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Effect of Standardized WHO Clinical Guidelines on Knowledge and Practice Regarding Prevention of Neonatal Hypothermia among Staff Nurses

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ABSTRACT

Hypothermia is increasingly recognized as a major cause of neonatal morbidity and mortality in resource poor settings. The World Health Organization recognizes new-born thermal care as a critical and essential component of essential new-born care. Nurses, as a primary care giver must be aware of neonatal hypothermia and measures to prevent it. Hence, the study was undertaken to assess the effect of Standardized WHO clinical guidelines on knowledge and practice of staff nurses regarding prevention of neonatal hypothermia in a selected hospital, Thrissur. The other objectives of the study were to find out the relationship between knowledge and practice and to associate the level of knowledge and practice of staff nurses regarding prevention of neonatal hypothermia with their selected demographic variables. The design of the study was pre experimental one group pre test-post test design over 30 staff nurses. Pre test was done using structured knowledge questionnaire and 3 point Likert scale for assessing the practice. Following which, the researcher provided the Standardized WHO clinical guidelines on prevention of neonatal hypothermia. Post test was done after 7 days and the analysis shows that there is a significant increase in knowledge and practice score of staff nurses after providing the standardized WHO clinical guidelines on prevention of neonatal hypothermia. The result shows no correlation between the knowledge and practice of staff. There was a significant association between the knowledge score with the clinical experience and educational qualification of the staff nurses, but there was no association between practice score with their selected demographic variables. Thus the study concluded that the Standardized WHO clinical guidelines was effective in improving the knowledge and practice of staff nurses regarding prevention of neonatal hypothermia.

KEYWORDS

Staff nurses; standardized WHO clinical guidelines; neonatal hypothermia; knowledge; practice

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INTRODUCTION

BACKGROUND OF THE PROBLEM

The healthy newborn infant born at a 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 has to undergo in the course of lifetime. Approximately 3 per cent to 7 per cent of all newborns require some form of support[1]. The WHO stated approximately 125 million infants born every year, 8million die before reaching one year of life due to various complications, among that about 2.5 per centnewborn die due to hypothermia. Newborn hypothermia remains one of the most important contributors to neonatal mortality and morbidity in both health facilities and communities of low-resource settings. It is estimated that annually 17 million neonates have hypothermia in developing countries[2].

NEED AND SIGNIFICANCE OF THE STUDY

The importance of maintaining the temperature of the newborn baby has been known for centuries. Still thermal stress has been associated with an increase in morbidity and mortality, making early detection an important part of monitoring in sick infants[3].The temperature at which a baby can maintain its normal body temperature is called "thermo neutral temperature". This is the ideal temperature at which a baby should be made to achieve optimal somatic growth. For a 2%fall in environmental temperature below the normal range, the infant has to generate 25 per cent additional heat which requires more energy and glucose. The environmental temperature at which this metabolic response becomes necessary is called the "critical temperature" and this results in the complications of hypothermia like increased oxygen consumption, hypoglycemia, neonatal cold crisis, jaundice, kernicterus, poor weight gain and high mortality[4].Neonatal survival is a very sensitive indicator of population growth and socio-economic development

STATEMENT OF THE PROBLEM

A study to assess the effect of standardized WHO clinical guidelines on knowledge and practice regarding prevention of neonatal hypothermia among the staff nurses of a selected hospital, Thrissur.

MATERIALS AND METHODS

The investigator adopted an evaluative approach for the study to evaluate the effect of standardized WHO clinical guidelines on knowledge and practice regarding prevention of neonatal hypothermia among staff nurses through a quantitative research approach and a one group pre-test post-test design was adopted for the study. The setting used in this study wasAswini Hospital, Thrissur. 30 staff nurses were selected through convenience sampling technique.

The tools used in this study consists of, section A: demographic profile of staff nurses, section B: structured knowledge questionnaire – to assess the knowledge of the staff nurses regarding prevention of neonatal hypothermia, section C: Three point Likert scale on selected procedure -to assess the practice of staff nurses regarding prevention of neonatal hypothermia and section D: standardized WHO clinical guidelines on prevention of neonatal hypothermia.

During the first phase of data collection, the investigator selected staff nurses through convenience sampling and as per the inclusion criteria, following which investigator prepared the list of selected participants for the study. The next phase includes assessment of pre-test knowledge and practice of staff nurses regarding prevention of neonatal hypothermia. Initially, practice was assessed through 3 point Likert scale on selected procedure through participatory observational method. After which the investigator assessed the pre-test knowledge by administering structured knowledge questionnaire on prevention of neonatal hypothermia. Thepre test was followed by the third phase where the investigator conveyed information to the participants through systematically developed power point instructions regarding prevention of neonatal hypothermia for 20 minutes. The last phase was the assessment of post-test knowledge and practice of staff nurses regarding prevention of neonatal hypothermia, which was done one week after the pre test using the same 3 point Likert scale and structured knowledge questionnaire, inorder to evaluate the effect of the standardized WHO clinical guidelines.

RESULTS AND DISCUSSION

SECTION A: Demographic profile of staff nurses

This section deals with the frequency and percentage distribution of subjects (30) based on their sample characteristics

Regarding the age it implies that majority of the samples 20(66.7%) belongs to ≤ 30years and only 10(33.3%) were in the age group above 30 years.

With reference to gender, all of the samples were female. In view of clinical experience of the staff nurses 3(10%) belongs to < 1 year of experience, whereas 10(33.3%) belongs to 1-3 years of experience, 5(16.7%) belongs to 3-5 years of experience while on the other hand 12(40%) belongs to ≥ 5 years of experience.

In the case of educational qualification majority of the samples 16(53.3%) completed GNM nursing whereas 12(40%) samples completed BSc Nursing and 2(6.7%) completed Post Basic BSc Nursing.

In accordance with the area of experience majority of the samples 9(30%) were from NICU, 7 (23.3%) samples were from labour room, 6(20%) were from postnatal ward and the remaining 8 (26.6%) were from pediatric ward.

Considering the previous knowledge 6 (20%) samples had attended CNE programme regarding prevention of neonatal hypothermia and rest 24 (80%) has not attended CNE programme regarding prevention of neonatal hypothermia. Among those who attended CNE programme 3 attended before 6 month and 3 attended it before more than 6 month.

Table 1 Frequency and percentage distribution of pre-test and post-test level of knowledge score of staff nurses regarding prevention of neonatal hypothermia **(N = 30)**

Level of knowledge	Scores	Frequency (n)		Percentage (%)	
		Pre-test	Post-test	Pre-test	Post-test
Adequate knowledge	28 – 40	0	28	0	93.3
Moderate knowledge	14 – 27	21	2	70	6.7
Poor knowledge	0 – 13	9	0	30	0

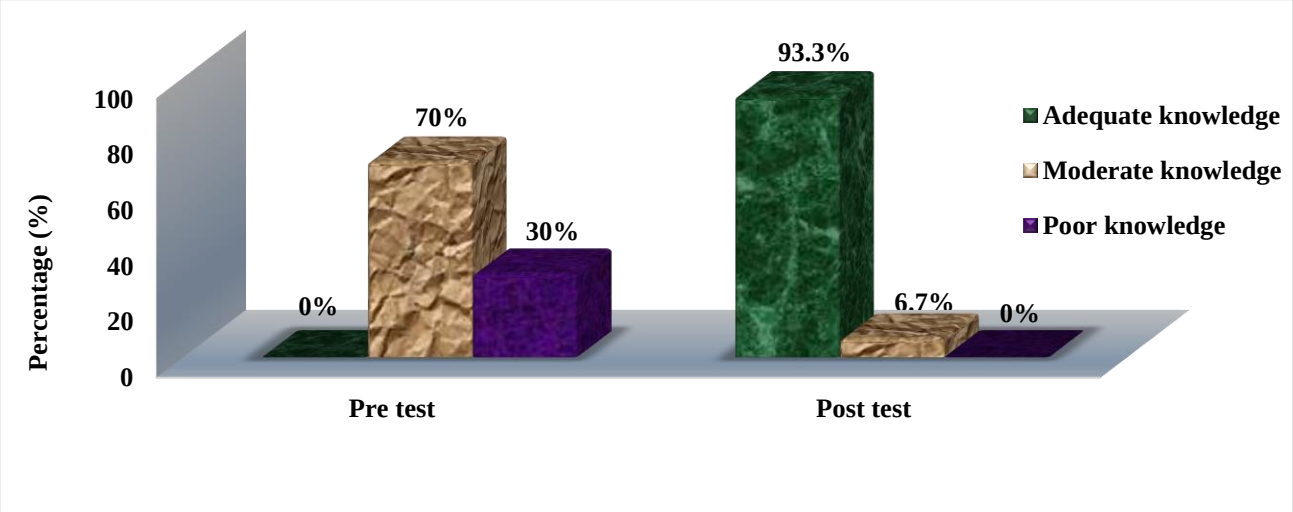

Fig. 1 Comparision of pre-test and post-test level of knowledge score of staff nurses regarding prevention of neonatal hypothermia

SECTION B: Description on the assessment of level of knowledge of the staff nurses regarding prevention of neonatal hypothermia.

This section (table 1, figure 1) summarizes the pre-test and post-test level of knowledge score of staff nurses regarding prevention of neonatal hypothermia. With reference to the pre-test knowledge of staff nurses regarding prevention of neonatal hypothermia majority of the samples 21(70%) had moderate knowledge, 9(30%) of staff nurses were having poor knowledge and none of the samples had adequate knowledge. After providing the standardized WHO clinical guidelines regarding prevention of neonatal hypothermia, the post-test revealed that most of the samples 28 (93.3%) had adequate knowledge, whereas the remaining 2(6.7%) had moderate knowledge and none of the samples had poor knowledge regarding prevention of neonatal hypothermia.

Table 2 Frequency and percentage distribution of the pre-test and post-test level of practice score of staff nurses regarding prevention of neonatal hypothermia **(N=30)**

Level of practice	Scores	Frequency (n)		Percentage (%)	
		Pre-test	Post-test	Pre-test	Post-test
Good practice	56 – 75	6	30	20	100
Satisfactory practice	37 – 55	24	0	80	0
Poor practice	<37	0	0	0	0

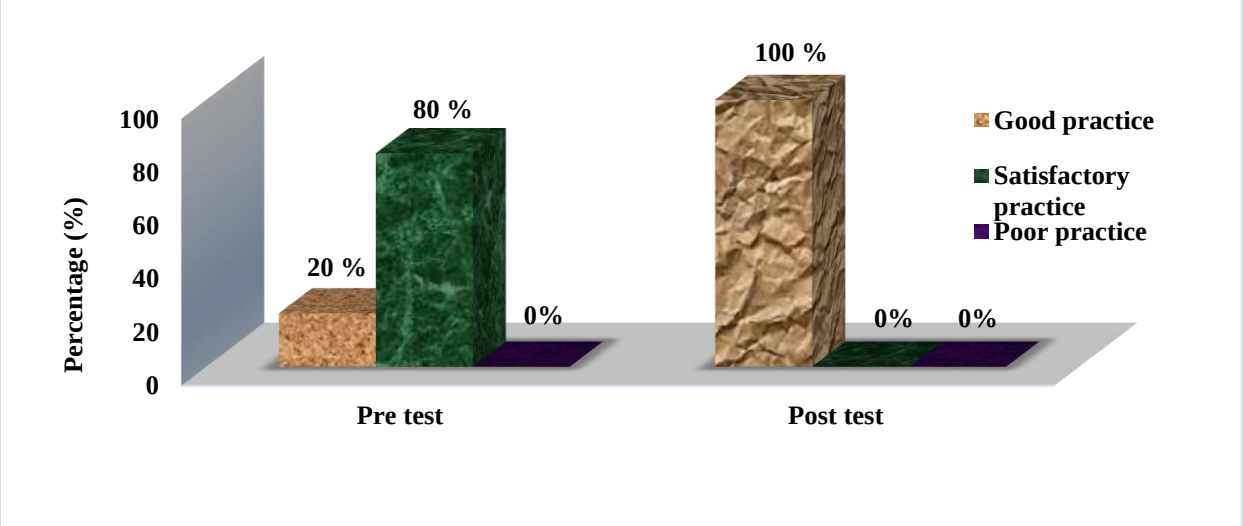

Fig. 2 Comparision of pre-test and post-test level of practice score of staff nurses regarding prevention of neonatal hypothermia

SECTION C: Description on the assessment of the level of practice of the staff nurses regarding prevention of neonatal hypothermia.

This section (table 2) explains the pre-test and post-test level of practice score of staff nurses regarding prevention of neonatal hypothermia. In relation to the pre-test practice of staff nurses,24(80%) samples showed satisfactory level of practice regarding prevention of neonatal hypothermia whereas the remaining 6(20%) showed good level of practice regarding prevention of neonatal hypothermia and none had poor practice regarding prevention of neonatal hypothermia.

After providing standardized WHO clinical guidelines regarding prevention of neonatal hypothermia, the post-test practice score of 30 samplesshowed good practice regarding prevention of neonatal hypothermia.

SECTION D: Description of effectiveness of standardized WHO clinical guidelines on prevention of neonatal hypothermia

This section deals with the effectiveness of standardized WHO clinical guidelines regarding prevention of neonatal hypothermia. The mean pre-test score of knowledge of staff nurses regarding prevention of neonatal hypothermia was 16.20 and after providing standardized WHO clinical guidelines, the post mean test score has been increased to 31.83. The dependent‘t’ test was applied to assess the effectiveness of standardized WHO clinical guidelines regarding prevention of neonatal hypothermia. The ‘t’ value for knowledge was found to be 20.28 and the p value was < 0.001 which is significant at 0.01 level. This implies that the standardized WHO clinical guidelines were effective. Hence the research hypothesisH1- there is a significant difference between the pre-test and post-test knowledge score of staff nurses regarding prevention of neonatal hypothermia is accepted and null hypothesis H01 - there is no significant difference between the pre-test and post-test knowledge score of staff nurses regarding prevention of neonatal hypothermia is rejected.

The mean pre-test score of practice of staff nurses regarding prevention of neonatal hypothermia was 52.73 and after providing standardized WHO clinical guidelines, the mean post-test score has been increased to 65.53.The dependent ‘t’ test was applied to assess the effectiveness of standardized WHO clinical guidelines. The ‘t’ value for practice was found to be 11.08 and the p value was < 0.001 which is significant at 0.01 level. This implies that the standardized WHO clinical guidelines were effective. Hence the research hypothesis H2- there is a significant difference between the pre-test and post-test practice score of staff nurses regarding prevention of neonatal hypothermia is accepted and null hypothesis H02- there is nosignificant difference between the pre-test and post-test practice score of staff nurses regarding prevention of neonatal hypothermiais rejected.

Table 3 Components wise distribution of the level of knowledge scores using dependent ‘t’ test **(N= 30)**

Components of neonatal hypothermia	Knowledge score	Mean	SD	‘t’ value	p value
General aspects	Pre test	2.60	1.070	8.026**	< 0.001
	Post test	4.73	0.907		
Definition	Pre test	1.60	0.968	7.048**	< 0.001

	Post test	3.83	1.315		
Causes	Pre test	3.17	1.085	7.571**	< 0.001
	Post test	5.47	1.167		
Clinical features	Pre test	2.17	0.950	9.289**	< 0.001
	Post test	4.37	1.217		
Management	Pre test	3.17	1.289	11.006**	< 0.001
	Post test	6.73	1.258		
Prevention	Pre test	3.50	1.503	9.22**	< 0.001
	Post test	6.70	1.055		

** Significant at 0.01 level

SECTION E: Description of component wise distribution of the level of knowledge scores on prevention of neonatal hypothermia using dependent't' test.

This section (table 3) deals with the components wise distribution of the level of knowledge score. It gives the mean score of each components in pre-test and post-test knowledge scores. The mean pre-test score of general aspects of neonatal hypothermia was 2.60 ±1.070, and the post-test score was 4.73 ± 0.907. The results ('t'value =8.026, p value < 0.001) revealed that there was a significant improvement in the knowledge on the general aspects of neonatal hypothermia. The mean pre-test score of definition of neonatal hypothermia was 1.60 ± 0.968 and the post-test score was 3.83 ±1.315. The result ('t'value= 7.048, p value <0.001) reveals that there was a significant improvement in knowledge regarding definition of neonatal hypothermia. The mean pre-test score of the cause of neonatal hypothermia was 3.17 ± 1.085 and the post-test score was 5.47 ±1.167. The result ('t'value = 7.571, p value < 0.001) revealed that there was a significant improvement in knowledge regarding cause of neonatal hypothermia. The pre-test score of clinical features of neonatal hypothermia was 2.17 ±0.950and the post-test score was 4.37 ±1.217. The result ('t'value = 9.289, p value< 0.001) revealed that there was a significant improvement in the knowledge regarding clinical features of neonatal hypothermia. The mean pre-test score of management of neonatal hypothermia was 3.17 ±1.289 and the post-test score was 6.73 ±1.258 .The result ('t'value= 11.006, p value< 0.001) revealed that there was a significant improvement in knowledge regarding management of neonatal hypothermia. The mean pre-test score for prevention of neonatal hypothermia is 3.50 ± 1.503 and the post-test score for the prevention of neonatal hypothermia was 6.70 ± 1.055. The result ('t'value = 9.22, p value < 0.001) reveals that there was a significant improvement in knowledge regarding prevention of neonatal hypothermia.

Table 4 Correlation between the level of knowledge with practice of staff nurses regarding prevention of neonatal hypothermia **(N = 30)**

Variables	N	r value	p value
Knowledge Practice	30	0.333^{ns}	0.073

Non-significant at 0.05 level

Table 5 Association between the level of knowledge of staff nurses regarding neonatal hypothermia with their selected demographic variables **(N=30)**

Sl No	Demographic variables	χ^2value	p value	Level of significance
1	Age of staff nurses	0^{ns}	1.0	NS
2	Clinical experience	5.562*	0.018	S*
3	Educational qualification	4.649*	0.031	S*
4	Previous related knowledge from CNE	2.867^{ns}	0.090	NS

NS Non-Significant at 0.05 level; S Significant at 0.05 level

SECTION F: Description on correlation between the level of knowledge with practice of staff nurses regarding prevention of neonatal hypothermia

This section (table 4) deals with the correlation between level of knowledge with practice of the staff nurses regarding prevention of neonatal hypothermia. It exhibits that there is no correlation between the level of knowledge and practice of the staff nurses regarding prevention of neonatal hypothermia as the r value 0.333 is non-significant at 0.05 level. This implies that there is no significant relationship between the knowledge and practice of staff nurses regarding prevention of neonatal hypothermia. Hence, the null hypothesis H03- there is no significant relationship between knowledge and practice of staff nurses regarding prevention of neonatal hypothermia is accepted whereas the research hypothesis H3- there is a significant relationship between knowledge and practice of staff nurses regarding prevention of neonatal hypothermia is rejected.

SECTION G: Description on association between the level of knowledge of staff nurses regarding prevention of neonatal hypothermia with their selected demographic variable.

This section (table 5) describes the association between the level of knowledge of staff nurses regarding prevention of neonatal hypothermia with their selected demographic variables such as age, gender, clinical experience, educational qualification, area of work and previous related knowledge. It showed that there is significant association between the knowledge score with the clinical experience (□2 = 0 and p value = 1) and educational qualification of the staff nurses (□2 = 5.562 and p value = 0.018). On the other hand there was no significant association between the knowledge score with their selected demographic variables like age of the staff nurses (□2 =0, p value = 1.0) and previous related knowledge from CNE programmes on prevention of neonatal hypothermia (□2 = 2.867, p value = 0.090).

SECTION H: Description on the association of the level of practice of staff nurses regarding prevention of neonatal hypothermia with their selected demographic variables.

This section describes the association between the level of practice of staff nurses regarding prevention of neonatal hypothermia with their selected demographic variables. The selected demographic variables are age, gender, clinical experience, educational qualification, area of work and previous related knowledge. It was found that there was no association between practice score with their selected demographic variables such as age of the staff nurses (□2= 0.234, p value = 0.628), clinical experience of the staff nurses (□2= 0, p value = 1.0), educational qualification (□2= 0.075, p value = 0.784) and previous related knowledge from CNE programme (□2=0, p value = 1).

CONCLUSION

The WHO has published guidelines on thermal care and has included thermal care of newborns as one of the elements of Essential Newborn Care (ENC) that should be provided to all newborns regardless of setting. Despite this recognition within global guidelines and recommendations for neonatal care, there are major gaps in our understanding of the burden, risk factors and consequences of neonatal hypothermia in the very settings where exposure is greatest. Awareness of these guidelines of thermal control and the basic knowledge on thermal regulation and thermal protection is essential, to fill the gap in the understanding of the concepts of neonatal hypothermia.

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