

Original Research Article

# A Study to Assess the Effectiveness of Structured Teaching Program on Knowledge and Practice Regarding Phototherapy Application among 3<sup>rd</sup> year R.G.N.M. Nursing Students at School of Nursing, Krishna Hospital, Karad

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## ABSTRACT

Neonates with hyperbilirubinemia can be best treated with phototherapy in the Neonatal Intensive Care Unit. The student nurse must have adequate knowledge and skill to manage the neonates with hyperbilirubinemia as they are future nurses. Thus the neonates with hyperbilirubinemia can be managed with phototherapy accurately. It can also enhance the quality of life for neonates with hyperbilirubinemia.

The study was conducted to assess the knowledge and practices of 3<sup>rd</sup> year R.G.N.M. nursing students on phototherapy application for neonates before and after planned teaching programme.

## OBJECTIVE

- 1) To assess the existing knowledge and practices of 3<sup>rd</sup> year RGNM Nursing students regarding phototherapy application.
- 2) To assess the knowledge and practices of 3<sup>rd</sup> year R.G.N.M. Nursing Students regarding phototherapy application after the administration of structured teaching programme with demonstration of phototherapy application.
- 3) To co-relate the pre test knowledge and practices score with demographic variables of the 3<sup>RD</sup> year R.G.N.M. Nursing Students regarding phototherapy application.

**Research Methodology:** Purposive sampling technique used to select 50 samples. A structured knowledge questionnaire was administered to assess knowledge and practices of 3<sup>RD</sup> year R.G.N.M. students regarding the application of phototherapy and then structured teaching programme was administered. After 7 days of teaching programme, post test was conducted to assess the effectiveness of structured teaching programme.

**Results:** Majority samples belong to 20- 21years age i.e. of 28%, majority of samples are Hindu i.e.35%. Majority of samples were female i.e. 41%. In pre test majority 12% samples had poor knowledge, 86% had average knowledge and 2% had good knowledge. Where as in post test 100% had good knowledge. Pre test mean value was 13.3 and Post test mean value was 22.7 and there was no association between pretest knowledge score and demographic variables. Study concludes that, there was significant gain in knowledge score after structured teaching programme of 3<sup>rd</sup> year R.G.N.M. nursing students and need for organizing such teaching interventions.

**Key words:** 3<sup>rd</sup> year R.G.N.M., structured teaching programme, knowledge, practices, phototherapy.

## INTRODUCTION

Neonatal jaundice is a common physiological occurrence in newborns with

over half of term and 80% of preterm neonates showing clinical signs including yellow discoloration of the skin and sclera

resulting from high serum levels of bilirubin. [1] About 75% of all neonates referring to hospital during the first postnatal week suffer from jaundice. [2]

If not managed properly, it can progress to severe neonatal hyperbilirubinemia (SNNJ) leading to death or permanent disability. More importantly is the neurotoxicity (acute bilirubin encephalopathy) or death in newborns and lifelong neurologic sequel in infants who survive (kernicterus) from excessive rise of unconjugated bilirubin. [3]

Phototherapy is used to prevent the concentration of unconjugated bilirubin in the blood from reaching the levels where neuro-toxicity may occur. High intensity light photo chemically converts fat soluble unconjugated bilirubin in to water soluble bilirubin that can be excreted in bile and urine. Accurate charting is another important nursing responsibility it includes times that phototherapy is started and stopped, proper shielding of the eyes, types of fluorescent lamps number of lamps , distance between surface of lamps and infant , use of phototherapy in combination with incubator or open bassinet , photometer measurement of light intensity, occurrence of side-effects. [4]

WHO reveals the source of incidence of hyperbilirubinemia is 50 to 60,000 neonates reported. 2% has total serum bilirubin level over 20 mg/dl; the total serum bilirubin level in normal range is 0.3 to 1 mg/dl. 0.15% had levels over 25mg/dl & 0.01% had over 30mg/dl. Each year in India over 1 million newborn dies before they complete their first month of life, accounting for 30% of the world's neonatal death. [5]

It is known that missed diagnosis of jaundice, trivializing all cases of neonatal jaundice, poor monitoring, and prescriptions of wrong and ineffective medications for jaundice has been found responsible for the persistence of acute bilirubin encephalopathy and cerebral palsy in the sub region. Among the babies who presented late with acute bilirubin

encephalopathy in a teaching hospital, about 80% were seen by at least a health worker 24 hr. before the brain damage and were given ineffective prescription, wrong counsel and reassurance. [6]

A study conducted by Chinnasamy Azhagesan (2017) to assess effectiveness of video assisted teaching programme on knowledge regarding phototherapy for neonatal jaundice among 30 3<sup>rd</sup> Year B.Sc. nursing students. Data was collected by using structure questionnaire before and after video teaching programme the data was interested using descriptive and inferential statistics. The result shows that video teaching effective as the knowledge score shows improvement from 'Inadequate' (76.6%) to 'adequate' (23.4%) from pretest to posttest respectively. There was a significant difference found between pretest and post test knowledge, at p <0.05 level. A significant association found between knowledge and demographic variables like age, sex, previous experience. [7]

Newly staff nursing members who provide care for newborns with hyperbilirubinemia in neonatal intensive care units should be well oriented with each standardized international nursing care protocols to ensure competent nursing care. [8]

## RESEARCH METHODOLOGY

The present study is aimed at assessing the existing knowledge and practices of 3rd year RGNM Nursing students regarding phototherapy application. In order to accomplish the objectives of the study, a evaluative approach & quasi-experimental research design was adopted. The study conducted at School of Nursing, Krishna Hospital, Karad, Maharashtra state, India after availing permission of authority. In this study total 50 RGNM students selected by purposive sampling method, who were willing to participate in the study. A Structured questionnaire was used to collect the data, it consists of two sections. Section A consists, demographic variables,

such as age, sex, religion, basic education, diet etc. Section B consist, structured questionnaire on knowledge and practice regarding phototherapy application. Total questions and score was 25. Interpretation - 0-8 (Poor Score), 9-16 (Average score), 17-25 (Good score). Pretest was conducted on 17-02-2016 to assess knowledge of 3<sup>rd</sup> year R.G.N.M students. Structured teaching program was administered at end of pretest. The post test was conducted after 7 days using the same structured knowledge questionnaire on application of phototherapy. Data collected, tabulated and analyzed in term of objective of study using descriptive and inferential statistics. 1. Paired t test and computation of p value to test the effectiveness of STP. 2. Chi-square was used to find the association between pretest knowledge and selected variables.

## RESULTS

The investigator collected the data for analysis and interpretation using a structured questionnaire. In order to examine the proposed association the data were tabulated, analyzed and interpreted using descriptive and inferential statistics.

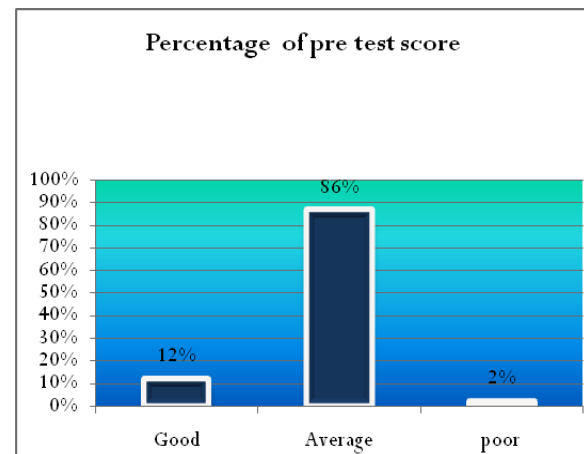
**Table No.1: Demographic data of the Samples (N = 50)**

	Demographic data	Frequency (F)	Percentage (%)
<b>1</b>	<b>AGE ( YEAR)</b>		
a	Below 20 year	5	10%
b	20 to 21 year	28	56%
c	22 to 23 year	14	14%
d	23 & above	3	6%
<b>2</b>	<b>Sex</b>		
a	Male	9	18%
b	Female	41	82%
<b>3</b>	<b>NATIVE PLACE</b>		
A	Urban	21	42%
B	Rural	29	58%
<b>4</b>	<b>RELIGION</b>		
a	Hindu	35	70%
b	Muslim	4	8%
c	Christian	4	8%
d	Other	7	14%
<b>5</b>	<b>BASIC EDUCATION</b>		
a	Science	24	48%
b	Commerce	11	22%
c	Arts	15	30%
<b>6</b>	<b>DIET</b>		
a	Vegetarian	3	6%
b	Mix	47	94%

Above data shows that most of the samples are 56 % from age group of 20-21 year and minimum sample are 6% from 23 year and above age. Above data shows that most of the sample is 82% of female & minimum are 18% are male, it's because of according to Indian Nursing Council. Above data shows that most of the sample shows that most of the people are 58% from urban place and minimum 42 % are from rural place. Above data shows that most of the sample belongs to Hindu religion are 78% and minimum from Muslim, Christian are 8%. Above data shows that most of the samples belong to science is 48% and minimum sample from commerce is 22%. Above data shows that most of the samples are used mixed diet is 94 % and only 6% sample are vegetarian.

**Table No.2: Pre test knowledge and practice score of samples(N = 50)**

PRE TEST		
Knowledge scale	Frequency (N)	Percentage (%)
0-8 (poor)	1	2%
9-16(average )	43	86%
17 %above (good )	6	12%



**Fig.1: Percentage of pre test knowledge and practice score of samples**

In pretest there was only 12% samples had good score and 85% of sample had average score and only 2% of samples had poor score.

**Table No.3: Post test knowledge and practice score of samples (N = 50)**

POST TEST		
Knowledge Scale	Frequency (n)	Percentage (%)
0-8 ( poor )	0	0%
9-16 (average )	0	0%
17 %above ( good )	50	100%

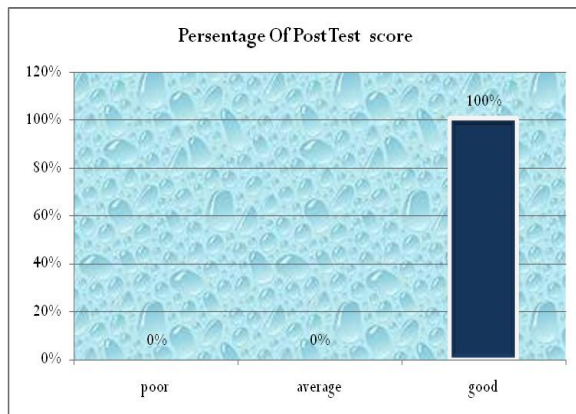


Fig.2: Percentage of post test knowledge and practice score of samples

Table No.4: Pre test & post test knowledge and practice score of samples(N = 50)

PRE TEST			POST TEST		
KNOWLEGDE SCALE	FREQUENCY (N)	PERCENTAGE (%)	KNOWLAGDE SCALE	FREQUENCY (N)	PERCENTAGE (%)
0-8( poor)	1	2%	0-8( poor)	0	0%
9-16 (average)	43	86%	9-16 (average)	0	0%
Above 17 ( good)	6	12%	Above 17 ( good)	50	100%

In pretest, only 12% sample had good knowledge score and in post test 100% sample had good score. In pre test 86% of samples had average knowledge score while in post test no sample seen in average knowledge score. In pre test there was, 2% samples had poor knowledge score and in post test there was no sample seen in poor knowledge score.

Table No.5: Pre test and post test mean, median, and SD(N = 50)

PRETEST	RESULT	POST TEST	RESULT
Mean	13.2	Mean	22.7
Median	15	Median	23
SD	2.7	SD	1.7
P value	0.0321	P value	<0.0001

Above table shows that Pretest, mean of data is 13.2, median is 15 and standard deviation is 2.7 and P value of data is 0.0321. Post test mean of data is 22.7; median is 23. The standard deviation is 1.7. Post test mean is higher than pretest mean. P value of data is <0.0001.

Table No.6: Effectiveness of structured teaching program(N = 50)

PRE TEST		POST TEST		't' Test	'P' VALUE
MEAN	SD	MEAN	SD		
13.2	2.7	22.7	1.7	28.262	<0.0001

In post test all sample had good score of knowledge, there was no any sample had poor and average score.

Comparison of pre test knowledge and practices score with post test knowledge & practices score

The data presented in table shows that there was significant increase in post test knowledge score. The gain in knowledge score is significant ( $t = 28.262$ ), calculated value is higher than, table value therefore; findings revealed that structured teaching programme on application of phototherapy was highly effective for 3<sup>rd</sup> year R.G.N.M. Student.

## DISCUSSION & SUMMARY

The present study is focused on the "A Study to assess the effectiveness of structured teaching program on knowledge and practices regarding phototherapy application among 3<sup>rd</sup> year R.G.N.M. Nursing students at School Of Nursing, Krishna Hospital, Karad. The finding of study where discussed as follows:

The result shows that the major findings of the study were the data on the sample characteristics revealed that, classifications of samples by age, religion, gender, basic education, diet pattern. Most of the samples from age are 56 % from age group of 20-21 year and minimum sample are 6% from 23 and above age. Most of the samples are female were 82% & minimum and 18% were male, it's because of admission criteria of Indian Nursing

council, Delhi. Most of the sample are from urban area i.e. 58% and minimum 42 % are from rural area. Most of the sample belongs to Hindu religion are 78% and minimum samples are Muslim, Christian i.e. 8%. Most of samples had basic education is science i.e. 48% and minimum sample from commerce i.e. 22%. Most of the sample consuming mixed diet i.e. 94 % and only 6% sample were vegetarian.

In pre test 12% had poor knowledge, majority i.e.86% had average knowledge & few sample had i.e. 2 % good knowledge, where as in post test 100 % had good knowledge. Pretest mean value is 13.3 where as post test value increase up to 22.7.

The present study shows that there was significant increase in post score. The gain in knowledge score is significant ( $t = 28.262$ ). As calculated value is higher than, table value, so research hypothesis was accepted. Therefore findings revealed that plan teaching with demonstration on application of phototherapy was highly effective for 3<sup>rd</sup> year R.G.N.M. Student.

Present study findings were supported by study conducted by Tejas Pandya, one group Pre-test Post-test design to evaluate the effectiveness of the planned teaching program on care of the neonate under phototherapy, on 60 diploma internship nursing students at Gujarat state, result shows, pre-test knowledge mean score was 15.18 (51.93%) and post-test mean score was 25.71(85.72%) and t-test value was 29.81 at the significance level 0.05 level df value was 59. Study concludes the planned teaching program was effective to improve knowledge of students. <sup>[9]</sup>

## CONCLUSION

The study concluded that the planned teaching program with reference to phototherapy technique was an effective method for providing adequate knowledge student to enhance their knowledge on application of phototherapy.

## NURSING IMPLICATION

The findings of study have varied implication in different areas of nursing practice, nursing administration, nursing education and nursing research.

### 1] Nursing Practice:

This study is conducted among nursing student to assess the level of knowledge regarding application of phototherapy. This study can utilized by practicing student to educate and help others and give the knowledge about the phototherapy.

### 2] Nursing Education:

Nursing educator has an opportunity to educate the students regarding the phototherapy.

### 3] Nursing Research:

There is growing need for furnishing nursing research in all the areas of care. The nurse researcher especially beginners need to enhance their quest for knowledge. The nurse researcher may effectively use result of available student and recommended on the importance of application of phototherapy.

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