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## Effectiveness of demonstration in terms of skills regarding assessment of Capillary refill time in newborns among nursing students

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### Abstract

**Background-**At birth the baby enters extra uterine environment which has low available humidity. In such an environment, the sick newborn is required to struggle for physiological adjustment for surviving. If they fail, it leads to newborn mortality and morbidity. The study aimed at Evaluate the effectiveness of demonstration among nursing students in terms of skills regarding assessment of Capillary refill time in selected Nursing colleges of Ambala, Haryana.

**Objectives-** To assess the skills regarding assessment of capillary refill time in newborn before and after demonstration among nursing students. To determine the association of levels of skills regarding capillary refill time with selected demographic variables.

**Design-**The research approach is Experimental with one group pre-test and post-test design.

**Setting-** Study was conducted in Paediatric units of Maharishi Markandeshwar Institute of Medical Sciences and Research Hospital, Mullana, Ambala.

**Participants-** 80 B.S.C (N) 3<sup>rd</sup> year students of M.M College of Nursing, Mullana, Ambala was purposively selected.

**Methods-** Nursing students who are–Willing to participate, available at the time of data collection in the study and Posted in pediatrics units were taken. Tools were developed and validated from the experts. The Performa for demographic variables was developed to gather personal data about Nursing students i.e. Age Gender, class previous knowledge regarding assessment respiratory rate and capillary refilling time. Standardized WHO Observational checklist was used for assessing capillary refilling time in newborn. The reliability of tool was calculated by Inter rater reliability which was found to be 0.82. Formal permission from Principal of M.M College of Nursing and Medical superintendent of MMIMS&R Hospital Mullana Ambala. Written consent was taken from students for participation. Convenience sampling was used for selecting Hospital and Purposive Sampling Technique was used for nursing students. The data was collected from 80 B.SCN) 3<sup>rd</sup> year students.

**Results-**Findings of the final study revealed that in pre-test majority of the students (80%) had average level of skills whereas in post-test 1 (62.55%) had very good level of skills whereas in post-test 2 majority of the students (63.7%) had good level of skills regarding assessment of Capillary refill time. Computed chi square value of levels of skills of nursing students was not found to be statistically significant with demographic variables. at 0.05 level of significance. So, it is concluded that demonstration is an effective way of improving skills. Findings can be implicated in nursing practice, education, nursing administration and nursing research

**Keywords:** Demonstration, Skills, Capillary refill time, Newborn

### Introduction

The number of global newborn deaths in each year fell by 1.3 million over the last 2 decades, but the first month of life is still one of the most dangerous times for infants and children [1]. Tissue perfusion is the time required for return of color after application of blanching pressure to a distal capillary bed [2]. Though we seldom use CRT alone as an indicator of hemodynamic status, it would be appropriate in this era of evidenced based medicine to adopt uniform clinical methods which will then enable us to carry out studies to ascertain its validity [2]. CRT as a measurement of circulation- altered tissue perfusion, which can be observed clinically, is an important manifestation of shock [4]. CRT has for a long time been considered to be a measurement of cardiac output [5]. The basic principle of CRT is that the practitioner presses, some where on the neonatal body (preferably limbs, chest or head) enough to cause blanching of the skin and their after counts how many seconds it takes for the blanched area to regain its former color [6, 7]. If CRT is delayed this could reflect decreased cardiac output meanwhile a rapid CRT could be a characteristic of increased cardiac output [8].

Moreover, According to the best of investigator knowledge, very few studies has been conducted related to assessment of capillary refill time in India and particularly state of Haryana. This parameters are crucial indicators in assessing the mortality and morbidity rate of newborns. This is the reason that why this study has been taken for research.

**Objectives**

- To assess the skills regarding assessment of capillary refill time in newborn before and after demonstration among nursing students.
- To determine the association of levels of skills regarding capillary refill time with selected demographic variables.

**Material and Methods**

The research approach adopted for the study was Experimental with One group Pre-test and Post-test survey design. The present study was conducted on 80 B.SC (N) 3<sup>rd</sup> year students to assess the skills regarding assessment of capillary refill time among newborns in Ambala, Haryana. Setting was selected using convenience sampling and sample was selected by using purposive sampling technique. The tool developed and used for data collection was standardized observational checklist Section I: It comprised of items seeking information pertaining to demographic variables (Age Gender, class previous knowledge regarding assessment of capillary refilling time. Section II: It comprised of checklist regarding assessment of Capillary refill time. The maximum possible score on the checklist regarding Capillary refill time has 5, Minimum Score. The intra rater reliability was found to be 0.82.The tool was submitted to the seven experts for validation. Suggestions given by experts were duly made and final draft was prepared. The data obtained were analyzed using both descriptive and inferential Statistics.

**Results**

**Table 2:** Frequency, Percentage Distribution of level of skills of Demographic variables regarding assessment of capillary refill time in newborn.

S.no.	Levels Of Skills	Skills Score	Pre-testf %		Post-test 1f %		Post-test 2 f%	
1.1	Average	50% (<2)	64	80%	1	1.2%	14	17.5%
1.2	Good	51-75% (2-3)	15	18.7%	29	36.2%	51	63.7%
1.3	Very Good	>75% (>3)	01	1.2%	50	62.55	15	18.7%

Maximum score -5 Minimum score -0

**Table 3:** Range, mean, median and standard deviation of pretest and post test scores regarding assessment of Capillary refill time in newborn among nursing students

	Area	Range	Mean±S.D	Median
Pretest	Assessing capillary refill time	0-5	1.95±0.884	2.00
Post Test 1		2-5	4.55±0.654	5.00
Post Test 2		0-5	3.51±1.169	4.00

**Table 4:** Range, mean, mean difference, standard deviation difference, standard error of mean difference and t value of skills on regarding assessment of capillary refill time in newborn among nursing students

	Area	Mean	Mean Difference	Standard deviation Difference	Standard Error of Mean Difference	t value
Pre Test	Assessing capillary refill time	1.95		0.88	0.09	22.13*
Post Test 1		4.55	2.6	0.65	0.07	
Post Test 2		3.51	1.56	1.169	0.13	9.26*

t(79) = 1.645(\*) significant, (NS) not significant p≤0.05

**Table 1:** shows frequency and percentage distribution of demographic variables.

S.NO	Demographic Variables	f	%
1	<b>Age</b>		
	1.1) 18-20	13	16.3
	1.2) 20-23	65	81.3
	1.3) 23 and above	2	2.5
2	<b>Gender</b>		
	2.1) Male	15	18.8
	2.2) Female	65	3
3	<b>Class</b>		
	3.1) B.sc (N) 3 <sup>rd</sup> year	80	100
4	<b>Previous knowledge regarding assessing capillary refill time in neonates</b>		
	4.1) Yes	80	100
	4.2) No	00	00
4.1	<b>If yes, source of information</b>		
	4.1.1) demonstration	00	00
	4.1.2) seminar	00	00
	4.1.3) books	78	97.5
	4.1.4) internet and other sources	02	2.5
5	<b>Any experience during clinical posting</b>		
	5.1) yes	09	11.3
	5.2) No	71	88.8

Data presented in table 2 reveals that in pre-test majority of the students (80%) had average level of skills regarding assessment of capillary refill time in newborn care,(18.7%) had good level of skills and (1.2%) had very good level of skills whereas in post-test 1 only 1.2% students had average level of skills,(36.2%) had good level of skills and most of the students (62.55%) had very good level of skills whereas in post-test 2 majority of the students (63.7%) had good level of skills, followed by 18.7% students had very good level of skills and (17.5%) had average level of skills regarding Capillary refill time.

Data presented in table-3 revealed that in assessing capillary refill time the mean skill score of students in post-test 1 (4.55±0.654) was higher than the mean level of skills score of nursing students in post-test 2 (3.51±1.169) and pre-test (1.95±0.884) with the median 5,4 and 2.

Data presented in table-4 reveals that skill score of nursing students in post-test 1 regarding assessment of capillary refill time in newborn was 4.55 and the mean score of students in pre-test was 1.95 with a mean difference of 2.6. The computed “t” value of 22.13\* was found to be statistically significant at 0.05 level of significance. In post test 2 the skill score of Nursing students regarding assessment of capillary refill time in newborn was 3.51 and the mean score of students in pre-test was 1.95 with a mean difference of 1.56. The computed “t” value of 9.26\* was found to be statistically significant at 0.05 level of significance.

Computed chi square value of levels of skills of nursing students was not found to be statistically significant with demographic variables at 0.05 level of significance.

### **Discussion**

The present study findings indicates that the demonstration is an effective way of improving skills. Investigator didn't find the similar study in Indian and other settings.

### **Acknowledgement**

At very outset, I would like to thank almighty for his presence. My sincere thanks go to all the participants of my study. Lastly and most importantly I am grateful to everybody who was important to successful realization of thesis.

### **Ethical Consideration**

Ethical approval to conduct the study was obtained from Principal of M.M College of Nursing and Medical superintendent of MMIMS&R Hospital, Mullana Ambala. Written informed consent was obtained from the study subjects regarding their willingness to participate in the research project.

### **Conflict Of Interest**

There is no conflict of interest.

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