

A Comparative Study to Assess the Effectiveness of Warm and Tepid Sponging in Reducing Hyperthermia Among Children Between the Age Group of 1-6 Years in Selected Hospital, Bangalore

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ABSTRACT

A comparative study was conducted to assess the effectiveness of warm and tepid sponging in reducing hyperthermia among children between the age group of 1–6 years in a selected hospital in Bangalore. The objectives of the study were to assess ++++the body temperature before and after warm sponging in Experimental Group I and tepid sponging in Experimental Group II, compare their effectiveness, and associate the findings with selected demographic variables. A quasi-experimental two-group pre-test and post-test design was adopted for the study. Utilizing a purposive sampling technique, a sample size of 50 children was selected, with 25 assigned to Experimental Group I and 25 to Experimental Group II. Data collection was carried out using a digital thermometer, temperature recording data sheets, and demographic tools, which were subsequently analyzed using both descriptive and inferential statistics. An independent ‘t’ test was performed to compare the post-test values between the two groups, yielding a calculated ‘t’ value of 1.4, which was greater than the table value. This demonstrated a statistically significant difference in the post-test values between Experimental Group I and Experimental Group II. The study concluded that while both warm and tepid sponging were effective in reducing body temperature, warm sponging exhibited an additive effect, successfully preventing a further rise in body temperature for a longer duration compared to tepid sponging, while causing little to no discomfort to the children.

Keywords: Warm Sponging, Tepid Sponging, Effectiveness, Hyperthermia, Children.

INTRODUCTION

Every year of a child’s life is precious but when it comes to development, the first six 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. (Renee A.Ali, 2017)

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. Rubbing alcohol on the skin, cool enemas, and ice packs have also been used for cooling the body during fever, but there are indications that these methods may cause severe adverse effects in exceptional cases. Heat stroke or extremely high body temperature (hyperthermia), conditions under which antipyretic drugs are deemed unsuitable, submerging patients in cold water is recommended to cool them quickly. Sponging reduces heat through conduction, convection, or evaporation. In comparison to our study group, supportive ways of fever management at home adopted by the Nigerian mothers include reducing clothing and exposure to air (91.7%), tepid sponging (90.1%), cold bath (67.7%), fanning (9.4%). Similarly, the most commonly reported methods to treat feverish child in Palestine are sponging and giving antipyretic medication. (Hanadi Mukhtar, 2014)

A descriptive study conducted in children between the age group of 1-6 years with hyperthermia (101-104°F) admitted in J P Hospital and General Hospital, Nelamangala,

Studies show that infection is a major cause of mortality in children aged 0-5 years. There are over 100 deaths from infection in children aged 1-12 months each year in England and Wales. In the first year of life, infection is second only to congenital defects as a cause of death. In children aged 1-4 years there are around 30 deaths from infection per year of life, and infection is the most common cause of death in this age group. (McFaul, 2009) In tepid sponging the temperature of water is less than body temperature, so vasoconstriction occurs, so fever will be reduced by raise after a particular period of time. In warm sponging the temperature of water is same or greater than that of the body temperature, so vasodilatation occurs so more heat is drawn out and less discomfort (Potter, 2006).

The best treatment of fever was found to be alternating hot and cold application. The hot application to the skin increases oxidation of toxins and increased blood flow to surface vessels of skin. Heating surface of the skin increases the ability of the phagocytes to destroy the germs and detoxify the blood. Hot bath therapy regulates warmth, provides health blood circulation and has a soothing, healing effect. Hot water application causes congested blood flow towards distant parts of the body and is brought to dilate blood vessels

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 1-6 years in selected Hospital, Bangalore.

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

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

METHODOLOGY

The research design selected for the study was quasi experimental design (two group pre test and post test 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. 8

Inclusive Criteria

☐ Hospitalized children with fever ranging from 101 - 104°F. ☐ Children in the age group of 1 – 6 years ☐ Children receiving only antipyretics and no other physical or external measures for lowering body temperature ☐ Children those who are co-operative during the intervention ☐ Children of mothers giving consent for the intervention

Exclusive Criteria

☐ Children who develop rigor before or during intervention ☐ Children those who are contraindicated for sponging like, burns, head injury, septicemia, open wounds etc. ☐ Children who are unconscious ☐ Children who are seriously ill.

STASTICS

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.

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 thatthere 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.

SECTION - 1

Table: 1 Distribution of demographic variables of Experimental group I and Experimental group

S.No	Demographic Variables	Experimental Group I		Experimental Group II	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1	Age in Years				
	a) 1 - 2 years	12	48	8	32
	b) 3 – 4 years	7	28	9	36
	c) 5 – 6 years	6	24	8	32
2	Sex				
	a) Male	15	60	11	44
	b) Female	10	40	14	56
3	Education				
	a) Below I standard	8	32	7	28
	b) I standard	11	44	8	32
	c) II standard	6	24	10	40
4	Residential Area				
	a) Rural	13	52	12	48
	b) Urban	12	48	13	52
5	Type of Family				
	a) Nuclear	15	60	16	64
	b) Joint	10	40	9	36

Table 1 continuous

S.No	Demographic Variables	Experimental Group I		Experimental Group II	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
6	Family Monthly Income				
	a) Below Rs. 5,000	7	28	9	36
	b) Rs. 5,001 – 7,500	6	24	6	24
	c) Rs. 7,501 – 10,000	7	28	7	28
	d) Rs. 10,001 and above	5	20	3	12
7	Total number of siblings				
	a) No siblings	7	28	8	32
	b) One	9	36	10	40
	c) Two	6	24	6	24
	d) More than two	3	12	1	4
8.	History of Previous Hospitalization	14	56	13	52
	a) Yes	11	44	12	48
	b) No				

SECTION – II

Distribution of Statistical Value of Hyperthermia Before and After Application of Warm Sponging for Children Belonging to Experimental Group 1

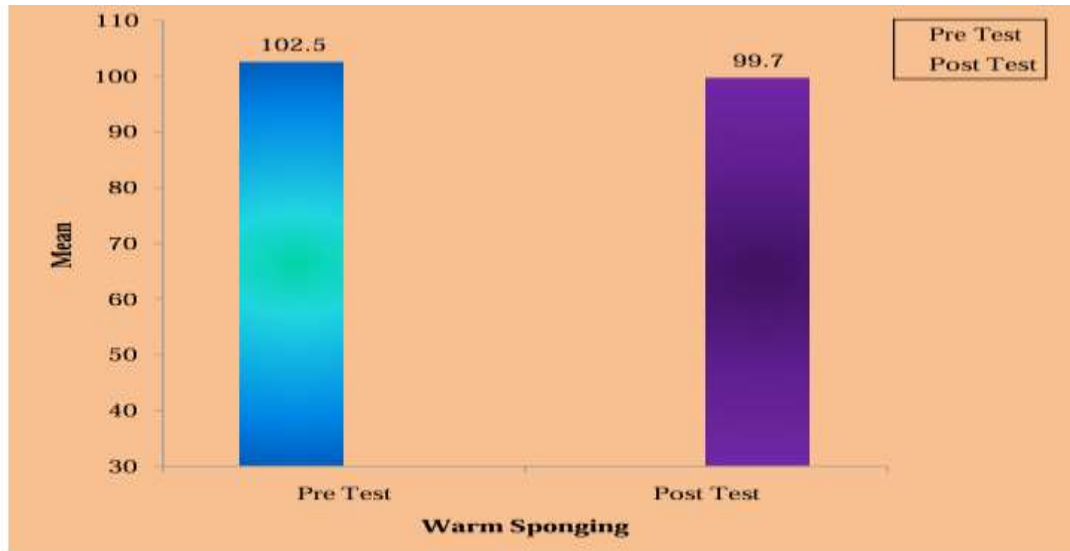


Figure .12 Distributions of mean Pretest and Post Test Score of Warm Sponging Among Experimental Group I

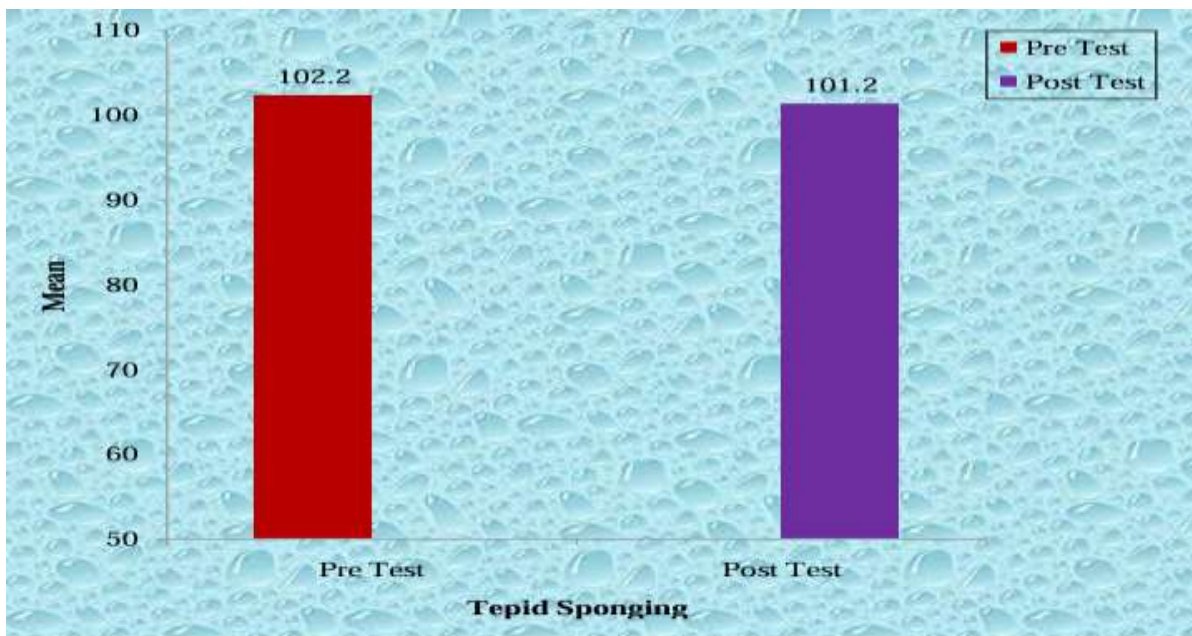


Figure .13 Distribution of mean Pretest and Post Test Score of Tepid Sponging Among Experimental Group II

SECTION – III

Comparison of Statistical Values of Hyperthermia Between the Experimental Group I and Experimental Group II

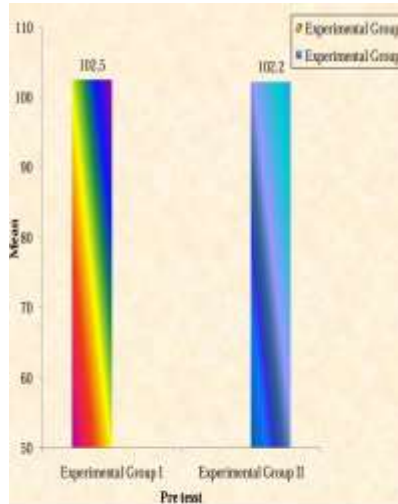


Figure .14 Distribution of Statistical Pretest Values of Temperature Between Warm Sponging and Tepid Sponging

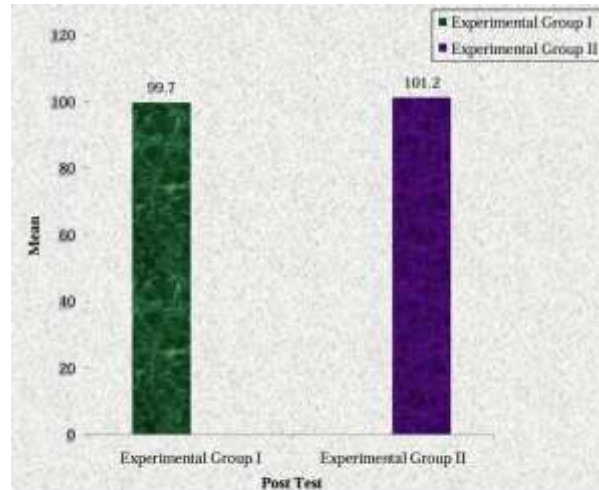


Figure .15 Distribution of Statistical Post Test Values of Temperature Between Warm Sponging and Tepid Sponging

SECTION IV:

Association of selected demographic variables with post test score of Hyperthermia among children belonging to Experimental group II

Significant

.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.

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 post test scores. Other demographic variables were not associated with warm sponging.

DISCUSSION

This study is two group pretest, posttest, quasi experimental study intended to compare the effectiveness of warm and tepid sponging in reducing hyperthermia among children between age group of 1 to 6 years. The result of the major study was discussed according to the objectives.

In association of degree of fever with selected demographic variables, it shows that there was significant association between the age and family of child with post test score of temperature and all other variables showed no significant association with post test score of temperature among experimental group I. Fernando Figueira, (2006) conducted a randomized clinical trial to compare the effectiveness of tepid sponging and dipyrone along with selected demographic variables among 876 children between the age group of 6months to 5 years in selected hospitals. The study concluded that there was no statistically significant difference between the study groups with respect to age, sex, nutritional status, temperature, duration of fever on admission and clinical diagnoses hours.

Nursing Implications

The finding of the study has implications in various areas of nursing practices, nursing administration,

nursing education and nursing research.

Nursing Education

- The nursing curriculum should be updated with the inclusion of topic on effectiveness of warm sponging in reducing fever.
- The emphasis needs to be planned on preventive and promotive health practice.
- The results of the body emphasis the learners to utilize the knowledge of warm and tepid sponging in reducing hyperthermia in children both in clinical and home settings.

Nursing Administration

- The nurse administrator needs to take an interest in formulating principles and adopting the various modalities of treatment for fever.
- The nursing administrators serve as a resource person for young nursing student, patient and family members for providing guidance and counseling.
- In-service education programme should be organized for nurses to update their knowledge about warm sponging and practice the application of warm sponging to reduce hyperthermia and prepare written policies about evidence-based practice.

Nursing Research

- The essence of research is to build up knowledge in nursing since it has been a dynamic and changing profession. The effectiveness of the research study can be made further implications in clinical practice.
- Emphasis should be laid on research in the area of non-pharmacological measures for fever management in children which has no side effects
- Further research can be conducted to reduce fever by means of hot and cold application

Limitations

- The study was conducted among small group in a selected hospital which limits generalization.
- The study was conducted for a short period
- Further assessment cannot be carried out due to prescribed period

Recommendations

- A similar study can be conducted for a large group on a long-term basis.
- A comparative study can be conducted to compare the effectiveness of warm sponging alone, warm sponging plus paracetamol in reducing hyperthermia.
- A study has to be done on the temperature of warm water that needs to be used in sponging without paracetamol in reducing hyperthermia. Effectiveness of warm water sponging can be assessed by conducting the study with control group and experimental groups.

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 had the fastest effect in reducing hyperthermia for a longer period, more comfortable and those receiving tepid sponging had 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 a higher degree when assessed at 30 and 45 minutes interval, whereas 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 encouraged 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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