

# A Study to Evaluate the Effectiveness of Organized Teaching Practices on Knowledge Regarding Recent Trends in Care of Newborn Under Phototherapy Among Staff Nurses in Selected Neonatal Units in Hospitals: A Pre-Experimental Study

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**Abstract-** Neonatal care has made significant advances in the last few decades, as a result, mortality and morbidity has reduced significantly. Many of these advances have been facilitated or delivered through development of medical technologies allowing clinical teams to be better supported with the care they deliver or provide new therapies and diagnostics to improve management. Neonatal medicine relies heavily on advances in medical technology to optimise care and improve survival. Recent trends in neonatal intensive care unit, nursing personnel are critically ensuring comprehensive and holistic care for new-borns. By embracing the latest advancements in technology and care practices, Neonatal staff nurses can significantly improve new born outcomes, reducing complications and enhancing overall health for neonates in phototherapy. Minimizing mother-child separation, involving fathers, empowering parents from the time of birth. These trends also prioritize family-centered care, engaging and educating parents in the care process to improve long-term outcomes and reduce readmission rates. According to Indian academy of Pediatrics, the presence of jaundice means that the baby's body is producing bilirubin due to breaking down of red blood cells which is a normal phenomenon seen in up to 80–85% a common cause of readmission to the hospital after birth. Neonatal jaundice is usually a mild, transient, and self-limiting condition known as physiologic jaundice. The researcher finds that the care of newborn care under phototherapy is not only limited with the protection of eyes genitals, and hydrations. Beyond that there are numerous newborn care can be provided by the staff nurses of the nicu from head to toe like updating in the eye mask, nasal care while providing oxygen,

painless lancets, Transcutaneous bilirubin devices which estimate serum bilirubin noninvasively have been found to reduce the need for blood draws, Neosmile hydrogel which holds the probe in place for reliable vital readings, umbilical catheter line holder, secure port intravenous, fast-acting adhesive, commonly known for its role in superglue, intravenous dressing application by transparent dressing. Parental involvement, upcoming wireless monitoring and real time monitoring, all these recent trends in neonatal care empower NICU staff nurses with advanced tools and knowledge to deliver updated, high-quality care. These innovations contribute to improved outcomes and facilitate the early discharge of newborns. Objectives To assess the effectiveness of organized teaching practices on knowledge regarding recent trends in care of newborn under Phototherapy among staff nurses in the selected neonatal units in hospitals. To assess the pre-test level of knowledge regarding recent trends in care of newborn. under Phototherapy among staff nurses in the selected neonatal units in hospitals. To assess the post-test level of knowledge regarding recent trends in care of newborn under Phototherapy among staff nurses in the neonatal units in hospitals. To evaluate the effectiveness of organized planned teaching practices on knowledge regarding recent trends in care of newborn under Phototherapy among staff nurses in the selected neonatal units in hospitals. To associate the level of post-test knowledge regarding recent trends in care of newborn under Phototherapy among staff nurses in the selected neonatal units in hospitals, with selected demographic variables. Result Teaching practice on recent trends in new born under phototherapy. The analysis of pre-test

and post-test scores indicates a significant improvement in knowledge levels among participants following the intervention or training. The mean knowledge score increased from 11.65 (pre-test) to 25.20 (post-test), demonstrating a substantial enhancement. Additionally, the lower standard deviation in the post-test scores ( $\pm 2.729$ ) compared to the pre-test scores ( $\pm 4.237$ ) suggests that participants' knowledge levels became more consistent after the intervention conclusion. Overall, the data reflects that most individuals achieved higher scores in the post-test, indicating the effectiveness of the intervention in improving knowledge levels among the participants. score to their demographic variables and there pre-test score, post-test score, effectiveness of organized teaching practices on knowledge regarding recent trends in care of new born under phototherapy among staff nurses in the selected neonatal units in hospitals organized with selected demographic variables, analysis and interpretation results given by the investigator.

**Key words.:** Organized Teaching Practices, Knowledge, Recent Trends, Care of Newborn Phototherapy, Staff Nurses, Neonatal Units

## INTRODUCTION

The WHO offers comprehensive guidelines on maternal and new-born care to ensure a positive postnatal experience. Their recommendations cover essential new-born care, Nurses and midwives play important role in managing newborn jaundice which includes immediate care at birth, thermal care, resuscitation when needed, support for breast milk feeding, nurturing care, infection prevention, assessment of health problems, recognition and response to danger signs, and timely and safe referral when needed. A new-born, also known as a neonate, is typically defined as a baby from birth to four weeks old. During this time, the new-born goes through several significant changes as they adapt to life outside the womb. This period is crucial for bonding with caregivers and establishing early feeding routines. Recent trends in neonatal intensive care unit, nursing personnel are critically ensuring comprehensive and holistic care for new- borns. By embracing the latest advancements in technology and care practices, Neonatal staff nurses can significantly improve new born outcomes, reducing complications and enhancing

overall health for neonates in phototherapy. Minimizing mother-child separation, involving fathers, empowering parents from the time of birth. These trends also prioritize family-centered care, engaging and educating parents in the care process to improve long-term outcomes and reduce readmission rates. Innovations in healthcare processes streamline operations, optimize resource utilization, and contribute to cost-effective care. Moreover, the focus on quality and safety ensures ongoing improvement and the well-being of newborns. Recent trends emphasize addressing not only physical health but also the emotional, psychological, and social well-being of neonates, providing complete care from head to toe using new, painless, harmless equipment, delivering high quality care and improving patient outcomes. This comprehensive approach creates a more positive and meaningful healthcare experience for nicu nurses, babies and their families, ensuring the best possible outcomes for the tiniest newborns. Phototherapy, it's non-invasive in nature and have fewer side effects as reported until now as a treatment modality has become the backbone of unconjugated Hyperbilirubinemia in the neonate. The health personnel, staff nurses have the main role to protect the new-born from the adverse effects and ensure the effectiveness of the phototherapy. Recent baby care trends include sustainable products, digital health monitoring, personalized nutrition, mindfulness, and community-focused parenting, nicu nurses have to take care in eye shielding during the phototherapy, protecting the genitals, fluid maintenance, regular monitoring of temperature, checking of serum bilirubin, weight, and other adverse such as loose green stools, lethargy, dehydration, hypocalcaemia Embracing technological innovations in nursing is not just about staying current, it's about transforming newborn care and nursing practices for the better. The researcher finds that the care of newborn care under phototherapy is not only limited with the protection of eyes genitals, and hydrations. Beyond that there are numerous newborn care can be provided by the staff nurses of the nicu from head to toe like updating in the eye mask, nasal care while providing oxygen, painless lancets, Transcutaneous bilirubin devices which estimate serum bilirubin noninvasively have been found to reduce the need for blood draws, Neosmile hydrogel which holds the probe in place for reliable vital readings, umbilical

catheter line holder, secure port intravenous, fast-acting adhesive, commonly known for its role in superglue, intravenous dressing application by transparent dressing. Parenteral involvement, upcoming wireless monitoring and real time monitoring, all these recent trends in neonatal care empower NICU staff nurses with advanced tools and knowledge to deliver updated, high-quality care. These innovations contribute to improved outcomes and facilitate the early discharge of newborns.

### OBJECTIVES OF THE STUDY

#### PRIMARY OBJECTIVES:

1. To assess the effectiveness of organized teaching practices on knowledge regarding recent trends in care of newborn under Phototherapy among staff nurses in the selected neonatal units in hospitals.

#### SECONDARY OBJECTIVES:

1. To assess the pre-test level of knowledge regarding recent trends in care of newborn under Phototherapy among staff nurses in the selected neonatal units in hospitals.
2. To assess the post-test level of knowledge regarding recent trends in care of newborn under Phototherapy among staff nurses in the neonatal units in hospitals.
3. To evaluate the effectiveness of organized planned teaching practices on knowledge regarding recent trends in care of newborn under Phototherapy among staff nurses in the selected neonatal units in hospitals.
4. To associate the level of post-test knowledge regarding recent trends in care of newborn under

Phototherapy among staff nurses in the selected neonatal units in hospitals, with selected demographic variables.

### MATERIALS AND METHOD

In this study quantitative research approach is used the research design selected for the present study was a pre -experimental one group pre-test post-test. the research design selected for the present study was one group pre- test, post -test design. The study design is depicted as under. The present study was conducted in the various hospitals across the city where NICU setups were available after obtaining permission from the concerned authorities. This study was conducted in selected locality in Maharashtra. Rationale for selecting this area was easy transport, familiarity with the setting, administrative approval, cooperation and availability of the subjects. The population in the study is the staff nurses in the selected neonatal units in hospitals. In this study sample size consists of 60 staff nurses in the selected neonatal units in hospitals selected hospital of the city which was based on non-probability convenient sampling. The investigator constructed this tool to collect the background data of the study subjects and to identify the influence of sample characteristics with their level of knowledge. The structured questionnaire consisted of 30 questions on knowledge regarding recent trends in care of newborn under phototherapy.

**STATISTICAL ANALYSIS:** The data was analyzed by descriptive and inferential statistics. Demographic data was analyzed using frequency and percentage, data. The association and demographic variables were analyzed by using t test and chi square test.

### RESULT

Section -Description of distribution of staff nurses with regards to demographic variables.

Table .1: -Descriptive Statistics (Demographic Variables age)

Demographic variables		Frequency	Percent
1. Age	20-30 years	43	71.7
	31-40 years	11	18.3
	41-50 years	5	8.3
	Above 50	1	1.7
	Total	60	100.0
2. Gender	Male	4	6.7
	Female	56	93.3

	Total	60	100.0
3. Educational qualification	MSc nursing	5	8.3
	B.Sc./PCBSc nursing	14	23.3
	RGNM/GNM nursing	34	56.7
	ANM nursing	7	11.7
	Total	60	100.0
4. Nursing training programme	Private	48	80.0
	Government	12	20.0
	Total	60	100.0
5. Total experience in clinical area	1 to 2	19	31.7
	3 to 4	11	18.3
	4 to 5	8	13.3
	More than 5	22	36.7
	Total	60	100.0
6. Experience in NICU	Less than 1	35	58.3
	Between 1-2	13	21.7
	Between 3-4	5	8.3
	More than 5	7	11.7
	Total	60	100.0
7. Current Designation	Nurse in charge	5	8.3
	Team leader	4	6.7
	Sr. Staff nurse	11	18.3
	Staff nurse	40	66.7
	Total	60	100.0

Section -II Description of assessment of level of pre-test and post-test knowledge regarding recent trends in care of newborn under phototherapy among staff nurses in the selected neonatal units in hospitals.

This section deals with the assessment of level of knowledge regarding recent trends in care of new born under phototherapy among staff nurses. The level of knowledge score is divided under following heading of poor, average, good.

Table No. .2: Table showing assessment of the level of pre-test score regarding recent trends in care of new born under phototherapy among staff nurses in selected neonatal units in hospitals.

n=60

Knowledge Score(PRE)	Score Range	Level of Knowledge Score	
		Frequency (f)	Percentage (%)
Low Score	0 to 50%	13	21.7
Average Score	51% to 75%	34	56.6
Good Score	76% to 100%	13	21.7
Minimum Score		3	
Maximum Score		20	
Mean Knowledge Score		11.65± 4.237	
Mean% knowledge score		58.25± 21.19	

Table No..3: Table showing assessment of the level of post-test score regarding recent trends in care of new born under phototherapy among staff nurses in selected neonatal units in hospitals.

n=60

Knowledge Score(POST)	Score Range	Level of Knowledge Score	
		Frequency (f)	Percentage (%)
Low Score	0 to 50%	4	6.7
Average Score	51% to 75%	26	43.3
Good Score	76% to 100%	30	50
Minimum Score		18	
Maximum Score		30	
Mean Knowledge Score		25.20± 2.729	
Mean% knowledge score		84 %	

Section –III Description of assessment of assessment effectiveness of self-instructional module on knowledge regarding recent trends in care of newborn under phototherapy among staff nurses in the selected neonatal units in hospitals.

This section deals with the effectiveness of Self-Instructional Module on knowledge regarding recent trends in care of new born under phototherapy among staff nurses. The hypothesis will be tested statistically with distribution of pre-test and post-test mean and standard deviation and mean percentage of knowledge score. The levels of knowledge during the pre-test and post-test are compared to prove the effectiveness of Self- Instructional Module. Students paired "t" tests are used to determine the significance of the difference at the 5% level of significance, and the tabulated and computed "t" values are compared. Additionally, the computed "p" values are compared with the acceptable "p" value, which is 0.05.

Table IV. 4: - Comparative assessment of Knowledge (pre vs post) using paired t-test

		Mean	Std. Deviation	Std. Error Mean	df	T-test	P-value
Knowledge	Pre	11.6500	4.23794	0.54712	59	-22.404	<0.01 S,p<0.05
	Post	25.2000	2.72962	0.35239			

#### Section IV

Description of association of post-test knowledge score regarding recent trends in care of newborn under phototherapy among staff nurses in the selected neonatal units in hospitals with their selected demographic variables.

Table 5:- Comparative assessment of Knowledge category vs Age using Chi- Square Analysis.

n=60

			Knowledge Category			Total	Chi Sq.	P-value
			Poor	Average	Good			
Age	20-30 years	Frequency	3	19	21	43	3.261	0.775 NS,p>0.05
	31-40 years	Frequency	0	5	6	11		
	41-50 years	Frequency	1	2	2	5		
	Above 50	Frequency	0	0	1	1		
Total		Frequency	4	26	30	60		

Table .6:- Comparative assessment of Knowledge category vs Gender using Chi- Square Analysis.

n=60

			Knowledge Category			Total	Chi Sq.	P-value
			Poor	Average	Good			
Gender	Male	Frequency	0	3	1	4	1.813	0.404
	Female	Frequency	4	23	29	56		
Total		Frequency	4	26	30	60		NS,p>0.05

Table .7:- Comparative assessment of Knowledge category vs Educational qualification using Chi- Square Analysis

			Knowledge Category			Total	Chi Sq	P value
			Poor	Average	Good			
Education Qualification	MSc nursing	Frequency	0	2	3	5	18.001	0.006 S,p<0.05
	B.Sc./ PBBS nursing	Frequency	0	5	9	14		
	RGNM/GNM nursing	Frequency	1	17	16	34		
		Percent	25.0	65.4	53.3	56.7		
	ANM nursing	Frequency	3	2	2	7		
		Percent	75.0	7.7	6.7	11.7		
Total		Frequency	4	26	30	60		

Table .8 :- Comparative assessment of Knowledge category vs nursing training programme using Chi- Square Analysis.

			Knowledge Category			Total	Chi Sq	P-value
			Poor	Average	Good			
Nursing training programme	Private	Frequency	3	22	23	48	0.735	NS,p>0.05
	Government	Frequency	1	4	7	12		
Total		Frequency	4	26	30	60	0.617	

Table .9:-Comparative assessment of Knowledge category vs Total experience in clinical area using Chi- Square Analysis.

n=60

			Knowledge Category			Total	Chi Sq.	P-value
			Poor	Average	Good			
Total experience in clinical area	1 to 2	Frequency	2	8	9	19	3.044	0.803 NS,p>0.05
	3 to 4	Frequency	1	4	6	11		
	4 to 5	Frequency	1	4	3	8		
	More than 5	Frequency	0	10	12	22		
Total		Frequency	4	26	30	60		

Table . 10: - Comparative assessment of Knowledge category vs Total experience in NICU using Chi- Square Analysis.

n=60

			Knowledge Category			Total	Chi Sq	P-value
			Poor	Average	Good			
Experience in NICU	Less than 1	Frequency	1	14	20	35	8.738	0.189
	Between1-2	Frequency	3	6	4	13		
	Between3-4	Frequency	0	3	2	5		
	More than 5	Frequency	0	3	4	7		
Total		Frequency	4	26	30	60		NS,p>0.05

Table 11: - Comparative assessment of Knowledge category vs current designation using Chi- Square Analysis.

n=60

			Knowledge Category			Total	Chi Sq.	P-value
			Poor	Average	Good			
	Nurse in charge	Frequency	0	0	5	5		
	Team leader	Frequency	0	3	1	4		

Current Designation	Sr. Staff nurse	Frequency	1	55	11	6.963	0.324 NS,p>0.05
	Staff nurse	Frequency	3	18	19		
Total		Frequency	426	30	60		

### CONCLUSION

Teaching practice on recent trends in new born under phototherapy. The analysis of pre-test and post-test scores indicates a significant improvement in knowledge levels among participants following the intervention or training. The mean knowledge score increased from 11.65 (pre-test) to 25.20 (post-test), demonstrating a substantial enhancement. Additionally, the lower standard deviation in the post-test scores ( $\pm 2.729$ ) compared to the pre-test scores ( $\pm 4.237$ ) suggests that participants' knowledge levels became more consistent after the intervention. Overall, the data reflects that most individuals achieved higher scores in the post-test, indicating the effectiveness of the intervention in improving knowledge levels among the participants. score to their demographic variables and there pre-test score, post-test score, effectiveness of organized teaching practices on knowledge regarding recent trends in care of new born under phototherapy among staff nurses in the selected neonatal units in hospitals organized with selected demographic variables, analysis and interpretation results given by the investigator. The findings presents that nurses has to acquire more knowledge on care of newborns undergoing. Phototherapy in order to prevent the ill effects from faulty practices of delivering phototherapy. The majority of the staff nurses had inadequate knowledge regarding the phototherapy and its care.

### DISCUSSION

The finding of the present study was discussed with the finding of the other studies in this section. A research study conducted transforming neonatal nursing in India challenges, opportunities, and the way forward. Neonatal care is essential for newborns, particularly critically ill, or need specialized medical attention. Neonatal nurses significantly impact the survival and health outcomes of vulnerable newborns through advanced skills and timely decision-making. Studies indicate that higher neonatal nurse staffing levels are associated with reduced neonatal and perinatal mortality rates. Despite technological and evidence-

based practices advancements, neonatal care challenges persist. Global health goals like Sustainable development target 3.2, aim to lower neonatal mortality to below 12 per 1000 live births by 2030, yet India's neonatal mortality rate is high at 21.7 per 1000 live births. Achieving these targets requires strengthening medical infrastructure and the specialized neonatal nursing workforce. Neonatal nursing education is critical for improving neonatal outcomes worldwide. While high-income countries have established specialized training programs, India's neonatal nursing education system faces gaps that affect training quality, particularly in underserved areas. While strengthening education and training is crucial, introducing specialized roles like NNP is equally important to address workforce shortages. The findings significantly contribute to NICU management, critical care, and leadership roles within healthcare institutions, clearly defined outcomes, such as improved NICU care quality, to assess effectiveness and adjust training needs. A research study conducted Non Probability purposive sampling technique was used in this study. Assessment of Knowledge Regarding Care of Newborns Undergoing Phototherapy among Staff Nurses, Thrissur. The aim of the study to assess the knowledge regarding care of newborns undergoing phototherapy among staff nurses by using a non-experimental descriptive survey design with the help of a self-structured questionnaire which contains 30 items of questions. The results showed that, out of 30 samples, 70% have moderate knowledge, 30% have inadequate level of knowledge and unfortunately, no one has adequate knowledge regarding phototherapy and there is no significant association with level of knowledge and selected demographic variables like age, educational qualification, professional experience and so on ( $p > 0.05$ ).

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