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## RESEARCH ARTICLE

### A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE OF MOTHERS REGARDING THERMOREGULATION IN NEONATES AT SELECTED HOSPITAL OF LUDHIANA, PUNJAB

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#### ABSTRACT

**Introduction:** Thermoregulation is the ability of neonates to balance heat production and heat loss in order to stabilize internal body temperature. The neonates have special requirement for temperature maintenance due to large surface area in relation to body weight, less adipose tissue and subcutaneous fat and underdeveloped sweating and shivering mechanism. All neonates including term, preterm and SGA are at risk of heat loss especially during first 12 hours of life. **Aim:** To assess the effectiveness of structured teaching programme on knowledge of mothers regarding thermoregulation in neonates in selected hospital of Ludhiana, Punjab. **Material and Method:** A quasi-experimental approach with two groups pre-test and post test research design and purposive sampling was used. A self structured questionnaire was used which had two parts demographic data and questionnaire to assess the knowledge of mothers. Structured teaching was conducted on the experimental group. Analysis of data was done using descriptive and inferential statistics. **Results:** The data was analysed by using descriptive and inferential statistics. The pre-test knowledge score was almost same i.e average knowledge in both the groups. In control group maximum mothers obtained average knowledge score whereas in experimental group majority of mothers obtained good post-test knowledge score. The difference between pre test and post test knowledge score of control group was statistically non-significant at  $p < 0.05$  level but in experimental group it was statistically highly significant at  $p < 0.001$  level. **Conclusion:** The study concluded that structured teachings programme was significantly effective in raising the knowledge of mothers regarding thermoregulation in neonates.

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## INTRODUCTION

The global burden of neonatal death is estimated to be 5.0 million of which 3.2 million deaths occur during the first week of life. One of the most critical factors in the survival of newborn babies is the satisfactory maintenance of their body temperature. Adequate environment warmth is essential in the care of newborn because they cannot maintain their own body temperature.<sup>2</sup> Thermoregulation is the ability of neonates to balance heat production & heat loss in order to stabilize internal body temperature. The provision of a thermoneutral environment is an essential component of the immediate and longer term care of neonates. The neonates have special requirements for temperature maintenance due to large surface area in relation to body weight, blood vessels relatively close to skin surface, less adipose tissue & subcutaneous fat,

underdeveloped sweating & shivering mechanism, increase metabolic process (non-shivering thermogenesis) produce heat beyond basal production. All neonates including term newborn especially during the first 12 hours of life, near term infants, preterm infants, small for gestational age infants are at a risk of heat loss.<sup>3</sup> Neonate loses heat due to evaporation (latent heat of evaporation being 540kcal/g of water of evaporation) & through other avenues of heat loss like radiation (to colder solid objects in vicinity), convection (by air current in which cold air replaces warm air around baby-open windows, fan), conduction (by coming in contact with cold-objects-cloth, tray, etc). After birth, skin & core temperature of the baby falls by 0.3°C and 0.1°C per minute respectively.<sup>5</sup> It is estimated that 15% of neonate babies develop hypothermia at birth in developing countries.<sup>6</sup> If the thermal environment is below the neutral range of environmental temperature of the neonate, a number of clinical manifestations are seen. The neonate is uncomfortable, restless & cries to generate heat by muscular activity. If unattended in this stage, he becomes sluggish & inactive. Skin becomes cold & mottled due to vasoconstriction.

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Hypothermia in neonates can easily be prevented by following simple practices such as drying, not bathing the baby immediately after delivery, providing “Kangaroo mother care”, covering the baby properly and initiating prompt breast feeding etc.<sup>8</sup> But many mothers are not aware of the importance of keeping the neonate warm by simple methods such as drying, wrapping & warming immediately after birth, avoiding harmful practice, encourage early breast feeding & keeping neonate in close contact with their mothers.

### Objectives

- To assess the pre test and post test knowledge of mothers regarding thermoregulation in neonates of control & experimental group.
- To compare pre-test & post test knowledge score of mothers regarding thermoregulation in neonates of control & experimental group.
- To find out the association of post test knowledge score of mothers regarding thermoregulation in neonates in experimental group with demographic variables.

### HYPOTHESIS

**H<sub>1</sub>:** The post test teaching knowledge score of mothers in experimental group will be significantly higher than control group regarding thermoregulation in neonates

**H<sub>0</sub>:** There is no statistically difference in post test knowledge score of mothers of neonates in experiment and control group regarding thermoregulation in neonates.

### MATERIALS AND METHODS

A quantitative research approach and quasi- experimental two group pre and post test research design was used to assess the effectiveness of the structured teaching programme on knowledge of mothers regarding thermoregulation in neonates. The study was conducted in the postnatal ward & private ward-19 of Christian Medical College & Hospital, Ludhiana. The tool was developed in 2 sections. Section –A includes demographic variables and section-B includes self structured questionnaire regarding thermoregulation in neonates. Written permission was obtained from Medical Superintendent & Head of department of obstetric & gynaecology of Christian Medical College & Hospital, Ludhiana. Informed consent was taken from the respondents. Pretest was conducted by using self structured questionnaire in both experiment and control group followed by Structured teaching programme for experiment group. After 7 days post test was done. The data obtained was analysed in terms of descriptive analysis i.e percentage, mean percentage, standard deviation as well as inferential statistics i.e chi- square, paired & unpaired ‘t’ test were used.

### RESULTS

Fig 1: level of pre-test and post-test knowledge score of mothers regarding thermoregulation in neonates in experiment group depicts that in pre-test, majority of mothers (65%) had average knowledge score whereas after post-test 50% mothers had good knowledge score followed by 40% were excellent knowledge regarding thermoregulation in neonates. Table 1: Shows the comparison of pre-test and post-test mean knowledge score of mothers regarding thermoregulation in neonates of control and experiment group.

### Section 1: Finding related to percentage distribution of pre-test and post test knowledge score of experimental group

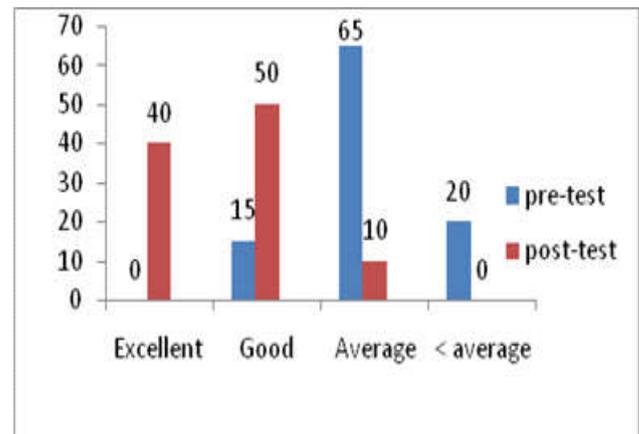


Figure 1. Bar Diagram Represents The Percentage Distribution Of Pre-Test And Post-Test Knowledge Score In Experiment Group

In control group difference between pre-test and post-test was statistically non- significant. Whereas in experimental group the difference between pre-test and post-test mean knowledge score was statistically highly significant at  $p < 0.001$ . hence, H<sub>1</sub> hypothesis was accepted and it was concluded that structured teaching had impact on knowledge of mothers regarding thermoregulation in neonates in experimental group.

### Comparison of Mean Pre-Test and Post-Test Knowledge Score Of Mothers Regarding Thermoregulation In Neonates Of Control And Experiment Group

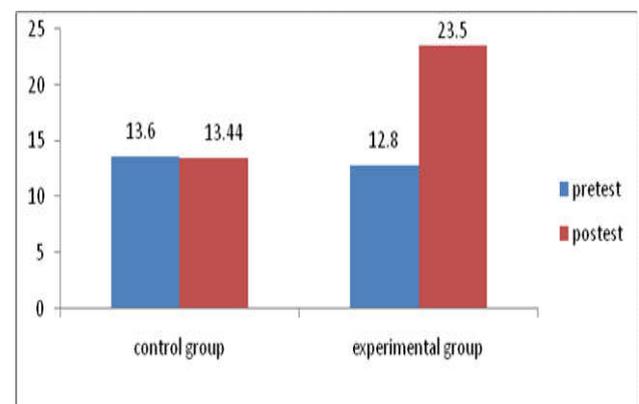


Figure- 1: Bar diagram represents the comparison of mean pre-test and post-test knowledge score of mothers regarding thermoregulation in neonates of control and experiment group. In control group pre-test mean knowledge score was 13.6 and post-test mean knowledge score was 13.44. The difference between pre-test and post-test was non significant, whereas in experiment group the difference between pre-test (12.8) and post –test (23.5) was highly significant at  $p < 0.001$ . Table 2: From the chi-square test it is interpreted that there was no significant association between knowledge score of mothers regarding thermoregulation in neonates in post test when compared to relationship with age of mothers, occupation and source of information while no of children and education had impact on knowledge of mothers regarding thermoregulation in neonates.

**Table 1. Comparison Of Pre-test And Post-Test Mean Knowledge Score Among Mothers Regarding Thermoregulation In Neonates In Control And Experimental Group N = 40**

Knowledge Score							
Pre-test post-test							
Group	n	mean	SD	mean	SD	df	't'
Control	20	13.6	3.01	13.44	2.60	19	1.453 <sup>NS</sup>
Experimental	20	12.8	3.71	23.5	3.23	19	15.59 <sup>***</sup>

\*\*\* at  $p < 0.001$  NS= Non-Significant

**Table 2. Association between post-test knowledge score of mothers regarding thermoregulation in neonates in experimental group with their demographic variables**

S. No	Variables	Chi-square test	Level of significant
1	Age	1.63	Not significant
2	No of children	10.46	Highly significant
3	Education	12.39	Highly significant
4	occupation	0.189	Not significant
5	Source of information	0.46	Not significant

## DISCUSSION

The purpose of the study was to assess the effectiveness of the structured teaching programme on knowledge of the mothers regarding thermoregulation in neonates in view to strengthen knowledge of mothers regarding thermoregulation in neonates. The first object of the study was to assess pre-test and post test knowledge score in control and experiment group. The mean pre-test and post test knowledge score was 13.6 and 13.44 respectively in control group while pre-test and post test in experiment group was 12.8 and 23.5 respectively. When comparing the pre-test and post test knowledge score of control and experimental group it revealed that the difference between pre-test knowledge score of both the group was statistically non- significant whereas post test knowledge score of control group and experimental group was statistically highly significant at  $p < 0.001$ . Hence it was concluded structured teaching was effective in raising the knowledge of mothers regarding thermoregulation in neonates. level of pre-test and post-test knowledge score of mothers regarding thermoregulation in neonates in experiment group depicts that in pre-test, majority of mothers (65%) had average knowledge score whereas after post-test 50% mothers had good knowledge score followed by 40% were excellent knowledge regarding thermoregulation in neonates. there was no significant association between knowledge score of mothers regarding thermoregulation in neonates in post test when compared to relationship with age of mothers, occupation and source of information while no of children and education had impact on knowledge of mothers regarding thermoregulation in neonates.

## Recommendation

- Similar study can be conducted in different setting like in community and different target population like staff nurses, aganwadi workers.
- Comparative study can be conducted to assess the knowledge of mothers in urban and rural community
- Exploratory study can be done to assess the knowledge of mothers regarding thermoregulation in neonates.

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