" A Study To Assess The Knowledge Regarding Care of Newborn on Incubator Among 4th Year B.Sc Nursing Students, Tirupathi".

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Abstract
Background: *Newborn babies take time to accustom to the external environment specially if they one premature and Low Birth Weight. As they are on risk to develop hypoxia , hypothermia and other many associated adverse conditions, who needs special care and attention. Prematurely born infants are usually nursed in incubators to provide the best possible warmth.* ***Objectives****: 1. To assess the level of knowledge and knowledge on practices regarding care of newborn on incubator among 4th year B.Sc Nursing students.2. To associate the relationship between selected socio-demographic variables and level of knowledge and knowledge on practices regarding care of newborn on incubator among 4th year B.Sc Nursing students.3. To develop information booklet regarding care of newborn on incubator.* ***Method:*** *A descriptive research design was adopted to assess the knowledge regarding care of newborn on incubator in svims and Sri Vikas College of nursing, Tirupathi. A total of 120 fourth year B.Sc Nursing students were selected by Random sampling technique.* ***Results:*** *The findings showed that majority 75(62.5%) had moderate knowledge,37(30.8%) had adequate knowledge,8(6.7%) had inadequate knowledge regarding care of newborn on incubator ,mean of knowledge was 9.733 and standard deviation was 1.538, mean of practice was 6.142 and standard deviation was 1.324.* ***Conclusion:*** *There was a significant association between the level of knowledge and selected socio-demographic variables of the students.*
Keywords: *Hypoxia, Incubator, Low birth weight, nursing student.*

I.   Introduction
The maintenance of a neutral thermal environment is of the utmost importance when nursing the preterm, ill or cold infant. A neutral thermal environment is one which balances heat production and heat conservation and dissipation, thus enabling the infant to maintain a normal core temperature with minimal oxygen requirement s and calorie expenditure.[1]

The incubators provide special environment for high risk babies till they adapt themselves to standard nursery or home conditions. Incubators allow optimal heat balance and provide isolation from air-borne infections. Incubators are mainly used for low-birth weight or premature babies, infants recovering from stress of birth and sick babies requiring special observation or ambient oxygen.13Nurses are the main professionals responsible for providing direct care to hospitalized newborns and that they are responsible for the adequate use of equipment and the management of such care, which should be qualified and risk-free. [2]

II.   Need for the study
One in ten babies born in India needs to spend at least a few days in a Neonatal Unit to recover from infection and hence require intravenous antibiotics, need extra monitoring or breathing support. Because premature infants often can't keep themselves warm without help, they may be placed inside an incubator.[3]

The common responsible for newborn deaths attributed are sepsis(50%), prematurity, low birth weight(35%) and birth asphyxia (23%). Low birth weight directly or indirectly contributes 60-80% of the neonatal deaths.4

The prevalence of low birth weight exists universally in all population. Low birth weight with high mortality and morbidity continuous to be a major public health problem in India. Hypothermia is a major factor causing neonatal morbidity and mortality in developing countries. Maintaining normal body temperatures in the pediatric setting is crucial. 5

III. Review of literature
➢ Abdel Rasoul GM et al.(2017) conducted a study on to assess the effect of designed guidelines on nurses' performance to prevent preterm infants' hypothermia. Quasi-experimental design was used to conduct the

study. A convenient sample was comprised of 60 preterm infants admitted to the NICU and 60 nurses. Result showed that, total knowledge and performance were higher on post and follow up test than pretest. The study concluded that, the designed guidelines were effective in improving nurses' knowledge and performance regarding prevention of preterm infants' hypothermia which affected positively in regulating temperature of neonates. Nurses need continuous training programs to improve their knowledge and practice regarding neonatal hypothermia. There were a significance correlation between total nurses' knowledge and their total performance on post and follow up test (p <0.001).[6]

➤ K Prasanna et al.(2016) conducted a study on assess the knowledge regarding assessment of high risk neonates among staff nurses and nursing students in selected hospitals at Nellore, AP. A sample size of 15 staff nurses and 15 nursing students were selected through non-probability convenience sampling. Descriptive cross-sectional design was adopted to assess the knowledge regarding assessment of high risk neonates among staff and nursing students. The data was collected by using structured knowledge questionnaire. With regard to level of knowledge regarding assessment of high risk neonates, majority of the staff nurses 8(53.3%) had adequate knowledge and majority of the student's 10(66.7%) had moderately adequate knowledge.[7]

➤ Angel Rajakumari et al.(2015) conducted a study on "effectiveness of incubator care among nurses working in NICU. To assess the knowledge, attitude and practice on incubator newborn care among nurses working in NICU. The investigator selected 15 nursing students and the results shows that 46% of students had inadequate knowledge and 76% of them had negative attitude and 80% of them had poor practice. The study concluded that nurses working in NICU knowledge ,attitude and practice was inadequate.[8]

➤ Rajwinder Kaur(2013)to assess the knowledge of staff nurses regarding care of low birth weight babies. Low birth weight babies are immature, they need special nursing care. Total 60 staff nurses those who met the inclusion and exclusion criteria were selected by convenience sampling technique. Study concluded that education had a vital role in improving the knowledge of staff nurses regarding care of low birth weight baby.[9]

IV. Operational definitions
- **Knowledge**: Students having information and skill acquired through experience or education about care of newborn on incubator.
- **Care of newborn:** care of newborn refers to that care given to the newborn from the time of the admission into the NICU.
- **Incubators:** Incubator is an apparatus consisting of a box designed to maintain a special environment conditions for high risk babies till they adopt nursery or home themselves to standard

Hypothesis
- There is a significant association between knowledge regarding care of newborn on incubator with socio-demographic variables among nursing students.

Assumptions:
- The level of knowledge among nursing students differs from individual to individual
- The selected demographic variables may have influence on nursing students knowledge.
- Information booklet regarding care of newborn on incubator would bring the change in knowledge of students.

V. Methodology
Research design
- The research design selected for the present study was a descriptive research design. The study was conducted in svims and sri vikas college of nursing, Tirupati. The population of this study includes all fourth year B. Sc Nursing students. Sample size consisted of 120 students with Random sampling technique was adopted.

Inclusive Criteria
➤ 4th year B.Sc Nursing students who are willing to participate in the study.
➤ Students who are available during the period of data collection.

VI. Data Analysis
After giving a score for each students, results were tabulated. Descriptive and inferential statistics were used for the analysis of the study.

VII. Results and conclusion

Table 1(Annexure-I) : Distribution of socio- demographic variables among B.sc nursing 4th year students.
The data presented in table – 1 shows that out of 120 B.sc nursing students, majority 70(58.3%) were aged 21 years and 9(7.5%) were at the age group of 20 years.As for the gender, majority of the students 104(86.7%) were females and 16(13.3%) were males. Regarding the religion, majority of the students 88(73.3%) were Hindus, 18(15.0) were Christians and 14(11.7%) were Muslims. Related to type of family, majority 71(59.1%) were in Nuclear family, and 22(18.3%) were in single parent family. Related to education of the mother, majority 38(31.7%) were had primary education, and 6(5.0%) had Technical education. Related to education of the father, majority 35(29.2%) were had no formal education, and 6(5.0%) had Technical education. Pertaining to occupation of mother, majority 79(65.8%) were homemakers, and 5(4.1%) were business. In accordance with fathers occupation, majority 38(31.7%) were agriculture, and 21(17.5%) were business. Related to family income, majority 54(45.0%) were had income of less than 30,000 rupees and 10(8.3) were had 70001 and above. Related to place of residence majority 46(38.3%) were from urban, and 27(22.5%) were semi-urban. Regarding to NICU postings majority 72(60.0%) were had 1 week, and 48(40.0%) were had 2 weeks postings.

Table 2(Annexure-II): Distribution of the level of knowledge regarding care of newborn on incubator among 4th year B.sc nursing students. Out of 120 students, majority 75(62.5%) students had moderate knowledge, 37(30.8%) students had adequate knowledge and 8(6.7%) students had inadequate level of knowledge regarding care of newborn on incubator.

Table 3(Annexure-I) : Distribution of the level of knowledge on practices regarding care of newborn on incubator among 4th year b.sc nursing students. Out of 120 students, majority 69(57.5%) students had moderate knowledge, 34(28.3%) students had inadequate knowledge and 17(14.2%) students had adequate level of knowledge on practices regarding care of newborn on incubator.

Table 4(Annexure-I) : Mean and standard deviation related to level of knowledge, knowledge on practices regarding care of newborn on incubator among 4th year B.sc nursing students. Mean and standard deviation scores on knowledge regarding care of newborn on incubator were 9.733 and 1.538. Mean and standard deviation scores on knowledge on practices regarding care of newborn on incubator were 6.142 and 1.324.

VIII. Conclusion

Nursing implications:
The findings of the study have implications in various areas of nursing profession, i.e nursing service, nursing education, nursing administration and nursing research.

Nursing services:
The present health care delivery system gives emphasis on comprehensive health care, which includes preventive, curative and rehabilitative care.
* Nurses should update the knowledge regarding care of newborn on incubator through workshops, conferences, etc.
* Continuous Nursing Education programmes can be conducted from time to time so that the nurses keep themselves updated with the latest standard guidelines.

Nursing Research:
➢ Nursing research should be based on practicing newer methods of teaching programmes which includes computer based learning module etc.
➢ Nursing research on newer method of teaching focusing on interest, quality and cost effectiveness.
➢ The new knowledge obtained through the study would enhance evidence based nursing practice.
➢ Similar studies may be conducted on larger samples and different settings.

IX. Suggestions
Based on the study findings, the following suggestions are proposed.
➢ The study can be conducted with larger sample.
➢ A quasi-experimental study can be conducted with the help of planned health education programme regarding care of newborn on incubator among 4th year B.sc nursing students.
➢ A comparative study could be conducted among Nursing students and staff nurses regarding care of newborn on incubator.
➢ Same study could be conducted among the staff nurses working in neonatal intensive care units.

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Annexure-I
Table 1: Distribution of socio- demographic characteristics among B.sc nursing 4th year students.

(n = 120)

S.No	Demographic Variables	Frequency	Percentage %
1.	**Age**		
	20 year	9	7.5
	21 years	70	58.3
	22 years	23	19.2
	23 years	18	15.0
	Total	120	100
2.	**Gender**		
	Male	16	13.3
	Female	104	86.7
	Total	**120**	**100**
3.	**Religion**		
	Hindu	88	73.3
	Christian	18	15.0
	Muslim	14	11.7
	Total	**120**	100
4.	**Type of Family**		
	Nuclear Family	71	59.1
	Joint Family	27	22.5
	Single Parent family	22	18.3
	Total	**120**	**100**
5.	**Education of the mother**		
	No formal education	32	26.7
	Primary education	38	31.7
	Secondary education	30	25.0
	Collegiate	14	11.7
	Technical	6	5.0
	Total	**120**	**100**
6.	**Education of the father**		
	No formal education	35	29.2
	Primary	20	16.7
	Secondary	32	26.7
	Collegiate	27	22.5
	Technical	6	5.0
	Total	**120**	**100**

S.No	Demographic Variables	Frequency	Percentage %
7.	**Occupation of the Mother**		
	Home Maker	79	65.8
	Labourer	21	17.5
	Business	5	4.1
	Employee	15	12.5
	Total	**120**	**100**
8.	**Occupation of the father**		
	Labourer1	32	26.7
	Agriculture	38	31.7
	Business	21	17.5
	Employee	29	24.2
	Total	**120**	**100**

9.	**Family Income per annum(in rupees)**		
	Less than 30,000	54	45.0
	30001 – 50000	43	35.8
	50001 – 70000	13	10.8
	70001 & Above	10	8.3
	Total	**120**	**100**
10.	**Place of Residence**		
	Urban	46	38.3
	Semi-urban	27	22.5
	Rural	47	39.2
	Total	**120**	**100**
11.	**NICU posted**		
	1 week	72	60.0
	2 weeks	48	40.0
	Total	**120**	**100**

Table 2: Distribution of the level of knowledge regarding care of newborn on incubator among 4th year B.sc nursing students.

(n=120)

Level of knowledge	Category	Frequency	Percentage
Inadequate	<50%	8	6.7%
Moderate	50%-75%	75	62.5%
Adequate	>75%	37	30.8%

Table 3: Distribution of the level of knowledge on practices regarding care of newborn on incubator among 4th year b.sc nursing students.

(n=120)

Level of knowledge	Category	Frequency	Percentage
Inadequate	<50%	34	28.3%
Moderate	50%-75%	69	57.5%
Adequate	>75%	17	14.2%

Table 4 : Mean and standard deviation related to level of knowledge, knowledge on practices regarding care of newborn on incubator among 4th year B.sc nursing students.

S.No	Category	Mean	Standard deviation
1.	Knowledge regarding care of newborn on incubator	9.733	1.538
2.	Knowledge on practice regarding care of newborn on incubator	6.142	1.324