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Effectiveness of Structured Teaching Programme on Knowledge and Practice regarding in Prevention of Hypothermia in Newborn among 3rd Year and 4th Year BSc. Nursing Student of Selected Nursing College of Gangtok, Sikkim

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Abstract: ***Introduction: Newborn hypothermia is an important contributing factor to neonatal mortality and morbidity in both developed and developing countries. The warm chain is a concept introduced to describe a set of ten interlinked procedures carried out at birth and later and helps in minimizing the likelihood of hypothermia in all newborns .The present study was carried in Sikkim Manipal College of Nursing to assess the effectiveness of Structured Teaching Programme on knowledge and practice regarding warm chain in prevention of newborn hypothermia among the 3rd year and 4th year BSc. Nursing students Methods: Pre-experimental research design was adopted by the researcher for the present study. Fifty-four samples were selected using purposive sampling technique among BSc. Nursing students of Sikkim Manipal College of Nursing. The collected data were analyzed using descriptive and inferential statistics. Result: The finding of the study revealed that mean post test knowledge and practice score (70.25%) and (68.58%) respectively of 3rd year BSc. Nursing students was significantly higher than the pre test knowledge score (50.28%) and (56.55%) with 't' value (11.47) and (4.041) respectively. Similarly among the 4th year BSc. Nursing the mean post test knowledge and practice score (73.33%) and (65.33%) respectively was significantly higher than the pre test knowledge score (52.25%) and (54.33%) with 't' value (25.87) and (5.525) respectively. Hence the Structured Teaching Programme regarding warm chain was effective for the students. There is significant association between percentage of marks of previous university exam with pre test level of knowledge score of 3rd year BSc. Nursing students. There is also significant association between percentage of marks of previous university exam with pre test level of practice score of 4th year BSc. Nursing students. Conclusion: The present study concluded that Structured Teaching Programme was an effective method in improving the knowledge and the practice of the students regarding warm chain which will help in prevention of hypothermia thereby reducing neonatal mortality and morbidity. Increase in knowledge and practicing the steps of warm chain by the student nurses in clinical areas will reduce the risk of hypothermia among newborn.***

Keywords: Effectiveness, Structured Teaching Programme, warm chain, knowledge, practice, BSc. Nursing students

1. Introduction

Newborn hypothermia is an important contributing factor to neonatal mortality and morbidity in both developed and developing countries.[1] The newborn infant with a body temperature of between 36.0-36.5 ˚C(96.8-97.5˚F) may be under cold stress which gives rise to a concern. An infant with a temperature of 32.0-35.9 ˚ C(89.6-96.6 ˚ F) has moderate hypothermia, while a temperature below 32 ˚C (89.6 ˚F) is considered to be severe hypothermia.[2] WHO has issued guidelines for prevention of neonatal hypothermia as one of the elements of essential care in newborn at birth and in the 1st day of life.[3] The warm chain is a concept introduced to describe a set of ten interlinked procedures carried out at birth and later, which will minimize the likelihood of hypothermia in all newborns. Failure to implement any one of them will break the chain and increase the possibility of undesirable cooling of the infant.[4]

Bhatia A, Srivastava A, Sharma U, Rastogi R[5] conducted a study to evaluate the incidence of hypothermia in neonates and assess the risk factors for development of hypothermia in newborns. The study was done at the NICU of Teerthanker Mahaveer Medical College,UP,India.100 neonates were included in this prospective cross sectional study. Out of 100 babies in NICU,43% were found hypothermic with majority showing mild degree of hypothermia. This study results concluded that neonatal hypothermia though common in the set up yet the causes underlying it are preventable by maintaining warm chain before and after the delivery of the child, managing co-morbid conditions and training of medical personnel.

Neonatal hypothermia often due to lack of attention by health care providers continues to be a important cause of neonatal deaths. As a researcher I felt that, after the completion of BSc. nursing course students will become registered nurse and they will be directly connected to patients. So the STP is essential for them to get the knowledge of warm chain on prevention of hypothermia in newborn babies as they have to apply such knowledge and practice in providing high quality care.

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2. Problem Statement

Effectiveness of Structured Teaching Programme on knowledge and practice regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year BSc. Nursing students of selected Nursing college of Gangtok, Sikkim.

3. Objectives of Study

- To assess the pretest level of knowledge and practice regarding warm chain in prevention of hypothermia in newborn babies among 3rd year and 4th year BSc. Nursing students.
- To assess the post test level of knowledge and practice regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year BSc. Nursing students.
- To determine the effectiveness of structured teaching programme regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year BSc. Nursing students.
- To compare the difference in knowledge and practice of 3rd year and 4th year BSc. Nursing students regarding warm chain in prevention of hypothermia in newborn.
- To identify the association between the pre test knowledge and practice with selected demographic variables among 3rd year and 4th year BSc. Nursing students.

4. Hypotheses

The hypotheses were tested at the 0.05 level of significance.
H_1:- There is a significant difference between the pre test and post test knowledge and practice scores regarding warm chain in prevention of hypothermia in newborn babies among 3rd year and 4th year nursing students.
H_2:-There is a significant association between the pretest knowledge and practice levels with selected demographic variables.

5. Research Methodology

Research Approach: Quantitative approach
Design: Pre-experimental (one group pre test post test)
Setting: Sikkim Manipal College of Nursing, Central Referral Hospital, Tadong, East Sikkim, Gangtok
Sampling Technique: Purposive Sampling technique
Sample Size: 54 students

Development and description of tools:

Tool 1:
Section A: Demographic Proforma
Section B: Personal Profile

Tool 2:
Section A: Self-structured knowledge questionnaire
Section B: Self-structured observational checklist

Data analysis: The data has been analysed in terms of descriptive and inferential statistics. Effectiveness of Structured teaching programme was assessed by using paired t- test and Comparison of knowledge and practice between 3rd year and 4th year BSc. Nursing Students was assessed using unpaired t-test. Association of the pre test knowledge score with the selected demographic variable was analyzed using chi-square test

6. Result

Table 1: Frequency and percentage distribution of demographic variables and personal profile of students

S. No	Demographic Variable	3rd year B. Sc (N) (N=24)		4th year B. Sc (N) (N=30)	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1.	Age in years				
	a) 16-19	16	66.7	0	0
	b) 20-23	8	33.3	30	100
2	Gender				
	a) Female	24	100	30	100
	b) Male	0	0	0	0
3	Religion				
	a) Hinduism	18	75	22	73.3
	b) Buddhism	6	25	8	26.7
4	Personal profile Percentage of marks				
	a) Above 75	6	25	18	60
	b) 65-75	15	62.5	12	40
	c) 55-65	3	12.5	0	0
5	Percentage of attendance				
	a) Above 90	8	33.4	15	50
	b) 80-90	11	45.8	15	50
	c) 60-80	5	20.8	0	0
6	Knowledge regarding warmchain				
	a) Yes	16	66.7	25	83.3
	b) No	8	33.3	5	16.7

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Table 2: Comparison between pre-test and post-test level of knowledge regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year BSc.Nursing students

Level of knowledge	3rd year BSc.Nursing (N=24)				4th year B Sc. Nursing (N=30)			
	Pre-test		Post-test		Pre-test		Post-test	
	f	%	f	%	f	%	f	%
Poor	4	16.7	0	0	0	0	0	0
Moderate	20	83.3	16	66.7	26	86.7	9	30
Good	0	0	8	33.3	4	13.3	21	70
Mean SD	15.29 3.381		20.00 1.745		18.73 1.856		22.00 1.948	
t value df p value	11.47 23 0.001*				25.87 29 0.001*			

***p<0.05 level of significance**
NS-Non significant

Table 2 shows the comparison between pre-test and post-test level of knowledge regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year B. Sc Nursing students. The result of 3rd year B. Sc. Nursing students showed that in pre-test 4(16.7%) had poor knowledge and 20(83.3%) had moderate knowledge where as in post-test 16(66.7%) had moderate knowledge and 8(33.3%) had good knowledge. The pre-test and post-test level of knowledge among 3rd year B. Sc.Nursing was compared using paired t test (t=11.47, df=23, p value=0.001) indicates highly significant.

The result of 4th year B. Sc.Nursing students showed that in pre-test 26(86.7%) had moderate knowledge and 4(13.3%) had good knowledge where as in post-test 9(30%) had moderate knowledge and 21(70%) had good knowledge. The pre-test and post-test level of knowledge among 4th year B. Sc.Nursing was compared using paired t test (t=25.87, df=29, p value=0.001) indicates highly significant.

The structured teaching programme was effective in improving the knowledge regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year B. Sc.Nursing students.

Table 3: Comparison between pre-test and post-test level of practice regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year B Sc. Nursing students

Level of practice	3rd year B. Sc (N) (N=24)				4th year B. Sc (N) (N=30)			
	Pre-test		Post-test		Pre-test		Post-test	
	f	%	f	%	f	%	f	%
Poor	10	41.7	4	16.7	21	70	7	23.3
Good	14	58.3	20	83.3	9	30	23	76.7
Mean SD	6.30 0.624		6.97 0.637		5.96 0.596		6.67 0.669	
t value df p value	4.041 23 0.001*				5.525 29 0.001*			

***p<0.05 level of significance**

Table 3 shows the comparison between pre-test and post-test level of practice regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year B. Sc (N) students. The result of 3rd year B. Sc Nursing students showed that in pre-test 10(41.7%) had poor practice and 14(58.3%) had good practice where as in post-test 4(16.7%) had poor practice and 20(83.3%) had good practice. The pre-test and post-test level of practice among 3rd year B. Sc.Nursing was compared using paired t test (t=4.041, df=23, p value=0.001) indicates highly significant.

The result of 4th year B. Sc Nursing students showed that in pre-test 21(70%) had poor practice and 9(30%) had good practice where as in post-test 7(23.3%) had poor practice and 23(76.7%) had good practice. The pre-test and post-test level of practice among 4th year B. Sc.Nursing was compared using paired t test (t=5.525, df=29, p value=0.001) indicates highly significant.

The structured teaching programme was effective in improving the practice regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year B. Sc. Nursing students.

Table 4: Comparison of post-test level of knowledge regarding warm chain in prevention of hypothermia in newborn between 3rd year and 4th year B. Sc Nursing students, N=54

Level of Knowledge	Mean	SD	't' value	df	'p' value
3rd year	20.00	1.745	3.925	52	0.001*
4th year	22.00	1.948			

***p<0.05 level of significance**
NS-Non significant

Table 4 shows the comparison of post-test level of knowledge regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year B. Sc (N) students which was tested by using **unpaired t test**. The result revealed that 3rd year B. Sc (N) students had mean and SD was 20.0±1.745 and 4th year B. Sc (N) students had mean and SD was 22.0±1.948 with (t=3.925, df=52, p=0.001) indicates highly significant and concludes that 4th year B. Sc (N) students had more knowledge as compared to 3rd year B. Sc (N) students regarding warm chain in prevention of hypothermia in newborn.

Table 5: Comparison of post-test level of practice regarding warm chain in prevention of hypothermia in newborn between 3rd year and 4th year B. Sc. Nursing students, N=54

Level of practice	Mean	SD	't' value	df	'p' value
3rd year	6.97	0.637	1.673	52	0.001*
4th year	6.67	0.669			

***p<0.05 level of significance**

Table 5 shows the comparison of post-test level of practice regarding warm chain in prevention of hypothermia in newborn among 3rd year and 4th year B. Sc .Nursing students which was tested by using **unpaired t test.** The result revealed that 3rd year B. Sc . Nursing students had mean and SD was 6.97±0.637 and 4th year B.Sc.Nursing students had mean and SD was 6.67±0.669 with (t=1.673, df=52, p=0.001) indicates highly significant and concludes that 3rd year B. Sc. Nursing students had more practice as compared to 4th year B. Sc.Nursing students regarding warm chain in prevention of hypothermia in newborn.

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Table 6: Association between pre-test level of knowledge with selected demographic variables among 3rd year B. Sc Nursing students, N=24

S. No	Demographic Variable	Poor	Moderate	Chi value df p value
1	Age in years a) 16-19 b) 20-23	 4 0	 12 8	2.400 1 0.121 NS
2	Gender a) Female b) Male	 4	 20	 NA
3	Religion a) Hinduism b) Buddhism	 4 0	 14 6	1.600 1 0.206 NS
4	Percentage of marks a) Above 75 b) 65-75 c) 55-65	 3 1 0	 3 14 3	 6.480 2 0.039*
5	Percentage of attendance a) Above 90 b) 80-90 c) 60-80	 3 1 0	 5 10 5	 3.955 2 0.138 NS
6	Knowledge regarding warmchain a) Yes b) No	 4 0	 12 8	2.400 1 0.121 NS

***p<0.05 level of significance**
NS-Non significant

Table 6 shows the association between pre-test level of knowledge with selected demographic variables among 3rd year B. Sc Nursing students which was tested by using chi-square test at 0.05 level of significance**. Percentage of marks was found statistically significant association with pre-test level of knowledge among 3rd year B. Sc Nursing students**.

Table 7: Association between pre-test level of practice with selected demographic variables among 3rd year B. Sc Nursing students, N=24

S. No	Demographic Variable	Poor	Good	Chi value df p value
1	Age in years a) 16-19 b) 20-23	 16 4	 0 4	9.600 1 0.002*
2	Gender a) Female b) Male	 20	 4	 NA
3	Religion a) Hinduism b) Buddhism	 14 6	 4 0	1.600 1 0.206 NS
4	Percentage of marks a) Above 75 b) 65-75 c) 55-65	 5 12 3	 1 3 0	 0.720 2 0.698 NS
5	Percentage of attendance a) Above 90 b) 80-90 c) 60-80	 8 7 5	 0 4 0	 5.673 2 0.059 NS
6	Knowledge regarding warmchain a) Yes b) No	 13 7	 3 1	0.150 1 0.699 NS

***p<0.05 level of significance**
NS-Non significant

Table 7 shows the association between pre-test level of practice with selected demographic variables among 3rd year B. Sc Nursing students which was tested by using chi-square test at 0.05 level of significance. Age was found statistically significant association with pre-test level of practice among 3rd year B. Sc Nursing students.

Table 8: Association between pre-test level of knowledge with selected demographic variables among 4th year B. Sc Nursing students, N=30

S. No	Demographic Variable	Moderate	Good	Chi value df p value
1	Age in years a) 16-19 b) 20-23	 26	 4	 NA
2	Gender a) Female b) Male	 26	 4	 NA
3	Religion a) Hinduism b) Buddhism	 21 5	 1 3	5.5514 1 0.019*
4	Percentage of marks a) Above 75 b) 65-75 c) 55-65	 14 12 0	 4 0 0	 3.077 1 0.079 NS
5	Percentage of attendance a) Above 90 b) 80-90 c) 60-80	 12 14 0	 3 1 0	 1.154 1 0.2883 NS
6	Knowledge regarding warmchain a) Yes b) No	 21 5	 4 0	0.923 1 0.337 NS

*p<0.05 level of significance
NS-Non significant

Table 8 shows the association between pre-test level of knowledge with selected demographic variables among 4th year B. Sc Nursing students which was tested by using chi-square test at 0.05 level of significance. Religion was found statistically significant association with pre-test level of knowledge among 4th year B. Sc Nursing students.

Table 9: Association between pre-test level of practice with selected demographic variables among 4th year B. Sc Nursing students, N=30

S. No	Demographic Variable	Poor	Good	Chi value df p value
1	Age in years a) 16-19 b) 20-23	 21	 9	 NA
2	Gender a) Female b) Male	 21	 9	 NA
3	Religion a) Hinduism b) Buddhism	 16 5	 6 3	0.292 1 0.589 NS
4	Percentage of marks a) Above 75 b) 65-75 c) 55-65	 10 11 0	 8 1 0	 4.471 1 0.034*
5	Percentage of attendance a) Above 90 b) 80-90 c) 60-80	 10 11 0	 5 4 0	 0.159 1 0.690 NS
6	Knowledge regarding warmchain			2.571

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	a) Yes b) No	16 5	9 0	1 0.109 NS

***p<0.05 level of significance**
NS-Non significant

Table 9 shows the association between pre-test level of practice with selected demographic variables among 4th year B. Sc Nursing students which was tested by using chi-square test at 0.05 level of significance. **Percentage of marks was found statistically significant association with pre-test level of practice among 4th year B. Sc Nursing students.**

7. Discussion

The present study findings shows that 83.3% of the 3rd year B. Sc Nursing students have moderate knowledge in pre test and 16.7% have poor knowledge in pre-test whereas in post test 66.7% have moderate knowledge and 33.3% had good knowledge in post test. 83.3% of 3rd year B. Sc Nursing students had good practice after administering Structured Teaching Programme. 70%of 4th year students had good knowledge and 30% of students had moderate knowledge in post test and 76.7% of 4th year students had good practice in post test. The result showed that mean post test knowledge (20.00) and practice score (6.67) of 3rd year students was significantly higher than the pre test knowledge (15.00) and practice score (5.96). The result showed that mean post test knowledge (22.00) and practice score (6.97) of 4th year students was significantly higher than the pre test knowledge (18.73) and practice score. (6.37). The findings of the study was supported by a study conducted by Pinky, Akaansha[6] in Meerut to assess the effectiveness of Planned nursing intervention regarding warmchain in terms of knowledge and practice . The study concluded that the mean post test knowledge score 26.57 was significantly higher than the mean pre test knowledge score 15.70.Tthe computed t – value 44.63 was higher than the table value at 0.05 level of significance. (t=2.05,df=29). Again the mean post test practice score was 27.83 which was significantly higher than the mean pre-test practice score 10.4.The computed t-value 40.23 was higher than the table value at 0.05 level of significance. (t=2.05, df=29).

8. Conclusion

The present study concludes that structured teaching programme is an effective method in improving the knowledge and the practice of the students regarding warmchain which will help in prevention of hypothermia thereby reducing neonatal mortality and morbidity. Increase in knowledge and practicing the steps of warmchain by the student nurses in clinical areas will reduce the risk of hypothermia. Training should be given to the staff working in OBG wards regarding warm chain so that they are updated with the skills and follow them skillfully.

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