

1 **A STUDY TO ASSESS THE EFFECTIVENESS OF VIDEO ASSISTED TEACHING**
2 **REGARDING KNOWLEDGE ABOUT WARM CHAIN PRACTICES ON PREVENTION**
3 **OF HYPOTHERMIA IN NEWBORN AMONG STAFF NURSES IN SELECTED**
4 **HOSPITAL AT COIMBATORE.**

5
6 **ABSTRACT**

7 **Background**

8 Neonatal hypothermia is a major contributor to neonatal morbidity and mortality, particularly in
9 developing countries. Maintenance of thermal stability through appropriate warm chain practices
10 is essential for the survival and wellbeing of newborns. Staff nurses play a crucial role in
11 implementing these practices. However, lack of adequate knowledge may result in improper care
12 and increased risk of hypothermia.

13 **Objectives**

- 14 1. To assess the existing knowledge regarding warm chain practices on prevention of
15 hypothermia in newborns among staff nurses.
16 2. To evaluate the effectiveness of video assisted teaching on knowledge regarding warm
17 chain practices by comparing pre-test and post-test scores.
18 3. To determine the association between pre-test knowledge scores and selected
19 demographic variables of staff nurses.

20 **Methods**

21 A quantitative research approach with quasi-experimental one group pre-test and post-test design
22 was adopted. The study was conducted among 100 staff nurses selected through purposive
23 sampling technique from selected hospitals of Coimbatore. Data were collected using a
24 structured knowledge questionnaire on warm chain practices. Video assisted teaching was
25 administered after the pre-test. Post-test was conducted on the 15th day. Data were analyzed
26 using descriptive and inferential statistics. Paired 't' test and chi-square test were used.

27 **Results**

28 The mean pre-test knowledge score was 5.9 ± 1.4 , whereas the mean post-test score was $15.8 \pm$
29 3 . The mean difference was 10. The calculated 't' value was 33, which was statistically
30 significant at $p < 0.05$. Significant association was found between knowledge and age and years
31 of experience in NICU. No significant association was found with sex, education, marital status,
32 religion, language, total clinical experience and previous training.

33 **Conclusion**

34 Video assisted teaching was found to be highly effective in improving knowledge regarding
35 warm chain practices on prevention of hypothermia among staff nurses.

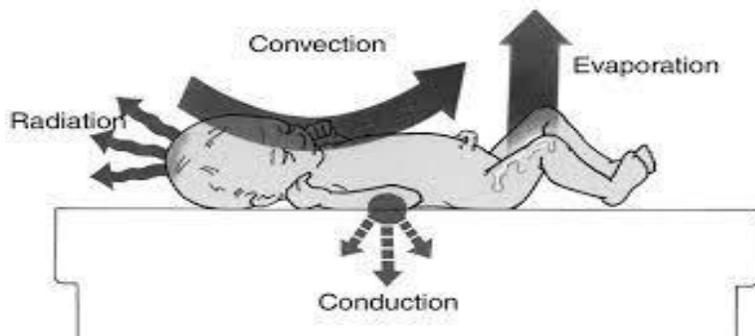
36 **Keywords:** Warm chain practices, Neonatal hypothermia, Video assisted teaching, Staff nurses,
37 Thermoregulation

38
39 **INTRODUCTION:**

40 Neonatal hypothermia occurs when the newborn's temperature drops below 36.5°C
41 (97.7°F): 36-36.5°C (96.8-97.7°F) is mild hypothermia (cold stress); 32-36°C (89.6-96.8°F) is
42 moderate hypothermia; less than 32°C (89.6°F) is severe hypothermia. Hypothermic newborns
43 must be rewarmed as quickly as possible by skin-to-skin contact depending on the availability of
44 staff and equipment and the severity of the hypothermia.

45 Hypothermia is as dangerous to the newborn as hypothermia and can be prevented by
46 dressing the baby appropriately for the environmental temperature and not placing it too close to
47 a source of heat or in full sunlight. In particular, incubators should not be exposed to direct
48 sunlight and the temperature inside the device as well as the baby's own temperature should be
49 monitored frequently.

50 Thermoregulation is the ability to maintain balance between heat production and heat loss
51 in order to sustain body temperature. Hypothermia may have serious metabolic consequences for
52 all newborns. To minimize these effects, an environmental temperature at which the new born
53 has minimal rates of oxygen consumption and expends the least energy to maintain its
54 temperature is needed.



55
56
57 The "warm chain" is a set of interlinked procedures to be taken at birth and during the
58 next few hours and days in order to minimize heat loss in all newborns. Failure to implement any
59 one of these procedures will break the chain and put the newborn baby at risk of getting cold.
60 The ten steps are 1. warm delivery room,2. Immediate drying,3. Skin-to-skin contact
61 4. Breast Feeding,5.Bathing and weighing postponed,6.Appropriate clothing and
62 bedding.8.Warm transportation.9.Warm resuscitation .10.Training/awareness raising.

63
64 **MATERIAL AND METHODS**

65 For the present study, a quantitative research approach with a quasi-experimental one group pre-
66 test and post-test design was adopted to assess the effectiveness of video assisted teaching on
67 knowledge regarding warm chain practices on prevention of hypothermia in newborns among
68 staff nurses. The study was conducted in selected hospitals of Coimbatore, namely Sai Hospital
69 (Nachipalayam), Surya Hospital (Ganapathy), Kavitha Hospital (Sundarapuram), and Shree Siva
70 Hospital (Ganapathy). Formal permission was obtained from the hospital authorities prior to data
71 collection. A total of 100 staff nurses working in maternity and neonatal units were selected
72 using purposive sampling technique based on the inclusion criteria.

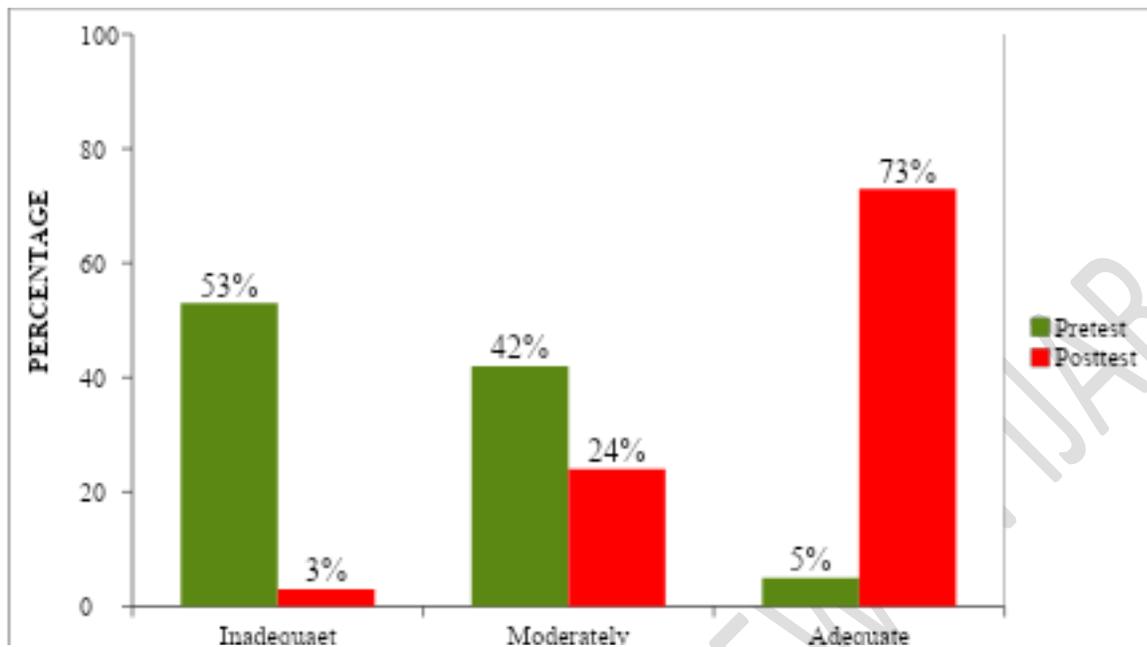
73 Data were collected over a period of four weeks using a structured knowledge questionnaire
74 consisting of two sections: demographic variables and questions related to warm chain practices.
75 After obtaining informed consent, a pre-test was conducted using the questionnaire. On the same
76 day, video assisted teaching on warm chain practices was administered in group sessions using
77 standardized educational videos. The post-test was conducted on the 15th day using the same
78 questionnaire to assess the effectiveness of the intervention.

79 The collected data were analyzed using descriptive and inferential statistics. Frequency,
80 percentage, mean, and standard deviation were used for descriptive analysis, while paired 't' test
81 was applied to determine the effectiveness of video assisted teaching and chi-square test was
82 used to find the association between pre-test knowledge scores and selected demographic
83 variables. A level of significance of $p < 0.05$ was considered statistically significant.

84 RESULTS

85 I. **Demographic Characteristics:** The present study included 100 staff nurses working in
86 selected hospitals of Coimbatore. With regard to demographic characteristics, most of the
87 staff nurses were in the age group of 21–25 years (32%) and were female (67%). In terms
88 of educational qualification, the majority had B.Sc. Nursing (37%), followed by Diploma
89 in Nursing (29%). Nearly half of the participants were unmarried (46%). Most of the staff
90 nurses belonged to the Hindu religion (42%) and preferred Tamil as the language of
91 communication (46%). Regarding professional experience, 36% of the staff nurses had
92 4–6 years of total clinical experience, while 33% had 4–6 years of experience in NICU.
93 Only 21% of the staff nurses reported having previously received training related to
94 neonatal thermoregulation or warm chain practices.

95 II. **The frequency and percentage distribution of staff nurses according to their pre-test
96 and post-test level of knowledge regarding warm chain practices on prevention of
97 hypothermia in newborn.**



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99 **Figure 1** depicts the frequency and percentage distribution of staff nurses according to their pre-
 100 test and post-test level of knowledge regarding warm chain practices on prevention of
 101 hypothermia in newborn. During the pre-test, 53% of the staff nurses had inadequate knowledge,
 102 42% had moderately adequate knowledge, and only 5% had adequate knowledge. In contrast, the
 103 post-test results showed that only 3% had inadequate knowledge, 24% had moderately adequate
 104 knowledge, and a majority of 73% had adequate knowledge, indicating a substantial
 105 improvement in knowledge following video assisted teaching.

106

107 III. Comparison of pre-test and post-test knowledge scores to assess the effectiveness of 108 video-teaching

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(n=100)

S. No	Knowledge	Mean	S.D	Mean Differences	't' value
1.	Pre test	5.9	1.4	10	33
2.	Post test	15.8	3		

110

*Significant at $p < 0.05$ level

111

112 **Table 1** presents the comparison of pre-test and post-test knowledge scores. The mean pre-test
 113 knowledge score was 5.9 ± 1.4 , which increased to 15.8 ± 3 in the post-test. The mean difference
 114 was 10. The calculated 't' value was 33, which was statistically significant at $p < 0.05$. This
 115 finding indicates that video assisted teaching was highly effective in improving knowledge

116 regarding warm chain practices on prevention of hypothermia in newborn among staff nurses.
 117 Hence, the research hypothesis (H1) was accepted.

118 **IV. Association between pre-test level of knowledge and selected demographic variables.**
 119 **(n=100)**

S. No	Demographic Variables	Level of Knowledge			χ^2	Table value (df)
		Adequate	Moderately	Inadequate		
	Age (a) 21–25 years (b) 26–30 years (c) 31–35 years (d) Above 36 years	3 2 0 0	20 9 7 6	9 15 11 18	15.48*	12.59 (6)
	Sex (a) Male (b) Female	4 1	28 14	35 18	0.42	5.99 (2)
3.	Highest Level of Nursing Education (a) Diploma in Nursing (b) B.Sc Nursing (c) Post Basic B.Sc Nursing (d) M.Sc Nursing	2 2 0 1	11 14 13 4	16 21 8 8	5.35	12.59 (6)
4.	Marital Status (a) Married (b) Unmarried (c) widows (d) Separated	3 1 1 0	14 21 3 4	24 24 1 4	6.7	12.59 (6)
5.	Religion a. Hindu b. Muslim c. Christian d. Others	3 2 0 0	15 9 15 3	24 12 12 5	6.06	12.59 (6)
6.	Preferred Language for Communication a) Tamil (b) English (c) Hindi (d) Others	0 2 2 1	21 9 7 5	25 16 6 6	6.45	12.59 (6)

7.	Total Years of Clinical Experience	1	8	9		
	(a) Less than 1 year	1	7	6	1.97	12.59
	(b) 1–3 years	1	16	19		(6)
	(c) 4–6 years	2	11	19		
	(d) More than 6 years					
8.	Years of Experience in NICU					
	(a) Less than 1 year	2	6	12		
	(b) 1–3 years	0	11	8	15.6*	12.59
	(c) 4–6 years	3	12	18		(6)
	(d) More than 6 years	0	13	15		
9.	Have you previously received any training related to neonatal thermoregulation or warm chain practices?					
	(a) Yes	1	7	13	1.16	5.99
	(b) No	4	35	40		(2)

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121

122 **Table 2** shows the association between pre-test level of knowledge and selected demographic
 123 variables. A statistically significant association was found between knowledge scores and age (χ^2
 124 = 15.48) and years of experience in NICU ($\chi^2 = 15.6$). No significant association was observed
 125 between knowledge scores and other demographic variables such as sex, highest level of nursing
 126 education, marital status, religion, preferred language for communication, total years of clinical
 127 experience, and previous training related to neonatal thermoregulation or warm chain practices.
 128 Therefore, the research hypothesis (H2) was partially accepted.

129 DISCUSSION

130 The findings of the present study demonstrated that video assisted teaching was effective in
 131 improving the knowledge of staff nurses regarding warm chain practices on prevention of
 132 hypothermia in newborn. A marked increase was observed in the post-test knowledge scores
 133 compared to the pre-test scores, indicating that structured educational intervention significantly
 134 enhanced the understanding of warm chain principles among staff nurses.

135 The improvement in knowledge observed in this study is consistent with the findings of earlier
 136 studies conducted on neonatal thermoregulation and warm chain practices. Studies by Rupa A.
 137 Varma (2020) and Sam (2023) reported that structured teaching programs and educational
 138 interventions significantly improved nurses' knowledge and compliance with warm chain

139 practices. The present study further supports the effectiveness of video assisted teaching as a
140 learning strategy, as visual and audio reinforcement enhances comprehension and retention of
141 information.

142 The association between knowledge scores and age suggests that maturity and professional
143 exposure may contribute to better understanding of neonatal care practices. Similarly, the
144 significant association between knowledge and years of experience in NICU indicates that
145 practical experience plays an important role in acquiring knowledge related to neonatal
146 thermoregulation. Staff nurses with more experience in NICU settings were found to have better
147 baseline knowledge compared to those with lesser experience.

148 However, no significant association was found between knowledge and variables such as sex,
149 educational qualification, marital status, religion, preferred language, total years of clinical
150 experience, and previous training related to neonatal thermoregulation. This finding highlights
151 the need for regular and standardized in-service education programs for all staff nurses,
152 irrespective of their background characteristics. The low proportion of staff nurses who had
153 previously received training (21%) further emphasizes the necessity for continuous professional
154 development programs focusing on warm chain practices.

155 Overall, the results of the present study confirm that video assisted teaching is a simple, cost-
156 effective, and efficient method for improving knowledge regarding warm chain practices among
157 staff nurses. Implementing regular educational interventions in hospital settings may help reduce
158 the incidence of neonatal hypothermia and improve neonatal outcomes.

159

160 **CONCLUSION**

161 The study was conducted to determine the effectiveness of warm chain practices on
162 prevention of hypothermia in newborn among staff nurses. The pre-test mean score for
163 knowledge was 5.9, with a standard deviation of 1.4 and the post-test mean score was 15.8, with
164 a standard deviation of 3. The mean difference was 10. The calculated 't' value was 33,
165 indicating statistical significance at $p < 0.05$. From the result of the study it was concluded that
166 video assisted teaching has significant effect on the improvement of knowledge regarding warm
167 chain practices on prevention of hypothermia in newborn among staff nurses.

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