"A STUDY TO ASSESS THE EFFECTIVENESS OF INFORMATION BOOKLET ON KNOWLEDGE REGARDING NOVEL APPROACHES, GUIDELINES TO SURFACTANT THERAPY AMONG STAFF NURSES WORKING IN NICU IN SELECTED HOSPITALS AT KANPUR, UTTAR PRADESH."

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Abstract:

In the mid-1950s, Pattle and others described a thin layer of material lining the alveolar surface of the lungs, this material was capable of reducing surface tension to a low level during the respiratory cycle. A study to assess the effectiveness of Information Booklet on knowledge regarding Novel Approaches Guidelines to Surfactant Therapy among Staff Nurses Working in NICU in selected hospitals at Kanpur, Uttar Pradesh. 60 sample collected by using Non-Probability Convenient Sampling Technique through self-structured knowledge questionnaire the data collected and analysed on descriptive and inferential statistics. The result of the study showed that post-test mean score (28.3) was high when compared to the pre-test mean score was (17.43). The obtained "t" value 15.13 was greater than value & df 59 which was p>0.05 level of significant differences between pre-test and post-test level of knowledge hence the formulated research Hypothesis H1 was accepted. The test revealed that there was no significant association of knowledge with selected demographic variables such as Age, Gender, Religion, Education qualification, Monthly income, Previous knowledge, so there were significant with association with shift duty, working experience and source of information, but there was no significant with other selected demographic variables, were found non-significant at<0.05 level of significance. The study concluded that Information Booklet was effective and improved knowledge regarding Novel Approaches Guidelines to Surfactant Therapy among Staff Nurses Working in NICU.

Keywords: Novel Approaches Guidelines to Surfactant Therapy, NICU Staff Nurses.

1. Introduction

The complex mixture of proteins and lipids known as pulmonary surfactant is produced by type II alveolar pneumocytes. About 90% of pulmonary surfactant is composed of phospholipids, of which phosphatidylcholine makes up nearly 80%, phosphatidylglycerol 10%, and small amounts of other phospholipids and neutral lipids, such as cholesterol, make up the remaining 10%. Di-palmatoyl phosphatidylcholine is the main surface-active component of surfactants (DPPC). It makes up 80% of the phospholipids and 60% of the surfactant by weight.[1]

Pattle and colleagues reported in the middle of the 1950s that there was a thin coating on the lungs' alveolar surface that could lower surface tension to a minimal level while the respiratory cycle was in progress.[2]

Avery and Mead published a groundbreaking study in 1959 proving that a deficiency of surfactant was the cause of hyaline membrane disease (HMD).[3]

2. Need for the study:

The majority of infants admitted to the neonatal intensive care unit are moderately and late preterm. Pneumothorax and respiratory distress syndrome significantly increase the morbidity of those newborns. RDS and pneumothorax were observed in up to 14% and 2.5% of all late preterm infants admitted to Canadian NICUs, respectively. It is well known that even when used briefly, invasive mechanical ventilation (MV) can aggravate or even cause preexisting lung injuries. There is mounting evidence to suggest that improving respiratory outcomes for all preterm infants involves avoiding mechanical ventilation. Selective surfactant administration is now acknowledged as a suitable option for managing RDS following an initial period of nasal continuous positive airway pressure.[4]

An alternative that has been tried and seems to have the ability to lower the frequency of exposure to mechanical ventilation is minimally invasive surfactant therapy. Following MIST, end expiratory lung volume improves and is linked to an increase in oxygenation.[5]

The standard of care for preterm neonates with RDS is surfactant treatment. It has been demonstrated that surfactant therapy reduces pneumothorax and increases newborn and infant survival.[6]

3. Problem Statement:

"A study to assess the effectiveness of Information Booklet on knowledge regarding novel approaches, guidelines to surfactant therapy among Staff Nurses working in NICU in selected hospitals at Kanpur, Uttar Pradesh."

4. Objectives

1. To assess the level of knowledge regarding novel approaches, guidelines to surfactant therapy among Staff Nurses working in NICU in selected Hospitals at Kanpur, Uttar Pradesh.
2. To evaluate the effectiveness of Information booklet on knowledge regarding novel approaches, guidelines to surfactant therapy among Staff Nurses working in NICU in selected Hospitals at Kanpur, Uttar Pradesh.
3. To find out the association between the pretest level of knowledge regarding novel approaches, guidelines to surfactant therapy among Staff Nurses working in NICU with their selected socio demographic variables.

5. Hypothesis:

Ho$_1$: There is no significant difference between pretest and posttest level of knowledge score among Staff Nurses working in NICU regarding novel approaches, guidelines to surfactant therapy.

Ho$_2$: There is no significant association between pretest knowledge score regarding novel approaches guidelines to surfactant therapy among Staff Nurses working in NICU with their selected socio-demographic variables.

H$_1$: There is a significant difference between the pretest and posttest level of knowledge score among Staff Nurses working in NICU regarding novel approaches, guidelines to surfactant therapy.

H$_2$: There is a significant association between the pretest knowledge score regarding novel approaches, guidelines to surfactant therapy with their selected socio demographic variables.

6. Methods and Materials:

Research approach:

For the study, A Quantitative evaluative research approach chosen for the study.

Research design:

Research design Quasi-Experimental, one group pre-test and post-test research design.

VARIABLES:

Independent Variable:

In the present study, independent variable is informational booklet on Knowledge regarding novel approaches, guidelines to surfactant therapy.

Dependent Variable:

In the present study, dependent variable is level of Knowledge regarding novel approaches, guidelines to surfactant therapy among Staff Nurses working in NICU.

Demographic Variable:

Here in this study, the demographic Age, Gender, Religion, Shift duty, Education qualification, Working experience, Monthly income, Previous knowledge, Source of information regarding novel approaches, guidelines to surfactant therapy

POPULATION:

The population of present study was Staff Nurses at Kanpur, Uttar Pradesh.

Target Population:

The target population of present study was Staff Nurses working in NICU at Kanpur, Uttar Pradesh.

Accessible Population:

Accessible population of present study was Staff Nurses working in NICU in Shyam Children and Maternity centre,New Lakhanpur Hospital, New GT Nursing Home,Shri Ganesh Multi Speciality Hospitalat Kanpur, Uttar Pradesh.

SAMPLE:

The sample used for this study was Staff Nurses working in NICU who are meeting the inclusion criteria.

SIZE:

The sample size of this study consisted of 60 Staff Nurses working in NICU.

SAMPLING TECHNIQUE:

In this study Non-Probability Convenience sampling technique was used to select the sample.

Inclusion Criteria:

The study includes the Staff Nurses who are working in NICU

1. Who understand the English.

2. Who are willing to participate in this study

Exclusion Criteria:

1.The staff nurses who are not available at the time of data collection.

2. ANM Staff Nurses not be included.

7.Methods of data collection

Assessment of knowledge regarding novel approaches guidelines to surfactant therapy

Development Of Research Tool:

On the basis of development framework to achieve the objectives of the study, A Self-structured knowledge questionnaire was prepared to assess the level of knowledge regarding novel approaches, guidelines to surfactant therapy at selected Hospital in Kanpur, Uttar Pradesh. The tools were initially prepared in English by the language expert.

There were two research tools involved-

   i.   Socio-demographic variables
   ii. Knowledge assessment: A Self-Structured knowledge questionnaire.

Description of the Tool:

The tool was developed to Shyam Children and Maternity centre,New Lakhanpur Hospital, New GT Nursing Home,Shri Ganesh Multi Speciality Hospitalat Kanpur, Uttar Pradesh as well as to assess the effectiveness of Information Booklet on knowledge regarding novel approaches guidelines to Surfactant Therapy among Staff Nurses working in NICU.

Tool Consist of Two Sections:

Section A: Socio-Demographic variables

Section B: Self -Structured knowledge questionnaire

Section A: Socio-Demographic variables

It consists of socio-demographic information such as Age, Gender, Religion, Shift duty, Education qualification, Working experience, Monthly income, Previous knowledge, Source of information regarding novel approaches, guidelines to surfactant therapy.

Section B: Self-Structured knowledge questionnaire

This section includes 36 multiple choice question regarding novel approaches, guidelines to surfactant therapy.

   7. Results and findings:

Section A:

The major findings of the present study were:

   ➢ Majority of nurses 53.34% (32) were between 26-30 years
   ➢ majority of staff nurses 86.67% (52) were female
   ➢ Majority of the Staff Nurses 96.66% (58) were Hindu.
   ➢ Majority of the NICU staff nurses 51.67% (31) had 6hour shift duty.
   ➢ Majority of the Staff Nurses 41.66% (25) had done GNM.
   ➢ Majority of the Staff Nurses 45% (27) had 7 months to 12months working experience.
   ➢ Majority of the Staff Nurses 75.00% (45) were having the monthly income of 10,000-15,000Rs/-.

➢ Majority of the Staff nurses100% (60) sample were having the previous knowledge.

➢ Majority of the NICU staff nurses 61.66% (37) had knowledge from Books and journals.

SECTION-B

Table no. 1 Distribution of Staff Nurses working in NICU according to their pretest and posttest level of knowledge regarding novel approaches guidelines to surfactant therapy.

n=60

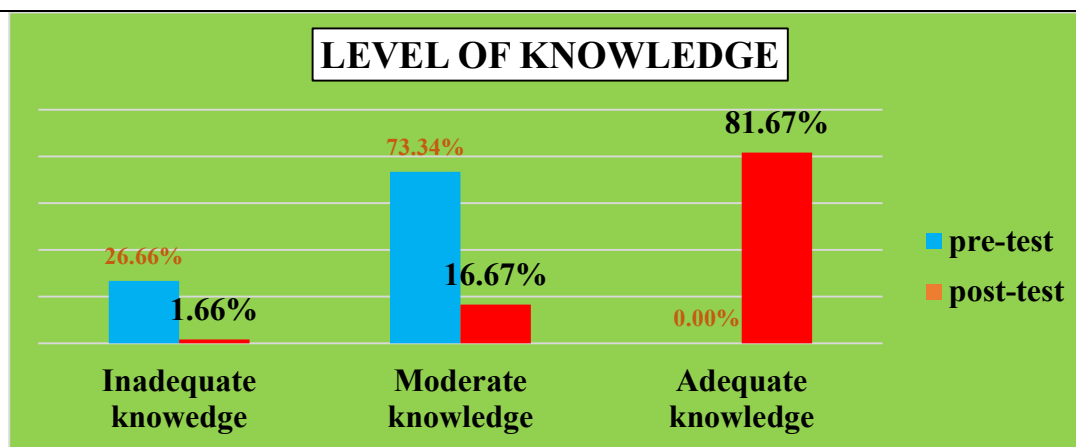| S.no.	Level of knowledge	Pre-test		Post-test	
		F	**%**	**F**	**%**
1.	Inadequate knowledge (0-17)	16	26.66%	01	1.66%
2.	Moderate knowledge (18-26)	44	73.34%	10	16.67%
3.	Adequate knowledge (27-36)	00	00.00%	49	81.67%
	Total	**60**	**100%**	**60**	**100%**

Fig. no.1: Column diagram showing percentage wise Distribution of Staff Nurses working in NICU according to the pretest and posttest level of knowledge on novel approaches guidelines to surfactant therapy.

(Table no. 1, Fig. no.1) Column diagram shows that comparison of pretest and posttest level of knowledge. In pretest among the subject 16 sample (26.66%) had inadequate level of knowledge, 44 sample (73.34%) had moderate level of knowledge and no one had adequate knowledge and in posttest among the subject, 49(81.67%) adequate level of knowledge, 10 sample (16.67%) had moderate level of knowledge and 1 (1.66%) sample had inadequate level of knowledge.

Section-C-

Comparison of Pretest and Posttest Level of Knowledge Regarding Novel Approaches Guidelines to Surfactant Therapy Among Staff Nurses Working in NICU

Mean of pretest (17.43) and posttest (28.3) and mean percentage of pretest (29.05%) and posttest (47.16%), Standard deviation of pretest (4.2) and posttest (2.78).

Section- D:

Effectiveness Of Information Booklet on Knowledge Regarding Novel Approaches Guidelines to Surfactant Therapy Among Staff Nurses Working In NICU

Table-2: Frequency, mean, mean difference, paired "t" test of self-structuredquestionnaire.

n=60

S.no	Level of knowledge	Mean	Mean difference	Standard Deviation	Paired "t" value	Level of significance
1.	Pre-test	17.43		4.2		
			10.87		15.13	0.05
2.	Post-test	28.3		2.78		S

Therefore, the findings implied that the Information Booklet had significant effect in the improvement of Staff Nurse working in NICU regarding novel approaches guidelines to surfactant therapy. Hence, the formulated research **hypothesis H₁** was accepted because there were significant differences between the pretest and posttest knowledge regarding Novel Approaches Guidelines to Surfactant Therapy among Staff Nurses working in NICU.

NURSING IMPLICATION:

Nursing Education

• The nurse educates can recommend this topic to the students for health education activities of community to increase the knowledge level of Staff Nurses working in NICU regarding novel approaches guidelines to surfactant therapy.

• The findings will help the nursing students to understand the need to be equipped with adequate knowledge.

Nursing administration

• The findings of the study help the nurse administration to take appropriate measures about providing knowledge to Staff Nurses working in NICU regarding novel approaches guidelines to surfactant therapy.

• Continuous quality assessment can be done to assist the quality of education provide to the staff nurses working in NICU.

Nursing research

• Nursing practices need to be based on scientific knowledge because nurses are facing lots of challenges while delivering health services the people.

• That has to encourage further study regarding novel approaches guidelines to surfactant therapy.

The study finding help to motive and initiate for the research related to the effectiveness of the awareness information booklet regarding novel approaches guidelines to surfactant therapy.

Recommendations:

- On the basis of the findings of the study following recommendations put forward for further research.
- A similar study can be replicated on large samples to generalize the findings.
- A similar study can be conducted loaded by including additional or different demography.
- A similar study can be conducted by using true experimental approach.
- Can be better to have as Explorative study.

CONCLUSION

The present study was aimed at assess the Effectiveness of information booklet on Staff Nurses working in NICU the recent data was collected and analyzed statically based on selected hospitals Kanpur, Uttar Pradesh. On basis of findings of the study following conclusion were drawn: In the pre-test knowledge based on selected hospital Kanpur Uttar Pradesh regarding novel approaches guidelines to surfactant therapy so that among Staff Nurses working in NICU 16(26.66%) had inadequate knowledge 44 (73.34%) had moderate knowledge and no one had adequate knowledge in pre-test and 49(81.67%) had adequate knowledge 10 (16.67%) had moderate knowledge and 1(1.66) had inadequate knowledge in post-test. It was inferred that, most of the staff nurses working in NICU had moderate knowledge in pre-test and most of had adequate knowledge in post-test.

The structured effectiveness of information booklet improved the knowledge level of staff nurses working in NICU regarding novel approaches guidelines to surfactant therapy.

References:

1. Rodriguez RJ, Martin RJ. Exogenous surfactant therapy in newborns. Respiratory Care Clinics of North America. 1999 Dec 1;5(4):595-616.
2. Pattle RE. Properties, function and origin of the alveolar lining layer. Nature. 1955 Jun 25;175(4469):1125-6.
3. Avery ME, Mead J. Surface properties in relation to atelectasis and hyaline membrane disease. AMA journal of diseases of children. 1959 May 1;97(5_PART_I):517-23.
4. Bassil KL, Shah PS, Shah V, Xiang YY, Lee SK, Jefferies AL, Canadian Neonatal Network. Impact of late preterm and early term infants on Canadian neonatal intensive care units. American journal of perinatology. 2013 May 31:269-78.
5. van der Burg PS, de Jongh FH, Miedema M, Frerichs I, van Kaam AH. Effect of minimally invasive surfactant therapy on lung volume and ventilation in preterm infants. The journal of pediatrics. 2016 Mar 1; 170:67-
6. Recommendations for neonatal surfactant therapy. Paediatrics & Child Health [Internet]. 2005 Feb 1;10(2):109–16.