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**Original Research Article**

# Effectiveness of planned teaching programme on knowledge regarding thermoregulation of neonates among B.Sc. nursing fourth year students of Sister Nivedita Govt. nursing college, IGMC, Shimla, Himachal Pradesh

**Alka*, Prabha Kashyap**

Department of Child Health and Nursing, Sister Nivedita Government Nursing College, IGMC, Shimla, Himachal Pradesh, India

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***Correspondence:**
Alka,
E-mail: alka131995@gmail.com



## ABSTRACT

**Background:** A newborn baby is a God's divine precious gift given to a mother. Immediately after birth thermal conditions of newborn dramatically change. Neonates should be nursed within their 'neutral thermal environment'. Cold stress can cause serious metabolic consequences for all newborns. Health professionals have responsibility to ensure that thermoregulatory needs of the infant. Hence, current study was planned to access and to improve knowledge regarding Thermoregulation of Neonates among B.Sc. Nursing 4th year students.
**Methods:** A pre-experimental one group pre-test post-test research design was used for the study. Total 30 B.Sc. Nursing 4th year students of Sister Nivedita Govt. Nursing College, IGMC Shimla (Himachal Pradesh) was taken as study sample. Convenient sampling technique was used. Ethical approval was taken from institutional ethical committee. A self-structured knowledge questionnaire of 30 questions was used to collect the data. After conducting pre-test, planned teaching programme was provided by using the power point presentation, and knowledge score of both pre-test and post-test was compared.
**Results:** The level of knowledge regarding pre- test and post -test mean scores are 12.43 and 22.03 respectively. Paired t-test calculated value was 16.103 which was much higher than the table value at $p<0.001$.
**Conclusions:** The study concluded that the Planned teaching programme was effective in increasing the knowledge of B.Sc. nursing 4h year students regarding thermoregulation of neonates.

**Keywords:** Thermoregulation, Neonates, Planned teaching programme, Knowledge

## INTRODUCTION

"Babies are buds if imagination that are ready to bloom with lights of love and affection"- Debashish Mridha. A newborn baby is a God's divine precious gift given to a mother. The birth of a newborn is one of the most inspiring and marvellous joyful event that occurs in every woman's life time. Immediately after birth thermal conditions of newborn dramatically change. The newborn, whose thermoregulation was dependent on mother inside the uterus, must rapidly elevate his/her heat production in order to survive. The neonate's susceptibility to temperature changes needs to be recognised and understood in order to manage and limit the effects of cold or heat stress. Thermoregulation in the neonate is a critical physiological function which is strongly influenced by extent of illness, physical immaturity and environmental

factors. The health care professionals play an important role in balancing the temperature of the newborn.[1]

Neonates should be nursed within their 'neutral thermal environment' (NTE). As per Ghai essential of paediatrics thermoneutral environment is defined as this is a gestational and postnatal age specific temperature range in which the basal metabolic rate of the baby is at a minimum, oxygen utilization is least and baby thrives well. And hypothermia defined as axillary temperature of baby 37.5◦ C.[2] Thermoneutral environment is an essential component of the immediate and longer term care of newborn infants. Cold stress and hyperthermia can cause serious metabolic consequences for all newborns. In preterm newborn these consequences may be devastating and can increase both morbidity and mortality rates. Health professionals have a responsibility to be aware of and to ensure that thermoregulatory needs of the infant are necessary to met in order to provide them with the best start possible.[3]

During intrauterine life, the fetal temperature is 0.3 to 0.5°C higher than the maternal temperature due to metabolic reactions that generate heat. At birth neonate temperature rapidly drops soon after birth in response to relatively cold extrauterine environment. In order to survive neonate must accelerate heat production via non shivering 2 thermogenesis, which is coupled to lypolysis in brown adipose tissue. Thermogenesis in newborn must begin shortly after birth and continue to several hours.[4] The most important factors influencing the occurrence of hypothermia in newborn infants include: Incorrect care of the baby immediately after birth, separation of mother from baby after birth, the weight and gestational age of the infant, place of delivery and environmental conditions, age of the infant at the time of transport, inadequate warming procedures before and during transport of the infant, asphyxia, hypoxia, or other illness of the baby. Early clinical signs which should arouse suspicion of cold stress due to hypothermia are: the feet are cold to the touch (they become cold before the body is cold), weak sucking ability - inability to nurse, reduction in activity lethargy, and a weak cry.[5]

Raising awareness among health care professional is necessary to prevent and intervene neonatal hypothermia and effects of a cold room on newborns and the requirement to maintain room temperature above 25 or 26°C. It is essential to develop and implement the protocols and education seminars to promote awareness and enhance evidence-based knowledge in all birth environment. Maintaining a high room temperature alone is not sufficient as prevention of environmental hypothermia includes both active and passive warming. Over the past 25 years skin to skin contact or Kangaroo care is a well explored practice in which the newborn is positioned in an upright position, between the mother's breasts. This approach is recommended for its ability to maintain baby's temperature within normal parameters.[6]

### *Objectives*

The objective of the study were; to assess the knowledge regarding thermoregulation of neonates among B.Sc. Nursing 4th year students of Sister Nivedita Govt. Nursing College, IGMC Shimla (Himachal Pradesh), to evaluate the effectiveness of planned teaching programme on knowledge regarding thermoregulation of neonates among B.Sc. Nursing 4th year students of Sister Nivedita Govt. Nursing College, IGMC Shimla (H.P.), to determine the association between level of knowledge of B.Sc. Nursing 4th year students regarding thermoregulation of neonates with selected socio demographic variables.

## METHODS

### *Study design*

The design used in this study was pre- experimental, one group pre-test post-test research design to accomplish the objectives of the study which was conducted among B.Sc. Nursing 4th year students of Sister Nivedita Govt. Nursing College, IGMC Shimla (Himachal Pradesh) during the period November 2020 to January 2021.

### *Study population, sample size and sampling technique*

Target population: Target population was B.Sc. nursing 4th year students of Sister Nivedita Govt. Nursing College IGMC Shimla, Himachal Pradesh. Accessible population: Accessible population was B.Sc. nursing 4th year students of Sister Nivedita govt. nursing college IGMC, Shimla (Himachal Pradesh). Who fulfilled the inclusion and exclusion criteria. The samples for the present study were B.Sc. nursing 4h year students, who fulfilled the inclusion criteria. Sample size for the present study was 30 students. In this study, non-probability convenience sampling technique was used to select the samples for the study.

### *Inclusion criteria*

Students who have completed their prescribed period of training (i.e., who have passed B.Sc. Nursing 3rd year exams.), are studying in B.Sc. Nursing 4th year, who were present at the time of data collection, who were willing to participate in study (Sister Nivedita Govt. Nursing College, IGMC (Himachal Pradesh)

### *Exclusion criteria*

Students who have not completed their prescribed period of training (i.e., who have not passed B.Sc. Nursing 3rd year exams.) who were not studying in B.Sc. Nursing 4th year in Sister Nivedita Govt. Nursing College, IGMC (Himachal Pradesh), who were not available during the research study. Students were not willing to participate in the study.

***Description of tool***

A self-structured knowledge questionnaire was constructed to assess the knowledge regarding thermoregulation of neonates among B.Sc. Nursing 4th year students. The tool was developed after extensive review of literature, expert's opinion and researchers own experience to increase the Knowledge of B.Sc. nursing 4th year students regarding thermoregulation of neonates. The structured tool is divided into two parts: SECTION A This part consists of personal information such as age (years), academic qualification, habitat, previous knowledge, source of previous information. This part consists of self-structured questionnaire regarding thermoregulation of neonates which consists of 30 items. This tool consisted of multiple-choice questions regarding thermoregulation. Evaluation criteria was: Maximum score is 30 and minimum score is 0.

**Table 1: Evaluation criteria for level of knowledge among B.Sc. Nursing 4th year students regarding thermoregulation of neonates.**

| Scoring range | Scoring percentage | Level of knowledge |
|---|---|---|
| **21-30** | 70-100 | Good knowledge |
| **11-20** | 36.7-66.7 | Average knowledge |
| **0-10** | 0-33.3 | Poor knowledge |

*Each right answer and wrong answer carries 1 and 0 marks respectively.

***Reliability***

Reliability of the tool was established through test re-test method. I conducted pilot study and tool was administered to B.Sc. Nursing 4th year students of Shivalik Institute of Nursing Shimla H.P. I found that it was effective for my study. Considering the results and opinions of experts, I decided to proceed for my study. The Karl Pearson's correlation coefficient used to evaluate the effectiveness of the tool. Reliability score is r=0.75.

***Data collection process***

The study was conducted in Sister Nivedita Govt. Nursing College IGMC, Shimla. The data was collected in the month January 2021. The written permission was taken from the Principals of Sister Nivedita Govt. Nursing College IGMC, Shimla H.P. Written consent was obtained from samples prior to the study. Data was collected from 30 B.Sc. Nursing 4th year students of Sister Nivedita Govt. Nursing College IGMC, Shimla H.P. For data collection Online Google form questionnaire was used. Pre-test was conducted using self-structured knowledge questionnaire regarding thermoregulation of neonates. The data was collected in the time period of 30-35 minutes. On the next day to pretest planned teaching programme was given to all the students. Post test was taken on the 7th day after planned teaching programme.

***Statistical analysis***

Analysis and interpretation of data was done according to the objectives and by using descriptive and inferential statistics. Mean, frequency, standard deviation, mean percentage, paired t-test and chi square test were planned for analysis of obtained data. The level of significance chosen was p 0.001, p 0.01, p<0.05. To compute data, master sheet had prepared. Descriptive statistics had used to assess the frequency and percentage of the knowledge. Inferential statistics had used to correlate the knowledge of B.Sc. Nursing 4th year students with socio demographic variables.

## RESULTS

***Findings related to pre-test knowledge score of B.Sc. Nursing 4th year students regarding thermoregulation of neonates***

The (Table 2) Depicts that in pre-test, none of the subjects had good knowledge, 20 (66.7%) had average knowledge, 10 (33.3%) had poor knowledge. Thus, it is concluded that none of the group fall under good category of knowledge. The (Table 3) depicts descriptive statistics of pretest knowledge score, mean score was 12.43, standard deviation was 3.510, median score was 12.5, maximum score was 19, minimum score was 6, range was 13 and mean percentage was 41.40%.

**Table 2: Frequency and percentage distribution of pre-test knowledge score of B.Sc. Nursing 4th year students regarding thermoregulation of neonates.**

| Criteria measure of pretest knowledge score | |
|---|---|
| **Score level (N= 30)** | **Pretest, N (%)** |
| Poor (0-10) | 10 (33.3) |
| Average (11-20) | 20 (66.7) |
| Good (21-30) | 0 (0) |
| **Maximum score=30** | **Minimum score=0** |

**Table 3: Descriptive statistics of Pre-test knowledge scores of B.Sc. Nursing 4th year students regarding thermoregulation of neonates.**

| Descriptive statistics | Mean | SD | Median Score | Maximum | Minimum | Range | Mean% |
|---|---|---|---|---|---|---|---|
| **Pretest knowledge** | 12.43 | 3.510 | 12.5 | 19 | 6 | 13 | 41.40 |
| **Maximum score=30** | | | | | **Minimum score=0** | | |

***Findings related to post-test knowledge score of B.Sc. Nursing 4th year students regarding thermoregulation of neonates***

The (Table 4) depicts that in post-test knowledge scores, 21 (70%) had good knowledge, 9 (30%) had average knowledge and 0 (0%) had poor knowledge. Thus, it is concluded that there is increase in the knowledge scores of in the post-test. The (Table 5) Depicts descriptive statistics of post-test knowledge scores of B.Sc. Nursing 4th year students regarding thermoregulation of neonates, mean score was 22.03, standard deviation was 2.236, median score was 22, maximum score was 25, minimum score was 18, range was 7 and mean percentage was 73.40%.

***Findings on effectiveness of planned teaching programme regarding thermoregulation of neonates***

The (Table 6) depicts that the pre-test range was 6-19, mean 12.43 and standard deviation was 3.51, mean percentage was 41.40% and in the post-test range was 18-25, mean 22.03 and standard deviation was 2.236 and mean percentage was 73.40%. The (Table 6) shows that the mean post-test knowledge score (22.03) was higher than the mean pretest knowledge score (12.43). The calculated t' value (16.103) was greater than the table value (t=2.05) at 0.05 level of significance. Hypothesis $H_1$ was accepted hence it can be inferred that the Planned teaching programme was effective in increasing the knowledge of B.Sc. Nursing 4th year students regarding thermoregulation of neonates.

**Table 4: Frequency and percentage distribution of post-test knowledge score of B.Sc. Nursing 4th year students regarding thermoregulation of neonates.**

| Criteria measure of pretest knowledge score | |
|---|---|
| **Score level (N= 30)** | **Post-test, N (%)** |
| Poor (0-10) | 0 (0) |
| Average (11-20) | 9 (30) |
| Good (21-30) | 21 (70) |
| **Maximum score=30** | **Minimum score=0** |

**Table 5: Depicts descriptive statistics of post-test knowledge scores of B.Sc. Nursing 4th year students regarding thermoregulation of neonates (n=30).**

| Descriptive statistics | Mean | SD | Median Score | Maximum | Minimum | Range | Mean% |
|---|---|---|---|---|---|---|---|
| **Pretest knowledge** | 22.03 | 2.236 | 22 | 25 | 18 | 7 | 73.40 |
| **Maximum score=30** | | | | | **Minimum score=0** | | |

**Table 6: Frequency and percentage distribution of difference between pre-test and post-test knowledge score, mean value and standard deviation, mean percentage, range, mean difference, paired t test, p value of samples (n=30).**

| Paired t test | Mean±SD | Mean% | Range | Mean Diff. | Paired t Test | P value | Table value at 0.05 | Result |
|---|---|---|---|---|---|---|---|---|
| **Pretest knowledge** | 12.43±3.51 | 41.40 | 6-19 | 9.600 | 16.103 | <0.001 | 2.05 | Significant |
| **Post-test knowledge** | 22.03±2.236 | 73.40 | 18-25 | | | | | |
| **Maximum score=30** | | | | | | **Minimum score=0** | | |

Significance Level 0.05

***Findings related to association of level of knowledge of B.Sc. Nursing 4th year students regarding thermoregulation of neonates with selected socio demographic variables***

The (Table 7) Shows that the association of pre-test knowledge scores of with selected socio-demographic variables. Based on the 3rd objective Chi-square test used to associate the level of knowledge with selected demographic variables. Chi-square value shows that there is significance association between the Pre-test level of knowledge and source of previous knowledge in demographic variables. There is no significance association between the level of scores and other demographic variables (age in years, academic qualification, habitat, previous knowledge). The calculated Chi-square values were less than the table value at the 0.05 level of significance.

***Findings related to association of level of knowledge of B.Sc. Nursing 4th year students regarding thermoregulation of neonates with selected socio demographic variables***

The (Table 8) shows the association of Post-test knowledge scores with selected Socio-Demographic Variables. Based on the 3rd objective Chi-square test was used to associate the level of knowledge and selected

demographic variables. The Chi-square value shows that there is significance association between the Post-test level of knowledge and previous knowledge, source of previous knowledge in demographic variables. There is no significance association between the Post-test level of knowledge and other demographic variables (age in years, academic qualification, and habitat). The calculated Chi-square values were less than the table value at the 0.05 level of significance.

**Table 7: Association of pre-test knowledge scores of with selected socio-demographic variables.**

| Variables | | Good | Average | Poor | Chi test | P value | df | Table value |
|---|---|---|---|---|---|---|---|---|
| **Age (years)** | 18-19 | 0 | 0 | 0 | 0.270 | 0.874 | 2 | 5.991 |
| | 20-21 | 0 | 2 | 1 | | | | |
| | 22-23 | 0 | 17 | 8 | | | | |
| | >23 | 0 | 1 | 1 | | | | |
| **Academic qualification** | 12th | 0 | 11 | 6 | 0.461 | 0.794 | 2 | 5.991 |
| | Graduate | 0 | 8 | 3 | | | | |
| | Others | 0 | 1 | 1 | | | | |
| **Habitat** | Rural | 0 | 10 | 5 | 0.000 | 1.000 | 1 | 3.841 |
| | Urban | 0 | 10 | 5 | | | | |
| **Previous Knowledge** | Yes | 0 | 19 | 9 | 0.268 | 0.605 | 1 | 3.841 |
| | No | 0 | 1 | 1 | | | | |
| **Source of previous knowledge** | Curriculum | 0 | 14 | 1 | 10.425 | 0.015 | 3 | 7.815 |
| | Mass media | 0 | 1 | 3 | | | | |
| | Workshop/ conference/ seminar/ teaching | 0 | 1 | 2 | | | | |
| | Any other | 0 | 4 | 4 | | | | |

**Table 8: Association of post-test knowledge scores with selected socio-demographic variables.**

| Variables | | Good | Average | Poor | Chi test | P value | df | Table value |
|---|---|---|---|---|---|---|---|---|
| **Age (years)** | 18-19 | 0 | 0 | 0 | 2.571 | 0.276 | 2 | 5.991 |
| | 20-21 | 3 | 0 | 0 | | | | |
| | 22-23 | 16 | 9 | 0 | | | | |
| | >23 | 2 | 0 | 0 | | | | |
| **Academic qualification** | 12th | 13 | 4 | 0 | 2.447 | 0.294 | 2 | 5.991 |
| | Graduate | 6 | 5 | 0 | | | | |
| | Others | 2 | 0 | 0 | | | | |
| **Habitat** | Rural | 10 | 5 | 0 | 0.159 | 0.690 | 1 | 3.841 |
| | Urban | 11 | 4 | 0 | | | | |
| **Previous Knowledge** | Yes | 21 | 7 | 0 | 5.000 | 0.025 | 1 | 3.841 |
| | No | 0 | 2 | 0 | | | | |
| **Source of previous knowledge** | Curriculum | 11 | 4 | 0 | 12.857 | 0.005 | 3 | 7.815 |
| | Mass media | 0 | 4 | 0 | | | | |
| | Workshop/ conference/ seminar/ teaching | 2 | 1 | 0 | | | | |
| | Any other | 8 | 0 | 0 | | | | |

## DISCUSSION

The present study intends to evaluate effectiveness of planned teaching programme on knowledge regarding thermoregulation of neonates among B.Sc. Nursing 4th year students of Sister Nivedita Govt. Nursing College, IGMC Shimla (Himachal Pradesh). The findings of present study had been discussed in accordance with objectives and findings. Findings of present study reveals that present study showed that in pre-test majority of study subjects 66.7% had Average knowledge score and 33.3% had poor knowledge score and 0% had good knowledge score related to thermoregulation of neonates. In post-test majority of study subjects 70% had good knowledge score, whereas 30% had average knowledge score and 0% had poor knowledge score. The mean post-test knowledge

score (22.03) was higher than the mean pre-test knowledge score (12.43).

Objective 1 was to assess the knowledge regarding thermoregulation of neonates among B.Sc. Nursing 4th year students of Sister Nivedita Govt. Nursing College, IGMC Shimla (Himachal Pradesh). The present study reveals that in pre-test knowledge score of B.Sc. Nursing 4th year students regarding thermoregulation of neonates where majority of study subjects 20(66.7%) had Average knowledge score and 10 (33.3%) had poor knowledge score and no student had good knowledge score.

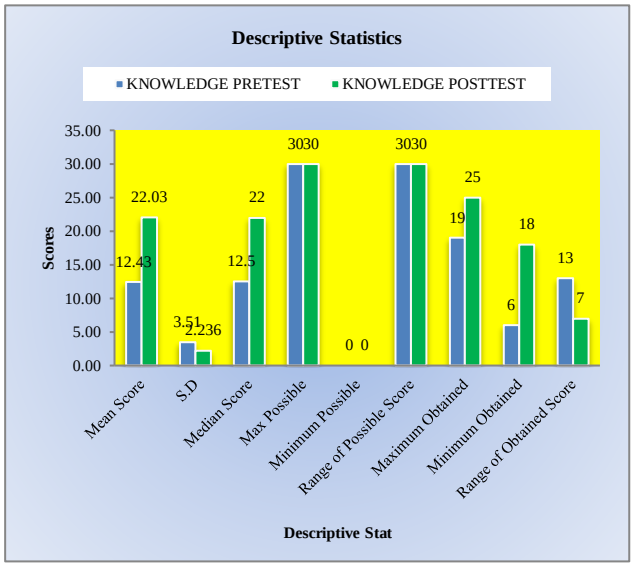


**Figure 1: Depicts the mean score and standard deviation, median score of B.Sc. Nursing 4th year students regarding thermoregulation of neonates.**

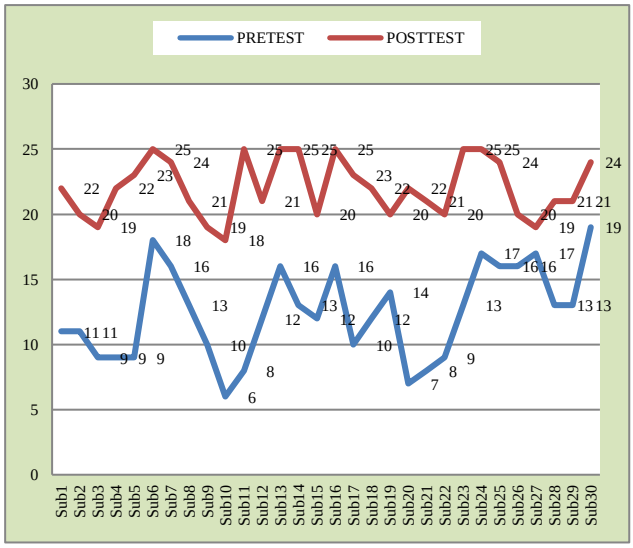


**Figure 2: Comparison between the pre-test and post-test knowledge scores of B.Sc. Nursing 4th year students regarding thermoregulation of neonates.**

A similar study was conducted by Maniraju et al to assess the knowledge and practice of staff nurses regarding thermoregulation of neonates selected hospital at Mysuru. Research design used in this study is descriptive survey design. Population consists of staff nurses in selected hospitals at Mysuru. Sampling technique used in this study is convenience sampling. 60 staff nurses in selected hospital at Mysuru. The findings revealed that shows that is significant correlation between Knowledge and practices of staff nurses regarding thermoregulation of neonates. Findings shows that Knowledge questionnaire mean score is 19.9 and observation check list mean score is 11.5. The correlation coefficient ($r_{(58)}$=0.273) is less than calculated value (r=3.86). Hence the result doesn't support the null hypothesis $H_{01}$.It is inferred that there is a significant relationship between knowledge and practices of staff nurses regarding thermoregulation of neonates. Conclusion of the study, the study was conducted among 60 Staff nurses and the findings revealed that, majority 58 (96.6%) nurses are doing good practice, 2 (3.5%) of nurses are having poor practice and the study findings shows that needs of improvement to practice regarding thermoregulation of neonates by conducting in-service education.[7]

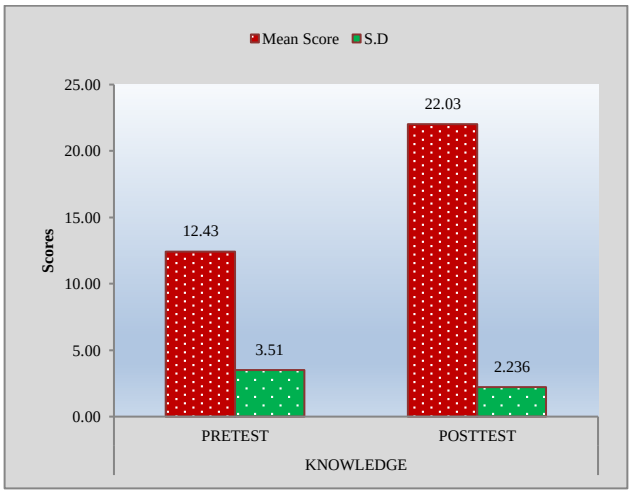


**Figure 3: Bar graph depicts that the mean score, and standard deviation of Pre-test and Post-test knowledge of B.Sc. Nursing 4th year students regarding thermoregulation of neonates.**

Objective 2 was to evaluate the effectiveness of planned teaching programme on knowledge regarding thermoregulation of neonates among B.Sc. Nursing 4th year students of Sister Nivedita Govt. Nursing College, IGMC Shimla (Himachal Pradesh). In present study shows that the pre-test range was 6-19, mean 12.43 and standard deviation was 3.510, mean percentage was 41.40% and in the post test range 18-25, mean 22.03 and standard deviation was 2.236 and mean percentage was 73.40. The mean post-test knowledge score (22.03) was higher than the mean pre-test knowledge score (12.43). The calculated t' value (16.103* Sig) was greater than the table value (t = 2.05) at 0.05 level of significance. Hypothesis $H_1$ was accepted hence it can

be inferred that the Planned teaching programme was effective in increasing the knowledge of B.Sc. Nursing 4th year students.

A similar Study was conducted by Phillip et al to evaluate the effectiveness of structured teaching programme regarding thermoregulation in neonates in terms of knowledge of nursing personnel in selected hospitals Of Ambala, Haryana. The objectives of the study were to assess and compare knowledge and practice of nursing personnel regarding thermoregulation in neonates before and after STP, to determine the relationship between level of knowledge and practice of nursing personnel regarding thermoregulation in neonates with selected variables. The research approach adopted for the study was Quasi experimental (one group pre-test-post-test). The study was conducted at Ambala, Haryana. Thirty-six nursing personnel were selected by Total enumeration sampling technique. The tool used for the data collection were structured knowledge questionnaire to assess knowledge of nursing personnel regarding thermoregulation in neonates and observational checklist to assess the practice of nursing personnel regarding thermoregulation in neonates. The data were analyzed by using both descriptive and inferential statistics. The findings of the study were that the mean knowledge score of nursing personnel (22.08±8.63) are increased after structured teaching program (39.83±5.26) with a significant statistical difference at the level of 0.05 level of significance. The findings of the study were that the mean practice score of nursing personnel (6.83±1.10) are increased after structured teaching program (8.22±0.76) with a significant statistical difference at the level of 0.05 level of significance. There is a mild positive significant co relation between knowledge and practices. The finding of the study revealed that structured teaching program positively affect nursing personnel's knowledge and practice regarding thermoregulation in neonates.[8]

Objective 3 was to determine the association between level of knowledge of B.Sc. Nursing 4th year students regarding thermoregulation of neonates with selected socio demographic variables. This Study reveals that in pre-test level of knowledge of B.Sc. Nursing 4th year students regarding thermoregulation of neonates, there was significant association between the level of knowledge and source of previous knowledge (7.815 df 3) at p value <0.05. And there was no significant association between the level of knowledge and demographic variables like age in years, academic qualification, habitat, previous knowledge. The calculated chi- square value was less than the table value at the 0.05 level of significance. In post-test knowledge of B.Sc. Nursing 4th year students regarding thermoregulation of neonates, there was significant association between the level of knowledge with previous knowledge (3.841 df 1) at p value <0.05 and source of previous knowledge (7.815 df 3) at p<0.05 and there was no significant association between level of knowledge and other demographic variables like age in years, academic qualification and habitat.

Tambakad et al conducted study to evaluate the effectiveness of planned teaching programme on knowledge regarding prevention of neonatal hypothermia post-natal mothers in post-natal ward of KLE'S Dr. Prabhakar Kore Charitable Hospital Belgaum. 60 post-natal mothers were taken as sample. The subjects were selected by using non-probability purposive sampling technique. Data collection was done through structured knowledge questionnaire. The study was conducted by utilizing one group pre-test and post-test research design with an evaluative approach. Data obtained was tabulated and analyzed in terms of objectives of the study using descriptive and inferential statistics. The study revealed that 60 (100%) mothers had good knowledge and none to be found average or poor knowledge. There was significant gain in knowledge of post-natal mothers and is statistically significant at p>0.05 level of significance. There was significant association between age, religion, educational status, occupation and parity of mother and pre-test knowledge scores.[9] Suresh et al conducted a study to assess the effectiveness of Nurse Intervention Programme on knowledge, attitude and practice regarding thermal protection of neonates among ASHA workers. Pre-experimental, i.e., one group pre-test post-test research design was adopted. Non probability purposive sampling technique was used to collect the data from the ASHA workers by using structured questionnaire. The analysis of mean, SD and mean percentage of knowledge, attitude and practice scores in pre-test and post-test revealed that the total mean knowledge score increased by 26.08%, the total mean attitude score increased by 11.6% and the total mean practice score increased by 17.57% after the administration of Nurse Intervention Programme. Paired 't' test was used to analyse the difference between the pre-test and post-test knowledge, attitude and practice scores of the ASHA workers. A significant increase was observed in knowledge, attitude and practice scores of the ASHA workers following the administration of nurse intervention programme on thermal protection of neonate. There was no significant association with other demographic variables like Age in year, educational status of ASHA worker, Religion, Number of children, Income of family (monthly), Number of labour women brought to hospital for delivery ASHA workers, source of information regarding thermal protection of neonate among ASHA worker.[10]

### *Limitations*

The study was confirmed to small numbers of subjects. Generalization was limited to only Sister Nivedita Govt. Nursing College IGMC Shimla (Himachal Pradesh), randomization was not done while selecting samples.

## CONCLUSION

The study concluded that the Planned teaching programme was effective in increasing the knowledge of B.Sc. nursing 4h year students regarding thermoregulation of neonates.

***Recommendations***

A similar study can be carried out to assess knowledge, attitude and practices of B.Sc. Nursing 4th year students regarding thermoregulation of neonates. A similar study can also be replicated on larger sample which can increase generalization of the study. It can also be replicated on staff nurses working in labour rooms and NICU, postnatal mothers and in community settings among ASHA workers and midwives.

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## REFERENCES

1. Bhandari U, Kharde NS, Raddi AS. A study to evaluate the effectiveness of planned Teaching program on knowledge of mothers on prevention of hypothermia among newborns inselected hospitals of Belgaum, Karnataka. South Asian Fed Obstet Gynecol. 2010;2(1):89-92.
2. Ghai OP. Essential paediatrics, thermal stability. 7th ed. India: CBS publisher; 2010:115-9.
3. Alcock SJ, Usher K. Temperature measurement in the preterm and term neonate: A review of the literature. Neonat Net. 2013;2(1):16-25.
4. Asakura H, Nippon J. Fetal and neonatal thermoregulation. J Nippon Med Sch. 2004;71(6):360-70.
5. Thermal protection of the newborn; A practical guide. Available at: https://www.who.int/publications/i/item/WHO_RHT_MSM_97.2. Accessed on 20 February 2023.
6. Aliona RV, Sheridan A. Hypothermia in newborn: An exploration of its cause, effect and prevention. Br J Midwifery. 2014;22(8):557-62.
7. Chandra MS, Williams S. A study to assess the knowledge and practice of staff nurses regarding thermoregulation of neonates selected hospital at Mysuru. Asian J Nurs Edu Res. 2018;8(1):94-8.
8. Phillip A, Sarin J, Kumar Y. A Study was conducted to evaluate the effectiveness of structured teaching programme regarding thermoregulation in neonates in terms of knowledge of nursing personnel in selected hospitals of Ambala, Haryana. Int J Nurs. 2019;9(7);73-7.
9. Shrishail TB, Sumitra LA. Effectiveness of planned teaching programme (PTP) on knowledge regarding prevention of neonatal hypothermia post-natal mothers. Asian J Nurs Educ Res. 2015;5(2):128-36.
10. Suresh SS, Mahesh R, Radhakrishnan G, Anuchithra S. Conducted a study to assess the effectiveness of Nurse Intervention Programme on knowledge, attitude and practice regarding thermal protection of neonates among ASHA workers. Int J Nurs Edu Res. 2014;2(4):277-85.

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