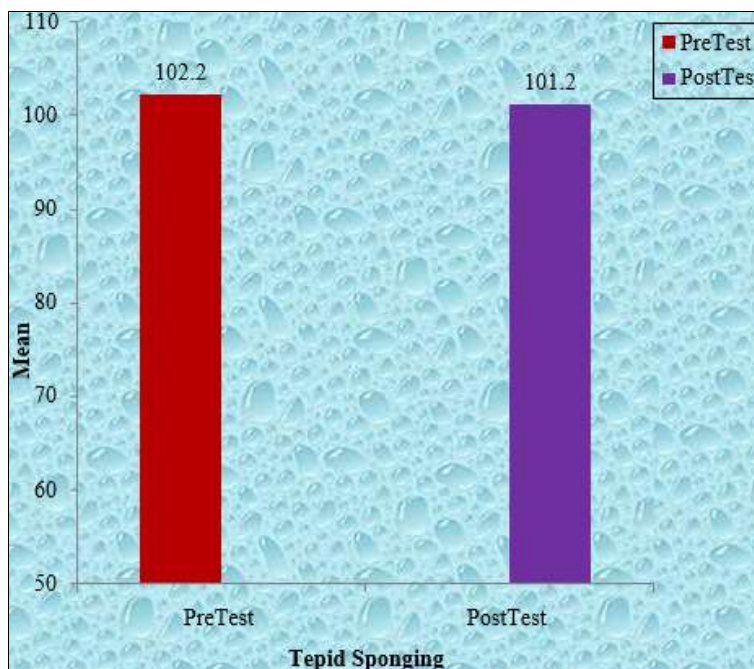
**Table 3:** The comparative mean values, standard deviation and ‘t’ test values between pre and posttest value of application of Tepid sparging for children belonging to Experimental Group II

S. No.	Temperature (Tepid Sparging)	Mean	SD	Paired ‘t’ test
1	Pretest	102.2	0.133	6.2*
2	Posttest	101.2	1.9	

\*significant at 0.05level

Shows that the calculated ‘t’ value is 6.2 at p=0.05, level of significance, which is greater than the table value (t = 2.064).This shows that there was a high significant difference exists between the pretest and posttest score of

temperature in reducing Hyperthermia. This implies that there was also influence of application of Tepid sparging in reducing hyperthermia.



**Fig 2:** Distribution of mean Pretest and Post Test Score of Tepid Sparging among Experimental Group II

**Comparison of Statistical Values of Hyperthermia between the Experimental Group I and Experimental Group II**

**Experimental Group I and Experimental Group II: Independent ‘t’ Test**

Distribution of Statistical Pre Test Value of Temperature between the Experimental group I and Experimental group II (N= 50).

**Table 4:** Distribution of Statistical Pre Test Value of Temperature between the Experimental group I and Experimental group II

(N= 50)

S. No.	Pretest	Mean	S. D	Independent ‘t’ Test
1	Experimental Group I	102.5	0.16	1.4*
2	Experimental Group II	102.2	0.133	

\*Significant 0.05 level

Shows that the calculated value is 1.4 at p = 0.05, level of significance, which is greater than the table value (t = 2.00). This shows that there exist no significant difference between the pretest values of Experimental Group I and II. This highlights that both warm sponging and tepid sponging have

some effect on reducing the hyperthermia.

Experimental group I and Experimental group II: Independent ‘t’ Test Distribution of Statistical Post Test Value of Temperature between the Experimental group I and Experimental group II (n= 50)

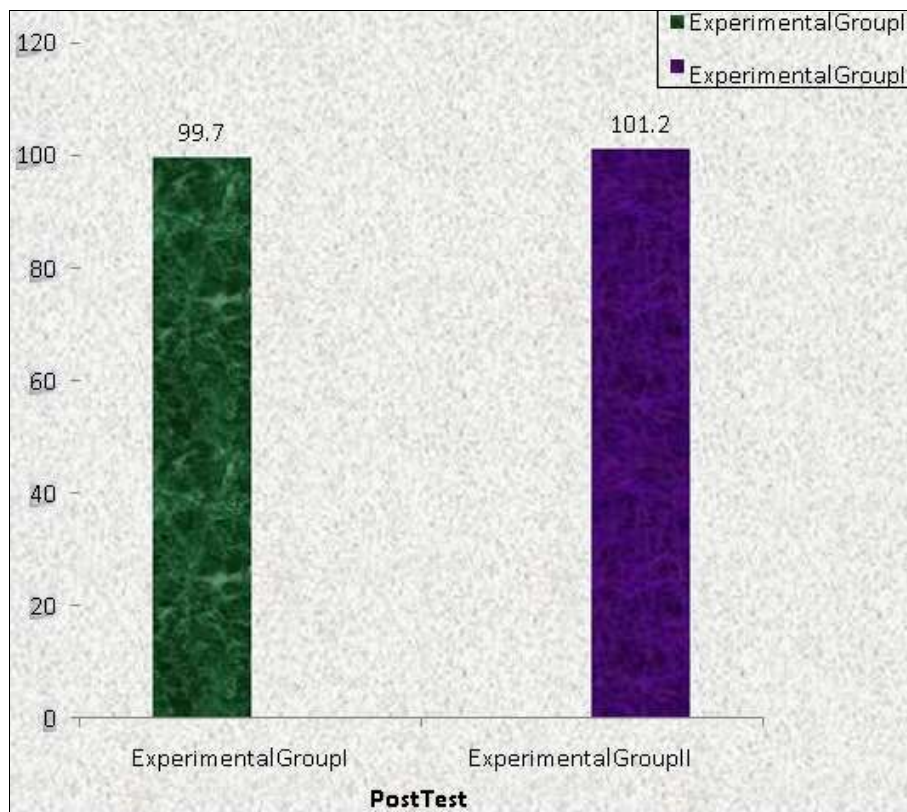
**Table 5:** Independent ‘t’ Test Distribution of Statistical Post Test Value of Temperature between the Experimental group I and Experimental group II

(n= 50)

S. No.	Pretest	Mean	S.D	Independent ‘t’ Test
1	Experimental Group I	99.7	0.11	6.7*
2	Experimental Group II	101.2	1.9	

\*Significant 0.05 level

Shows that the calculated value is 6.7 at p = 0.05, level of significance, which is greater than the table value (t = 2.00). This shows that there exist a significant difference between the Posttest values of Experimental Group I and II. This highlights that both warm sponging has greater influence in reduction of hyperthermia when compared to tepid sponging.



**Fig 3:** There exist a significant difference between the Posttest values of Experimental Group I and II

**Distribution of Statistical Post Test Values of Temperature between Warm Sponging and Tepid Sponging**

Associations of Selected Demographic Variables with Post Test score of Temperature who Received Warm Sponging among Experimental Group I. indicates the association of posttest values on warm sponging with selected demographic variables in experimental group I. It reveals that the sex of the child had significant association with post test scores. Other demographic variables were not associated with warm sponging.

Association of Selected Demographic Variables with Post

Test score of Temperature who Received Tepid Sponging among Experimental Group II.

Indicates the association of posttest values on Tepid sponging with selected demographic variables in experimental group II. It reveals that the age, type of family, sex of the child had significant association with posttest scores. Other demographic variables were not associated with warm sponging.

**Conclusion**

The result shows that application of warm sponging and tepid sponging was effective in reducing hyperthermia



among children in both experimental group I and experimental group II soon after giving sponging. Children who received warm sponging has fastest effect in reducing hyperthermia for a longer period, more comfortable and those receiving tepid sponging has some forms of discomfort like shivering and excessive crying. Even though tepid sponging had caused reduced the temperature (fever) soon after sponging, the temperature was again raised to higher degree when assessed at 30 and 45 minutes interval, were as in warm sponging temperature was found to be maintaining within normal limit when assessed at 30 and 45 minutes. So the application of warm water sponging need to be courage and further research need to be conducted in a large group to find out its effectiveness and brought in to practice

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