

## Research Article

# A Pre-Experimental Study to Assess the Effectiveness of Nursing Intervention on Knowledge regarding Prevention of Neonatal Hypothermia among Pregnant Mothers in SDH Magam, of Jammu and Kashmir

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## I N F O

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## A B S T R A C T

**Introduction:** Hypothermia refers to a condition in which the body temperature goes down the normal body temperature. It is common in neonates born at hospitals with a prevalence range of 32% to 85% and in case of home deliveries in the prevalence range of 11% to 92%. In developing countries we still lack thermal protection and this is an under-appreciated challenge for survival of newborn and neonates.

**Methodology:** A Pre-experimental design and evaluative approach was used in the study. The data was collected from 50 samples through non-probability convenient sampling. The study design adopted for this study was a pre-experimental design that is one group pre-test and post-test research design. The researchers found it convenient to use the non-probability of convenient sampling to select the 50 pregnant mothers attending antenatal clinics in SDH Magam of Jammu and Kashmir.

**Result and Conclusion:** In the present study Out of 50 mothers 26 (52%) were having inadequate knowledge, 24 (48%) were having moderate knowledge and none of them (0%) had adequate knowledge before nursing intervention. This shows that knowledge regarding prevention of neonatal hypothermia among pregnant mothers was very inadequate. The overall post test level of knowledge reveals that the majority 49 (98%) had adequate knowledge and 1 (2%) had moderately adequate knowledge regarding prevention of neonatal hypothermia among pregnant mothers. Paired 't' test revealed that the pre-test mean score of knowledge was (8.92±2.99) and the post test mean score of knowledge was (18.68±1.25).

**Keywords:** Evaluate, Effectiveness, Nursing Intervention, Knowledge, Prevention, Neonate, Hypothermia, Pregnant Mothers

## Introduction

Motherhood is the dream of every mother from the time of conception till delivery the fetus is safe in the mother's uterus. Once the newborn comes out from the mother's uterus it has to make much adjustment to the extra uterine life. It is the transition from intrauterine life to the extra uterine life. The babies who completed 37 weeks of gestational age will be more able to adjust with the extra uterine life than preterm infants. In the mother's womb, where the newborns growth and development takes place throughout the pregnancy. Hence the new born has to initiate their respiration and circulation. In the same way it is important to maintain the thermoregulation.<sup>1</sup>

Hypothermia is considered as silent Killer in neonates. Thermal Protection of the new born babies is considered as one of important essential neonatal care.<sup>2</sup> The healthy newborn infant born at term between 38 to 42 weeks, cries immediately after birth, establishes independent rhythmic respiration quickly adapts with the extra uterine environment, having an average birth weight and no congenital anomalies. The transition from intrauterine to extra uterine life is perhaps the greatest challenge any human being can fall in the curse of lifetime. Approximately 3% to 7% of all newborns require some form of support.<sup>3</sup>

The period from birth to 28 days of life is called neonatal period and the infant in this period is termed as neonate or newborn baby. The neonates are at risk for various health problems, even though they born with average birth weight. The morbidity and mortality rates in newborn infant are high.<sup>4</sup> Improving newborn survival is a natural priority in child health today. A staggering of 26 million babies is born in our country every year. Of these 1.2 million babies are dying in the first 28 days of life accounting for 20% of the global burden of newborn deaths. The neonate's needs optimal care for improved survival, during the intra uterine life in the womb baby is gently rocked in the warm amniotic fluid and is well protected from infection and the warm environment effectively shielded against light and sound. The virtues of the womb, cushioned and comfortable aquatic abode thermal comfort, zero insensible water loss, shielded from light, protected from sound and isolation.<sup>5</sup>

If primary neonatal care is inadequate, it leads to unacceptable high neonatal morbidity and mortality. The important cause of this is, ignorance related to newborn care and among the major causes, hypothermia is considered as silent killer in neonates. Hypothermia is a common alteration of thermoregulatory state of the neonates. Neonate's hypothermia occurs when the body temperature drops between 36.5°C (99.7°F) in the newborn infants.<sup>6</sup> Newborn may suffer from hypothermia. They lose heat because of little subcutaneous fat; poorly developed autonomic thermoregulatory response, body surface

area is more in relation to weight. The main causes of neonatal hypothermia are separation of baby from mother, cold environment, change of temperature, inadequate warming, excessive loss of heat, low birth weight and pre term neonates.<sup>7</sup> The various clinical signs of neonatal hypothermia are skin temperature between 36.5 oC, hands, feet, abdomen are cold to touch, weak and lethargy, bluish extremities, slow heart rate at irregular respiration. The various consequences of neonatal hypothermia are hypoxia, hypoglycemia, respiratory distress, neonatal jaundice, sudden infant death syndrome and impaired cardiac function.<sup>8</sup> Mothers plays vital role in essential newborn care. She cares her baby at physical, emotional and social level. There are striking variations from place to place in the pattern of care that newborn receives. It is as per their religion, community, family belief, customs and traditions which they follow. Mothers are primary care takers, bearers and nurtures of next generation.<sup>9</sup>

According to WHO reports most of the newborns deaths are due to hypothermia that is about 42% and 3.6 million develop moderate to severe hypothermia. Thermoregulation is one of the challenging aspects of neonatal care. Mastering the art of maintaining the neutral thermal environment is one of the most influential interventions the mothers can perform for their children.<sup>10</sup>

## Need for Study

Neonatal period is very crucial. It is accurate to say that during the first few minutes especially when a risk situation exists, prompt and adequate care should be carried out.<sup>11</sup> Based on this thermoregulation is an important physiological function that is closely related to the survival of the infants. An understanding of the physiological function of temperature control in neonates is essential in helping the mothers to provide an appropriate environment to promote thermal stability.<sup>11</sup>

Neonatal period encompasses the first four week of extra- uterine life but it is an important link in the chain of events from conception to adulthood. The physical and mental well being of an individual depends on the correct management of events in the parental period. The morbidity and mortality rate in newborn infants are high and is worse in the developing countries because of poor antenatal and neonatal care. In India 10 out of 100 infants do not see their first birth day and nearly 60 % of deaths occur in the newborn period.<sup>12</sup> During the first month of newborn life, the mothers' role is crucial one, as changes take place in her roles and responsibilities as well as certain expectations and behaviors which occur in response to the demands of caring for newborns. Mothers play vital role in overall child development.<sup>13</sup> Hypothermia increases the risk for metabolic acidosis, jaundice, respiratory distress, hypoglycemia, pulmonary hemorrhage and death, regardless

of the newborn's weight and gestational age. Neonatal hypothermia is a common and wide spread problem even in developed countries. WHO reported hypothermia was found as common cause of death in all the age groups. But most of the health personnel are not aware of it. There are different health programmes accepted and propagated by different sections of government at state and central level by voluntary agencies. It is a real challenge to the health personnel to improve the primary care of the newborn.<sup>14</sup> Thermoregulation is an important physiological function that is closely related to the survival of the infants. An understanding of the physiological function of temperature control in neonates is essential in helping the mothers to provide an appropriate environment to promote thermal stability.<sup>11</sup>

Globally, there are approximately 4 million neonatal deaths occur worldwide each 4 year. According to WHO estimation 2009-2010 neonatal mortality rate due to hypothermia is in Mexico 32/1000, Brazil 32/1000, South Africa 28/1000, India 8/1000, Peru 8/1000, Colombia 7/1000, United state 6/1000, Egypt 5/1000, Japan 5/1000, Netherland 1/1000, Korea 1/1000 and Canada 1/1000.<sup>15</sup>

According to UNICEF estimated statistics a quarter of world neonatal deaths 1.2 million each year take place in India. In India and other developing countries approximately 50% of infant's death occurs in the neonatal period, 25% of neonatal deaths occur within 24 hours of life. The existing neonatal mortality rate in India is 76/1000 live births in rural areas and 34/1000 live births in urban areas. Out of this 50% neonatal death, 20% neonatal deaths are due to hypothermic complications.<sup>16</sup> A study was conducted to evaluate the knowledge, attitude and practices about neonatal hypothermia among medical and paramedical staff dealing with newborn care. A total of 160 subjects were assessed using a structured questionnaire. The present study reveals the gross lacunae in the knowledge regarding various aspects of neonatal hypothermia among paediatric and obstetric residents and paramedical staff working in labour room and postnatal wards. Study concluded that to reduce the neonatal morbidity and mortality due to neonatal hypothermia, greater emphasis should be laid on this problem while designing curriculum for training of undergraduate and postgraduate doctors, paramedical staff and traditional birth attendants.<sup>17</sup>

### Objectives

1. To assess the knowledge regarding prevention of neonatal hypothermia among pregnant mothers.
2. To evaluate the effectiveness of Planned Teaching Programme (PTP) on the knowledge regarding prevention of neonatal hypothermia among pregnant mothers.

## Operational Definitions

### Evaluate

It refers to the statistical analysis on the knowledge of neonatal hypothermia.

### Effectiveness

It refers to the extent to which the information provided via nursing intervention achieved the desired outcome by increase in knowledge scores.

### Nursing Intervention

it refers to the Planned Teaching Programme (PTP), which refers to the verbal material used for teaching which will be prepared by researchers by using lecture-cum discussion and AV aids. It is intended to provide knowledge regarding prevention of neonatal hypothermia with regards to introduction, definition, causes of hypothermia, signs and symptoms of hypothermia, treatment of hypothermia, preventive measures for hypothermia and complications of hypothermia in newborns.

### Knowledge

It refers to the written response of the postnatal mothers to the items in the questionnaire regarding prevention of neonatal hypothermia.

### Prevention

In this study prevention refers to the activities carried out by the mothers to prevent neonatal hypothermia like early skin-to-skin contact, early initiation of breast feeding, mummifying etc.

### Neonate

It refers to babies within the age group of 0 to 28 days after birth.

### Hypothermia

It refers to fall in body temperature below 36.5°C and it is exhibited by poor sucking reflex, lethargy, cold and clammy feet.

### Pregnant Mothers

Mothers who are carrying fetus in their womb.

### Hypothesis

The post test knowledge score of pregnant mothers regarding prevention of neonatal hypothermia will be significantly higher than the pretest knowledge score.

### Delimitations

The study is delimited to pregnant mothers attending the antenatal clinic between the gestational weeks of 26 to 35 weeks.

- Sample consists of pregnant mothers attending the antenatal clinic in selected hospitals

## Methodology

Research methodology is a way to systematically solve the research problem. Research methods are the techniques used by the researcher to structure a study, gather and analyze the information relevant to the research questions. The research methodology includes research approach, research design, study setting and sampling technique, data collection method, development of the tool, description of the tool and plan for data analysis. The present study aims to assess the effectiveness of nursing intervention on knowledge regarding prevention of neonatal hypothermia among Pregnant Mothers in SDH Magam, of Jammu and Kashmir.

## Research Approach

Quantitative research approach was adopted for this study, in order to accomplish the objective. In the present study, the investigator aimed at evaluating the effectiveness of a planned teaching programme on knowledge regarding prevention of neonatal hypothermia among pregnant mothers in selected SDH Magam, of Jammu and Kashmir.

## Research Design

Research design is the plan, structure and strategy of investigation of answering question and is the overall plan or blue print that the researcher selects to carry out the study. The research design selected for this study is pre- experimental one group pretest & posttest design because this study is intended to ascertain the gain in knowledge by mothers who are subjected to providing structured teaching programme. Hence only one group is observed twice, that is before and after introducing the independent variable.

The design adopted for the study is pre experimental design (one Group pre-tests posttests Design)

O1 _____	X	_____	O2
Pre-test Knowledge		Nursing intervention	
Post-test Knowledge			

O1 = Pre-test before administration of Nursing Intervention.

O2= Post-test after administration of Nursing Intervention.

X- Intervention in the form of a planned teaching programme on self-assessment of prevention of neonatal hypothermia.

## Research Setting

The setting is the physical location and condition in which data collection take place in a study. The present study was conducted in SDH Magam, of Jammu and Kashmir. This setting was selected because of the availability of sample during the study period and also during that time

the samples were constantly exposed to the clinical area for antenatal checkup.

## Population

It is an aggregate of elements showing some common set of criteria. In research, population refers to a total category of persons or objects that meets the criteria for the study established by the researcher. Here, the population comprises pregnant mothers attending the antenatal clinic of SDH Magam, of Jammu and Kashmir.

## Sample and Sampling Technique

It is the process of selecting representative units of population. Sample consists of a subset of the population selected to participate in research study. Sampling refers to the process of selecting a portion of the population to represent the entire population. In the present study pregnant mothers attending antenatal clinics between the gestational age of 26-39 weeks in SDH Magam, of Jammu and Kashmir are selected as research samples.

## Sample Size

The total samples of the study consist of 50 pregnant mothers from antenatal clinic of SDH Magam, of Jammu and Kashmir, who met the inclusion criteria were selected for this study.

## Sampling Technique

Sampling refers to the process of selecting a portion of the population to represent the entire population. In the present study a non-probability convenient sampling technique was adopted.

## Inclusion and Exclusion Criteria:

### Inclusion Criteria

- Pregnant mothers who attended the SDH Magam, of Jammu and Kashmir
- Pregnant mothers who were willing to participate in the study
- Pregnant mothers who were present during data collection
- Pregnant mothers who were able to understand Urdu and Kashmiri language

### Exclusion Criteria

- Pregnant mothers who were not able to understand Urdu and Kashmiri language
- Antenatal mothers who were having gestational age of less than 26 weeks

## Research Variables

Variables are qualities, properties or characteristics of person, things or situations that change or vary. Variables are a concept that has measurable changing attributes. Three types of variables are identified in this study

includes independent variables, dependent variables and demographic variables.

### Independent Variable

An independent variable is the variable that stands alone and it is not dependent on another. It is the cause of action. The variable is manipulated by the researcher, in order to study the effect upon the dependent variable. In this study it refers to the nursing intervention in the form of a planned teaching programme on prevention of neonatal hypothermia among mothers.

### Dependent Variable

The dependent variable is the effect of action of the independent variable and cannot exist by itself. In the present study it refers to knowledge of Pregnant mothers is measured by structured knowledge questionnaire.

### Demographic Variable

These are age, educational status of mother, occupation of mother, type of family, source of information and weeks of pregnancy.

### Research Tool

The instrument used for the data collection was a self-administered structured knowledge questionnaire.

- Socio-Demographic profile:-Investigator constructed the tool to collect the Socio- demographic data of the study subjects. It consists of demographic variables
- The Multiple choice knowledge questionnaire used in this study was prepared by the researcher to measure the knowledge regarding prevention of neonatal hypothermia. Self- administered structured questionnaire contains 20 multiple choice questions related to the knowledge

### Result

Analysis and interpretation of the data were based on following objectives of the study and the research hypothesis using descriptive (frequency, percentage, mean, median, SD) & inferential statistics (paired "t" test & chi-square test) by using statistical package SPSS. All the inferences were checked at 0.05 level of significance. The term analysis is the categorizing, ordering, manipulating and summarizing of the data to obtain answer to research questions.

### Null Hypothesis

There will be no significant increase in post test knowledge scores regarding prevention of neonatal hypothermia among pregnant mothers.

The Table 2 shows that pretest with regard to Hypothermia in newborn, majority 43 (86%) had inadequate knowledge

and 6 (12%) had moderately adequate knowledge regarding neonatal hyperthermia. Considering the incidence, Causes and risk factors, majority 24 (48%) had inadequate knowledge and 22 (44%) had moderately adequate knowledge in the pretest. Regarding Effects of Hypothermia, majority 44 (88%) had moderate adequate knowledge and 4 (8%) had adequate knowledge. Analysis of Signs of Hypothermia revealed that majority 37 (74%) had inadequate knowledge and 7 (14%) had moderately adequate knowledge.

On analyzing the Management of hypothermia, it was found that majority 33 (66%) had inadequate knowledge and 11 (22%) had moderately adequate knowledge. With regard to Prevention of Hypothermia, majority 23 (46%) had moderately adequate knowledge and 20 (40%) had inadequate knowledge. The overall pre-test level of knowledge reveals that majority 26 (52%) had inadequate knowledge and 24 (48%) had moderately adequate knowledge regarding neonatal hyperthermia.

**Table I. Distribution of Participants by Demographic Variables**

N=50

Demographic Variable		Freq.	Pct.
Age in years	<20	4	8%
	21-25	27	54%
	26-30	13	26%
	>31	6	12%
Educational Status	Illiterate	0	0%
	Secondary	19	38%
	Higher Secondary	19	38%
	Graduate	12	24%
Occupation	Housewife	38	76%
	Self-Employee	4	8%
	Govt Employee	7	2%
	Private Employee	1	14%
Type of Family	Nuclear	35	70%
	Joint	15	30%
Source of Information	Printed Media	18	36%
	Television	22	44%
	Healthcare Provider	6	12%
	Significant Others	4	8%
Weeks of Gestation	24-26	6	12%
	27-29	12	24%
	30-32	20	40%
	33-35	12	24%

**Table 2. Pre-test Level of Knowledge Score regarding Prevention of Neonatal Hypothermia among Pregnant Mothers**

Aspects of knowledge Questionnaire	Inadequate (<50%)	Moderately Adequate (51-75%)	Adequate (>76%)
Hypothermia in Newborn	43 (86%)	6 (12%)	1 (2%)
incidence, Causes and Risk Factors	24 (48%)	22 (44%)	4 (8%)
Effects of Hypothermia	2 (4%)	44 (88%)	4 (8%)
Signs of Hypothermia	37 (74%)	7 (14%)	6 (12%)
Management of Hypothermia	33 (66%)	11 (22%)	6 (12%)
Prevention Of Hypothermia	20 (40%)	23 (46%)	7 (14%)
Overall Knowledge	26 (52%)	24 (48%)	0 (0%)

**Table 3. Post-test Level of Knowledge Score regarding Prevention of Neonatal Hypothermia among Pregnant Mothers**

Aspects of Knowledge Questionnaire	Inadequate (<50%)	Moderately Adequate (51-75%)	Adequate (>76%)
Hypothermia in Newborn	0 (0%)	5 (10%)	45 (90%)
Incidence, Causes and Risk Factors	0 (0%)	3 (6%)	47 (94%)
Effects of Hypothermia	0 (0%)	5 (10%)	45 (90%)
Signs of Hypothermia	4 (8%)	6 (12%)	40 (80%)
Management of Hypothermia	0 (0%)	9 (18%)	41 (82%)
Prevention Of Hypothermia	0 (0%)	3 (6%)	47 (94%)
Overall Knowledge	0 (0%)	1 (2%)	49 (98%)

The Table 3 shows that the post test with regard to general information on Hypothermia in newborn, majority 45 (90%) had adequate knowledge and 5 (10%) had moderately adequate knowledge regarding neonatal hyperthermia. Considering the incidence, Causes and risk factors,

majority 47 (94%) had adequate knowledge and 3 (6%) had moderately adequate knowledge in the pretest. Regarding Effects of Hypothermia, majority 45 (90%) had adequate knowledge and 5 (10%) had moderately adequate knowledge. Analysis of Signs of Hypothermia revealed that, majority 40 (80%) had adequate knowledge and 6 (12%) had moderately adequate knowledge. On analyzing the Management of hypothermia it was found that majority 41 (82%) had adequate knowledge and 18 (36%) had moderately adequate knowledge. With regard to Prevention of Hypothermia, majority 47 (94%) had adequate knowledge and 6 (12%) had moderately adequate knowledge. The overall post test level of knowledge reveals that majority 49 (98%) had adequate knowledge and 1 (2%) had moderately adequate knowledge regarding neonatal hyperthermia among pregnant mothers.

**Table 4. Comparison of Pre and Post-test Mean Knowledge Scores regarding Neonatal Hyperthermia among Pregnant Mothers**

N=50					
Level of Knowledge	Max Score	Mean	SD	Mean Diff.	Paired 't' Value
Pre-test	20	8.92	2.99	9.76	t =21.002
Post-test	20	18.68	1.25		9.76

The Table 4 shows that the pretest mean score of knowledge was (8.92±2.99) and the post test mean score of knowledge was (18.68±1.25). The mean difference was 9.76 and the calculated paired 't' value of t = 21.002 was found to be statistically significant (p=0.000). This clearly shows that after the implementation of a nursing intervention in the form of planned teaching programme on knowledge regarding prevention of neonatal hyperthermia among pregnant mothers had significant improvement in their knowledge regarding neonatal hyperthermia.

### Discussion

The aim of study was to assess the effectiveness of planned teaching programme on knowledge regarding prevention of Neonatal Hypothermia among Pregnant Mothers in SDH Magam of Jammu and Kashmir.

The major findings of the Study were:

- Majority of subjects 27(54%) belong to the age group of 21-25 years
- Majority of subjects 19(38%) were high school and PUC attended and 12(24%) graduates
- Majority of subjects 19(38%) were housewives
- Majority of subjects 19(38%) were having income range from Rs.7000-Rs.10, 000
- Majority of subjects 35(70%) were belongs to nuclear family
- Majority of subjects 22(44%) were getting information from television

- Majority of subjects 20 (40%) were belongs to 30 -32 weeks of gestation. Out of 50 mothers 26 were having inadequate, 24 were having moderate knowledge and none of them have adequate knowledge before planned teaching programme. This shows that knowledge regarding neonatal hypothermia among pregnant mothers were very inadequate. The overall post test level of knowledge reveals that majority 49(98%) had adequate knowledge and 1(2%) had moderately adequate knowledge regarding neonatal hypothermia among pregnant mothers
- Paired 't' test revealed that the pretest mean score of knowledge was 8.92 with S.D 2.99 and the post test mean score of knowledge was 18.68 with S.D 1.25. The mean difference was 9.76 and the calculated paired 't' value of  $t = 21.002$  was found to be statistically significant at  $p < 0.001$  level. This clearly shows that after the implementation of nursing intervention in the form of planned teaching programme on knowledge regarding neonatal hyperthermia among pregnant mothers had significant improvement in their knowledge regarding neonatal hyperthermia. So we rejected the null hypothesis that there will be no significant increase in post-test knowledge scores regarding prevention of neonatal hypothermia among pregnant mothers

A Quasi experimental study was conducted to identify the effectiveness of structured teaching programme on the improvement of knowledge of primigravida mothers regarding urinary tract infection during pregnancy. Sample of primigravida mothers from Fortis Hospital was selected by non-probability purposive sampling technique. The overall findings of the study revealed that there was a significant improvement in the knowledge scores of primigravida mothers after the administration of structured teaching programme at the level of  $P < 0.05$ . Hence it can be concluded that structured teaching programme was effective in improving the knowledge of primigravida mothers.<sup>18</sup>

### Nursing Implications

The result obtained from the study helped the researcher to drive certain implication for nursing practice, nursing administration and nursing research.

### Nursing Practice

Nurses are key persons in the health team, who play a vital role in promotion and maintenance of health.

- Health education is one of the nurses responsibilities, in this study emphasizes midwives to impact neonates health knowledge among pregnant mothers
- Nurses play a major role in promoting newborns health by various extended and expanded roles

- Nurses can conduct awareness campaign and programmes on the importance of knowledge regarding prevention of neonatal hypothermia

### Nursing Administration

Nursing administrators can bring awareness among the public in general and specific focus groups regarding the prevention of neonatal hypothermia.

Nurse administrators can organize staff development programmes for nurses to update their knowledge regarding prevention of neonatal hypothermia.

- The nurse administrator can mobilize the available resource personal towards health education for pregnant womens on prevention of neonatal hypothermia

### Nursing Education

As a nurse educator, there are abundant opportunities for nursing professionals to educate pregnant women on prevention of neonatal hypothermia.

This study adds to the nursing knowledge as it provides information about knowledge of pregnant women regarding prevention of neonatal hypothermia.

Nurse educators can teach pregnant women to acquire adequate knowledge regarding prevention of neonatal hypothermia and it will help for identification.

Nurse educator can teach the pregnant mothers regarding prevention of neonatal hypothermia.

### Nursing Research

The professionals and student nurses can conduct more studies of prevention of neonatal hypothermia on mothers and clinical nurses.

The study will be a motivation for other researchers to conduct similar studies or larger population with different variables.

### Limitations of Study

The study was conducted on a small population hence its findings can't be generalized.

Moreover the Knowledge of pregnant mothers was assessed only through structured knowledge questionnaires; however we can use other methods as well. Practice is not checked at all in this study. The study did not use any control group.

### Recommendation

On the basis of the findings of the study following recommendation has been made:

- A similar study can be conducted on samples with different demographic variables

- A similar study can be conducted on different samples with the same demographic variables
- A descriptive study can be conducted to assess the knowledge of prevention of neonatal hypothermia among pregnant mothers
- A comparative study can be conducted to evaluate the effectiveness of STP and video assisted teaching programmes on prevention of neonatal hypothermia among pregnant mothers
- A similar study can be conducted in different setting

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**Conflicts of Interest:** None

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