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A pre-experimental study to assess the effectiveness of structured teaching programme on knowledge regarding reducing the risk of neonatal infection among postnatal mothers in selected hospital, Ludhiana, Punjab.

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Abstract: The first week after birth is a time of major metabolic and physiological adaptation for newborn infants. Neonatal sepsis continues to be an important cause of morbidity and mortality worldwide due to the lack of adequate preventive and therapeutic strategies in low income settings and due to the increased survival of preterm and low-weight newborns. Present study aims to assess the effectiveness of structured teaching programme on knowledge regarding reducing risk of neonatal infection among postnatal mothers at selected hospital, Ludhiana, Punjab. Pre-experimental (One group pre-test post-test) design was utilized to accomplish the objectives of the study. A total of 50 postnatal mothers were selected for the study by using convenience sampling technique. Demographic variables and structured knowledge questionnaire was administered to collect the pre-test data. Structured teaching programme on reducing risk of neonatal infection was given to postnatal mothers and post-test data was collected using the same questionnaire after 10 days. Results reveals that 28(56%) had poor knowledge and 22(44%) had average knowledge while in post-test that 15(30%) had average knowledge and 35(70%) had good knowledge. Findings indicate that structured teaching programme was effective and shows significant improvement in post-test knowledge regarding reduction of neonatal infection among postnatal mothers. Mother plays a vital role in newborn care, they should have necessary knowledge in all the aspects of newborn care, thereby the study suggests

that mothers should be educated on prevention of neonatal infection and preventive strategies to be implemented to prevent neonatal infection.

Key words: Knowledge, Neonatal infection, Postnatal mothers

INTRODUCTION:

Newborn care is the essential care provided to newborn baby by mother or by care provider such as, breast feeding, maintaining body temperature, care of the cord, care of the eyes, and prevention of infection and injuries. The first week after birth is a time of major metabolic and physiological adaptation for newborn infants. The early life all newborn try to adapt to the external environment.[1]

In India 25 million babies are born every year. The World Health Organization (WHO) estimates that, more than 4 million new born die in their first month of life due to inadequate newborn care. In our country, current infant mortality rate (IMR) is around 45%. World wide it is 26% live birth, and in Karnataka state 62% live birth. A survey conducted by the Institute of Health and Family Welfare, Hyderabad, reveals that Andhra Pradesh, with 62 infant deaths for every 1,000 births has the highest infant mortality rate among south Indian states. The data collected shows that while states like Kerala and Tamil Nadu have managed to reduce their infant deaths considerably over the last 10 years, the situation in Andhra Pradesh has not changed much[2].

Globally, about 2.7 million babies die in the first 28 days of life every year, with 98% of the neonatal deaths taking place in developing countries, including Indonesia, which has a neonatal mortality rate of 19 per 1000 live births.[3]

The major causes of neonatal death in the country are respiratory disorders, prematurity, sepsis and hypothermia, which mostly can be prevented by taking affordable and effective interventions. One of the intervention's goal is to increase mother's knowledge and practice on newborn care, which may indirectly decrease neonatal deaths. The handbook also helped to increase mother's knowledge in Indonesia, but it had little effect on mother's behavior. Thus, only owning the MCH handbook may not be enough to ensure mothers do the good practices. Implementing health interventions, such as prenatal education by using the handbook, might be useful.[4]

Globally 10 million under five children die every year. Majority of them die in their neonatal period. Among them 98% of these deaths occur in developing countries. Almost half of the deaths in under-five year- olds occur in infancy. About two-thirds of infant deaths occur in the neonatal period. It has also been noted that one-third of all neonatal deaths occur on the first day of life, almost half within 3 days and nearly three-quarters within the first week of life. In developing countries, about 34 of every 1000 live births result in neonatal death[5].

In India the neonatal mortality rate (NMR) dropped significantly from 69 per 1000 live births in 1980 to 53 per 1000 live births in 1990. In recent years, however, the NMR has remained almost static decreasing only from 48 to 44 per 1000 live births from 1995 to 2000 and from 2011 to 2015 it has come down 22 to 28 per 1000 live births. A similar situation has been reported from other developing countries [2]. In Uttrakhand, Rudraprayag district has minimum NNMR whereas Haridwar has maximum NNMR (50) and range is 39/1000 live births. In Dehradun neonatal mortality rate is 32 per 1000 live births[6].

Nurse has a vital role in prevention of disease and maintenance of health. Mother is the first nurse of every newborn. The mother's knowledge and practices play a crucial role in safe guarding and enhancing the newborn adaptation to new environment it is important to educate the mothers regarding various aspects of newborn care. So the care of newborn is very important for survival and healthy development of newborn[7]

When women's acquired the knowledge prior to or during pregnancy. One to prevent infection is through simple hygiene practice, such hand washing and particularly adapts hygienic behavior to prevent also heard about it from a doctor, hospitals, clinics and other professionals. The awareness of women's knowledge hand washing, not sharing drinking glass and not kissing young children on the mouth appeared to be generally acceptable. These are the preventable practices give the awareness to the mothers to prevent the neonatal infection[8].

WHO report states that integrated approach good feeding practice, immunization, improved hygiene and healthy development of children will help to reduce the child mortality rates. The mother's knowledge and practices play a crucial role in safe guarding and enhancing the newborn adaptation to new environment it is important to educate the mothers regarding various aspects of newborn care. so the care of newborn is very important for survival and healthy development of newborn[9].

Based on the review of literature and the personal experience of the investigator during hospital visits in urban areas is found that many neonates affected with neonatal infections and there is less awareness and practices on prevention of neonatal infections. Hence the investigator felt the need to assess the knowledge on prevention of neonatal infections among postnatal mothers to neonates, with a view to prepare structure teaching programme which will be useful for the mothers for prevention of neonatal infections. Thus it was a motivation for the researcher to conduct this study.

Statement Problem

A pre-experimental study to assess the effectiveness of structured teaching programme regarding reducing the risk of neonatal infection among postnatal mothers in selected hospital, Ludhiana, Punjab.

Objectives of study

1. To assess the pre-test knowledge regarding reducing the risk of neonatal infection among postnatal mothers.
2. To assess the post-test knowledge regarding reducing the risk of neonatal infection among postnatal mothers.
3. To compare the pre-test and post-test knowledge score regarding reducing the risk of neonatal infection among postnatal mothers.
4. To find out the association of post-test knowledge score on reducing the risk of neonatal infection among postnatal mother with their selected demographic variables.

Operational Definitions

Assess: Measurement of knowledge scores of mothers on prevention of neonatal infection among the postnatal mothers based on structured interview schedule.

Effectiveness: It refers to difference of pre and post test scores regarding prevention of neonatal infections among the postnatal mothers as observed from structured interview schedule.

Structured Teaching Programme: A planned series of information in postnatal ordered to provide teaching on prevention of neonatal infection among the mothers.

Prevention: Measures taken by the postnatal mothers to prevent neonatal infections of eyes, umbilical cord, skin and oral cavity.

Neonatal infections: It refers to infection of umbilical cord , eye, skin and oral cavity which occurs between age group of birth to 28 days.

Postnatal Mothers: Mothers in the postnatal ward who have delivered neonates.

Hypothesis

H0> There will be no difference between pre-test and post-test knowledge of mothers regarding prevention of neonatal infection.

H1> There will be significant difference between pre-test and post-test knowledge of mothers regarding prevention of neonatal infection.

Research Methodology:

Quantitative approach with Pre-experimental study design was adopted to assess the effectiveness of structured teaching program among postnatal mothers regarding reducing risk of neonatal infection. One group pre-test and post-test design was utilized to achieve the objectives of the study. The study was carried out in selected hospital, Ludhiana, Punjab. A sample of 50 postnatal mothers selected by convenience sampling technique who meet the inclusion criteria of the study.

Inclusion criteria:

- Mothers who are willing to participate in the study.
- Mothers who are cooperative.
- Mothers who can read/understand English or Punjabi language.

Exclusion criteria:

- Mothers who critically ill.
- Mothers who are having any postnatal complications.

Description of tool

The tool consists of 2 parts:-

Part A: Socio-Demographic variables:

It consist of 7 variable items for obtaining information from postnatal mothers i.e. age in years, educational status of mother, occupation of mother, Family monthly income, religion, area of habitat and source of information.

Part B: Self structured knowledge questionnaire on neonatal infection. The questions includes on definition, causes, risk factors, signs and symptoms, assessment and diagnosis, treatment and prevention of neonatal infection.

Scoring Criteria:

- Scores ranging from 0-7 would be considered poor knowledge
- Scores ranging from 8-14 would be considered average knowledge
- Scores ranging from 15-21 would be considered good knowledge

Description of intervention

The intervention was prepared after extensive review of literature, books and internet sources and was finalized by obtaining suggestions and opinion from guide, co-guide and various experts in the field of and gynecological nursing. The intervention for the present study was structured teaching programme on neonatal infection. The content consists of definition, causes, risk factors, signs and symptoms, assessment and diagnosis, treatment and prevention of neonatal infection.

Validity of tool

To ensure content validity of tools it was submitted to various experts in the and gynecological nursing. Experts were requested to judge the tool for clarity, relevance, appropriateness, relatedness and meaningfulness for the purpose of study and to give their opinion and suggestions on the content, its coverage, organization, presentation, language and feasibility. Necessary modifications were made as per expert's advice.

Reliability of tool

The reliability of the tool was assessed by cronbach's alpha (r=.749). The tool was found to be reliable.

Ethical Consideration

- Approval from ethical committee of Desh Bhagat Institute of Nursing, Mandi, Gobindgarh, Punjab.
- Prior to data collection, written permission was obtained from the concerned authority of selected hospital, Ludhiana, Punjab.
- Anonymity and confidentiality of subjects was maintained.
- Informed consent was obtained from the subjects.

Data Collection Procedure

The data collection was collected from 50 postnatal mothers selected for the study by using convenience sampling technique. Prior to data collection informed consent was obtained from the mothers after explaining the benefits of the study. The tool consists of demographic variables and structured knowledge questionnaire was administered to postnatal mothers and pre-test data was collected. Structured teaching programme was given to the postnatal mothers on neonatal infection and its prevention and post-test was done after one week using same questionnaire.

PLAN FOR DATA ANALYSIS

The data analysis will be done according to study objectives by using descriptive and inferential statistics. The plan of data analysis would be as follows:

- Frequency, percentage, mean and standard deviation will be calculated.
- Paired t test and unpaired t test will be used to test the hypothesis.
- Chi-square test will be used for association.

Results:

Table 1: Frequency and Percentage Distribution of Demographic Variables

N=50

S.NO	Demographic Variable	Frequency (f)	Percentage (%)
1	Age of mother (in years)		
	a. 20-25 yrs	7	14
	b. 26-30 yrs	19	38
	c. 31-35 yrs	20	40
	d. 36 – 40 yrs	4	8
2	Educational status of husband		
	a. Primary	10	20
	b. Secondary	11	22
	c. Higher secondary	22	44
	d. Graduation and above	7	14
3	Occupation of mother		
	a. Employed	7	14
	b. Business	11	22
	c. Laborer	22	44
	d. Housewife	20	40
4	Monthly family income (Rs)		
	a. 5001-10000	13	26
	b. 10001-15000	23	46
	c. Above 15000	14	28
5	Habitat		
	a. Urban	28	56
	b. Rural	22	44
6	Type of family		
	a. Nuclear	24	48
	b. Joint	23	46
	c. Extended	3	6
7	No of children		
	a. One	27	54
	b. Two	19	38
	c. Three	4	8
8	Source of information		
	a. Family/friends	17	34
	b. Health care/physician	27	54
	c. Internet	6	12

Frequency and Percentage Distribution of Demographic Variables of postnatal mothers showed that 7(14%) were in 20-25 yrs of age, 19(38%) were in 26-30 yrs of age, 20(40%) were in 31-35 yrs of age and 4(8%) were in 36-40 yrs of age. data on educational status of mother, 3(6%) were illiterate, 13(26%) had primary education, 14(28%) had secondary education, 14(28%) had higher secondary education, 6(12%) had graduation and above. Regarding occupation of mother, 7(14%) are employed, 11(22%) are doing own business, 22(44%) are working as laborers and 20(40%) are housewife. According to monthly family income, 13(26%) had Rs.5001-10000, 23(46%) had Rs.10001-15000 and 14(28%) had above Rs.15000 per month. Regarding habitat of mothers shows that 28(56%) are from urban area and 22(44%) are from rural area. Pertaining to type of family, 24(48%) living in nuclear family, 23(46%) living in joint family and 3(6%) living in extended family. Regarding No. of children, 29(54%) had one child, 19(38%) had two child and 4(8%) had three children. According to source of information on neonatal infection among postnatal mothers, 17(34%) had information from family and friends, 27(54%) had from health care and physician and 6(12%) had information from internet.

Table 2: Pre-test and post-test level of knowledge regarding neonatal infection among postnatal mothers

N=50

LEVEL OF KNOWLEDGE	Pre-test		Post-test	
	f	%	f	%
Poor Knowledge	28	56	0	0
Average Knowledge	22	44	15	30
Good Knowledge	0	0	35	70

Results revealed that in pre-test 28(56%) of mothers had poor knowledge and 22(44%) had average knowledge while in post-test level of knowledge regarding reduction of neonatal infection among postnatal mothers, the results reveals that 15(30%) of mothers had average knowledge and 35(70%) had good knowledge regarding neonatal infection.

Table 3: Effectiveness of Structured teaching programme on knowledge regarding neonatal infection among postnatal mothers

N=50

Level of knowledge	Mean	SD	Mean Difference	t value	df	p value
Pre-test	8.38	2.212	7.32	22.01	49	0.000*
Post-test	15.70	2.003				

*p value – 0.05 level of significance

The above showed that pre-test mean knowledge score and SD was 8.38±2.212 where as in post-test was 15.70±2.003 with mean difference of 7.32 with obtained (t=22.01) was statistically significant at p<0.01 level. Findings indicate that structured teaching programme was effective and showed significant improvement in knowledge among postnatal mothers regarding reduction of neonatal infection.

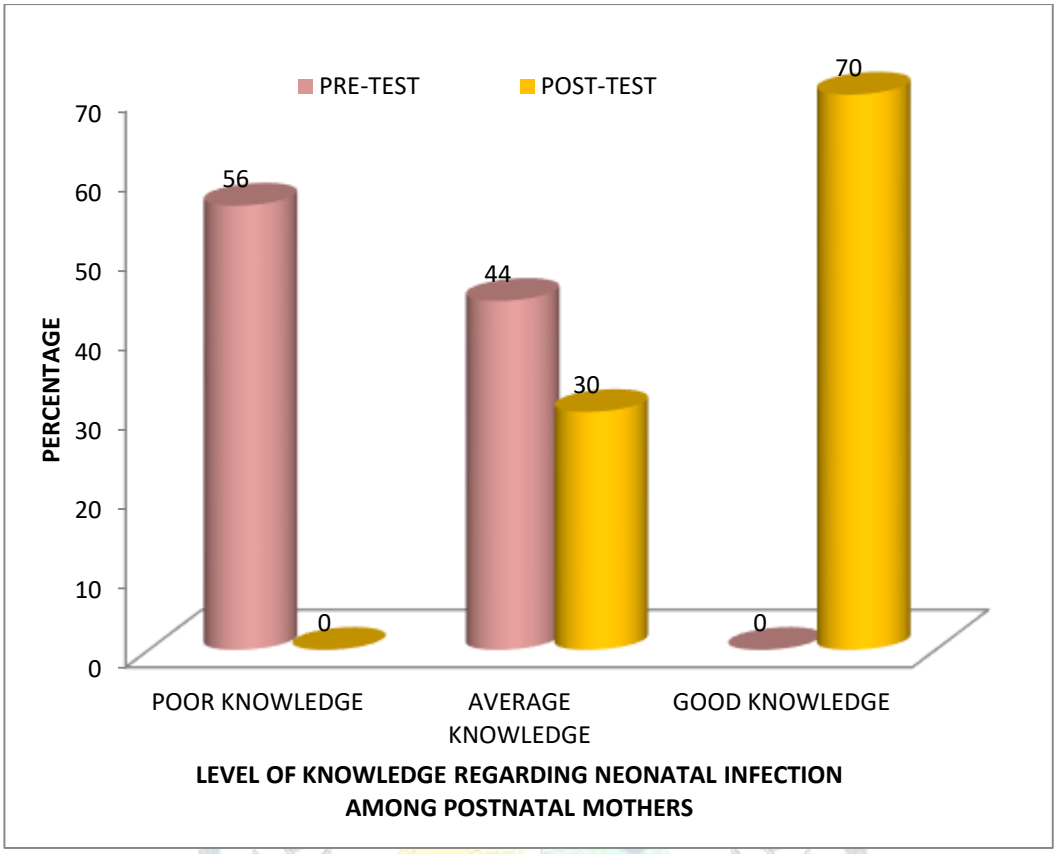

Fig 1: Distribution of pretest and posttest level of knowledge regarding neonatal infection among postnatal mothers

Table 5: Association between pre-test knowledge score and demographic variables of postnatal mothers

N=50

Demographic Variable	Poor Knowledge	Average knowledge	χ^2 value	df	P value
Age in years					
a. 20-25 yrs	2	5	2.881	3	0.410^{NS}
b. 26-30 yrs	11	8			
c. 31-35 yrs	12	8			
d. 36 – 40 yrs	3	1			
Educational status of mother					
a. Illiterate	1	2	10.26	4	**0.036***
b. Primary	5	8			
c. Secondary	11	3			
d. Higher secondary	10	4			
e. Graduation and above	1	5			
Occupation of mother					
a. Employed	6	1	3.324	3	0.344^{NS}

b. Own business	5	6			
c. Laborer	7	5			
d. Housewife	10	10			
Monthly family income (Rs)					
a. 5001-10000	9	4	1.265	2	0.531^{NS}
b. 10001-15000	12	11			
c. Above 15000	7	7			
Area of habitat					
a. Urban	15	13	1.152	1	0.696^{NS}
b. Rural	13	9			
Type of family					
a. Nuclear	13	11	1.765	2	0.614^{NS}
b. Joint	12	11			
c. Extended	3	0			
No of children					
a. One	14	13	2.014	2	0.851^{NS}
b. Two	10	9			
c. Three	4	0			
Source of information					
a. Family/friends	7	10	3.452	2	0.178^{NS}
b. Health care/physician	16	11			
c. Internet	5	1			

***p value <0.05 level of significance NS-Non-Significant**

Table 6: Association between post-test knowledge score and demographic variables of postnatal mothers

N=50

Demographic Variable	Average knowledge	Good knowledge	χ^2 value	df	P value
Age in years					
a. 20-25 yrs	1	6	3.262	2	0.353^{NS}
b. 26-30 yrs	4	15			
c. 31-35 yrs	8	12			
d. 36 – 40 yrs	2	2			
Educational status of mother					
a. Illiterate	1	2	4.675	4	0.322^{NS}
b. Primary	1	12			
c. Secondary	5	9			
d. Higher secondary	5	9			
e. Graduation and above	3	3			
Occupation of mother					
a. Employed	3	4	1.346	3	0.718^{NS}
b. Own business	2	9			
c. Laborer	4	8			
d. Housewife	6	14			
Monthly family income (Rs)					
a. 5001-10000	4	9	0.744	2	0.689^{NS}
b. 10001-15000	8	15			

c. Above 15000	3	11			
Area of habitat a. Urban b. Rural	 5 10	 23 12	4.468	1	**0.035***
Type of family a. Nuclear b. Joint c. Extended	 7 6 2	 17 17 1	2.562	2	0.835^{NS}
No of children a. One b. Two c. Three	 8 5 2	 19 14 2	1.987	2	0.784^{NS}
Source of information a. Family/friends b. Health care/physician c. Internet	 5 7 3	 12 20 3	1.359	2	0.507^{NS}

***p value <0.05 level of significance NS-Non-Significant**

The chi-square values reveals that education of mother was found significant association with pre-test knowledge score at p<0.05 level of significance but other demographic variables such as age, occupation of mother, monthly family income, area of residence, type of family, no of children and source of information were non significant association with pre-test knowledge score regarding reduction of neonatal infection among postnatal mothers.

Discussion:

The essential care provided to newborn baby by the mother includes breast feeding, maintaining body temperature, care of the cord, care of the eyes, and prevention of infection and injuries. Present study mainly focused to assess the effectiveness of structured teaching knowledge regarding neonatal infection among postnatal mothers. Result showed that in pre-test 28(56%) had poor knowledge and 22(44%) had average knowledge where as in post-test 15(30%) had average knowledge and 35(70%) had good knowledge. Anjum Fathima, Santosh[10] carried out similar study revealed that before teaching programme 21(52.50%) had inadequate knowledge, 11(27.50%) subjects had moderate knowledge and only 8(20%) had adequate knowledge and after teaching programme 14(35%) subjects had an adequate knowledge and 21(52.50%) subjects had moderate knowledge and only 5(12.50%) had inadequate knowledge. Findings of this study showed that pre-test mean score 8.38±2.212 and in post-test was 15.70±2.003 with t=22.01 was significant at p<0.01. Study results were congruent with Sarika Yadav and Sonia[11] revealed that mean pre-test score 10.48±0.91 which was increased after administering a planned teaching programme was mean ± SD of 28.73± 0.84 was statistically significant p<0.01. This study result reveal that education of mother was found significant association with pre-test knowledge score but other demographic variables such as age, education of husband, occupation of mother, monthly family income, area of residence and source of information had no significant association with knowledge score regarding reduction of neonatal infection among postnatal mothers. Manta Khatri Chhetri, Satyam prakash[12] conducted a similar study revealed that

there is significant association between level of knowledge and age of mothers ($p<0.05$). There was no association between knowledge and other socio-demographic variables in his study.

Conclusion:

Study results showed that in pre-test 28(56%) had poor knowledge and 22(44%) had average knowledge but in post-test 15(30%) had average knowledge and 35(70%) had good knowledge. Findings conclude that structured teaching programme was effective in improving the knowledge of mothers regarding neonatal infection. Since, mother plays a vital role in newborn care, they should have necessary knowledge in all the aspects of newborn care, thereby the study suggests that mothers should be educated on prevention of neonatal infection and preventive strategies to be implemented to prevent neonatal infection. Nurse has a vital role in prevention of disease and maintenance of health but mother is the first nurse of every newborn. The mother's knowledge and practices play a crucial role in safe guarding and enhancing the newborn adaptation to new environment it is important to educate the mothers regarding various aspects of newborn care.

Nursing implications:

The findings of the study have implication in the field of nursing profession in the areas of nursing practice, education administration and research. Nurse acts as an educator, leader, counselor and motivator. The present study emphasized on measures to improve the assessment and quality of care to the cardiac arrest victims.

Nursing Practice

- Nurses play a vital role in assessing the health status of the newborn and mothers.
- The nurse needs adequate knowledge and skill to assess the newborn and to prevent them from infection.
- Nurses need knowledge regarding risk factors of neonatal infection, to identify and prevent the neonate from infections.
- Nurses should practice safe practices in caring of the newborn and preventing them from hospital acquired infections.
- Nurses should educate the mothers regarding newborn care and prevention of neonatal infection by practicing safe practices in caring of the newborn.

Nursing Education

- Education is a key component in improving the knowledge and practice of the mothers regarding newborn care and prevention of neonatal infection.
- The present study emphasized on educating the staff nurses to improve their skills on assessment and prevention of newborn infection.
- Nursing education should focus on knowledge and practices among nurses on safe practices on newborn infection and its prevention.

- Nurses should be educated on various protocols to be implemented to prevent the newborn from infection.

Nursing Administration

- Nursing administrators should take initiative and be involved in organizing various sessions to update the skills among staff nurses in caring the newborn in all the aspects of care.
- Nursing administrators should ensure to provide continuous education to the nurses in updating their knowledge and practice skills to educate the mothers of newborn regarding neonatal infections.
- Nursing administrators should organize for continuous training sessions for the mothers of newborn and to enhance their knowledge regarding neonatal infection prevention.

Nursing Research

- Nursing research can be conducted among the practices of mothers regarding prevention of neonatal infection.
- Research can be conducted among the mothers to assess the knowledge, attitude and practices of mothers on neonatal infection prevention.
- The findings of the study can be implemented to enhance the knowledge of mothers and to promote the utilization of research findings in managing the newborn infection.

Limitations:

- The study was limited to selected hospital, Ludhiana, Punjab.
- Study was limited to 50 postnatal mothers.

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