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A quasi experimental study to assess the effectiveness of structured teaching programme on knowledge regarding management of neonatal asphyxia among staff nurses at pediatric allied units in selected hospitals of Punjab

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Abstract

A child is a precious gift which has lots of potential within, which can be the best resource for nation if raised and molded in good manner. This present study was undertaken to assess the effectiveness of structured teaching programme on knowledge regarding management of neonatal asphyxia among staff nurses. A quasi experimental (non equivalent one group pre test and post test control group) design was used to conduct study. The pre test was taken by using structured questionnaire followed by structured teaching programme and after one week of STP post test was taken. The findings showed that the mean post test knowledge score (20.5) was higher than the mean pre test knowledge score (10) and found to be significant with a calculated 't' value of 12.68*. Thus the results had validated the structured teaching programme devised. There is no association between mean knowledge score of pre test and post test and selected variables except workshop/in-service attended.

Keywords: Effectiveness, knowledge, neonatal asphyxia, staff nurses

Introduction

Newborn infants normally start to breathe without assistance and usually cry after delivery. By one minute after birth most infants are breathing well. India contributes 30% of the global burden of neonatal deaths. Current neonatal mortality rate in India is 47/1000 live births accounting for almost two thirds of the infant deaths. The World Health Organization (WHO) reports that between 4 and 9 million newborns have birth asphyxia, of whom an estimated 1.2 million die from birth asphyxia^[1].

The World Health Organization (WHO) defines birth asphyxia as failure to initiate and sustain breathing at birth. Birth asphyxia occurs when an inadequate amount of oxygen is delivered to the fetus, usually during labor and child birth, leading to risk of death (still birth or neonatal death) or lifelong disability in the surviving infant. Almost one million newborn die every year due to birth asphyxia and another 1.1 million intrapartum still birth are associated with birth asphyxia. Simple approaches to improve recognition of maternal dangers signs (e.g., prolonged labor), combined with timely and appropriate referral will help save maternal and newborn lives. When a newborn has been asphyxiated, prompt recognition and simple intervention applied immediately can save the majority of the newborns who do not breathe at birth. Deaths due to birth asphyxia is a challenge in setting where birth takes place at home, without the assistance of a skilled birth attendant, even when birth takes place in healthy facility because there is lack of the essential skills or the simple equipment to provide basic but life saving interventions^[2].

According to the National Neonatal Perinatal Database suggests that perinatal asphyxia is the commonest cause of death among neonates that contributed to 20% of neonatal death in India. In India birth asphyxia is a major cause for neonatal mortality and responsible for 25-35% of the deaths that occur during neonatal and perinatal periods^[3].

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Need for the study

Birth asphyxia accounts for 0.92 million neonatal deaths annually and is associated with another 1.1 million intrapartum stillbirths, as well as an unknown burden of long-term neurological disability^[4].

In India mortality rate is still high compared to developed countries. In India, between 250,000 to 350,000 infants die each year due to birth asphyxia, mostly within the first three days of life. In addition, ante-partum and intra-partum asphyxia contributes to as many as 300,000 to 400,000 stillbirths. Birth asphyxia is the third largest cause of death after infections and preterm births. Even the birth asphyxia is one of the leading causes of neonatal mortality but many of the nurses are unskilled in resuscitation of the asphyxiated babies^[5].

The presence of a skilled provider during labor and childbirth significantly increases rates of infant survival in the developing world. Skilled providers can use simple techniques to monitor labor and evaluate the health of the woman and the newborn before, during and after the birth^[6]. So the researcher felt that most of the neonatal deaths occur due to mismanagement and lack of knowledge among staff nurses regarding neonatal asphyxia. The researcher identifies that the staff nurses are the first who comes in the contacts of neonates and provide essential care according to neonate condition and need. Hence the staff nurses must have the knowledge to handle the cases in emergency. Researcher felt that there is a need to create awareness among staff nurses regarding management of neonatal asphyxia. So that more number of neonate can get the essential emergency care at the time of need and rate of death and disability can be decreased/reduced.

Objectives

1. To assess the pre-test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group.
2. To develop and implement structured teaching programme regarding management of neonatal asphyxia among staff nurses.
3. To assess the post-test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group.
4. To compare the pre-test and post-test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group.
5. To determine association of pre-test and post-test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group with selected socio demographic variables.

Hypothesis

H₁: The mean post-test knowledge score of staff nurses in experimental group is significantly higher than mean post-test knowledge score of staff nurses in control group.

H₀: The mean post-test knowledge score of staff nurses in experimental group is significantly higher than mean post-test mean knowledge score of staff nurses in control group.

Research methodology

Research Design

A quasi experimental design (Non equivalent pre test-post test design) design was considered best for analysis and interpretation.

E	Q ₁	X	Q ₂
C	Q ₁	-	Q ₂
Q ₁ - Pre-test	Q ₂	- Post Test.	X-Structured teaching programme.

Research Setting

The study was conducted in pediatric allied units of selected hospitals of Punjab.

Name of the hospitals:

1. Civil hospital, Hoshiarpur
2. Civil hospital, Tarntaran
3. Civil hospital, Nakoder
4. Civil hospital, Phagwara
5. Civil hospital, Kapurthala

Target Population

Target population of present study was comprises of staff nurses working in pediatric allied units i.e. pediatric and maternity ward of selected civil hospitals of Punjab.

Sample Size: The samples of this study were 60 staff nurses of pediatric allied units of selected hospitals of Punjab. (30 in experimental group and 30 in control group)

Sampling Technique: Sample was selected by convenience sampling technique.

Inclusion Criteria

The study includes staff nurses who were available at the time of data collection.

Exclusion Criteria

Staff nurses who were not willing to participate in the study.

Selection and Development of Tools

The tools consisted of three parts:-

Part 1- Socio-demographic variables: It consisted of 6 items for obtaining information about selected background factor such as Age (in years), clinical experience (in years), gender, professional qualification of staff nurses, ward & workshop/in-service program attended.

Part 2- Structured knowledge questionnaire: This part consisted of 30 items to assess the knowledge of staff nurses regarding management of neonatal asphyxia.

Part 3- Structured Teaching Programme regarding management of neonatal asphyxia.

Data collection procedure

Written formal permission was obtained from higher authority of the selected hospitals of Punjab. The researcher had taken informed consent from the staff nurses for participation in the study. The researcher introduced her-self to the respondents and explained the purpose of gathering the information. They were assured that their responses would be kept confidential and used only for research purpose. A structured teaching programme regarding management of neonatal asphyxia was developed along with structured knowledge questionnaire. On first day pre test and structured teaching program were administered and on seventh day post test was conducted.

- It took approximately 5 minutes to get basic information.
- 30-35 minutes were spent for pre test.
- 40-45 minutes were spent for giving teaching and clarify their doubts.
- Post test was taken after seven days.

Results

To compare the pre-test and post-test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group.

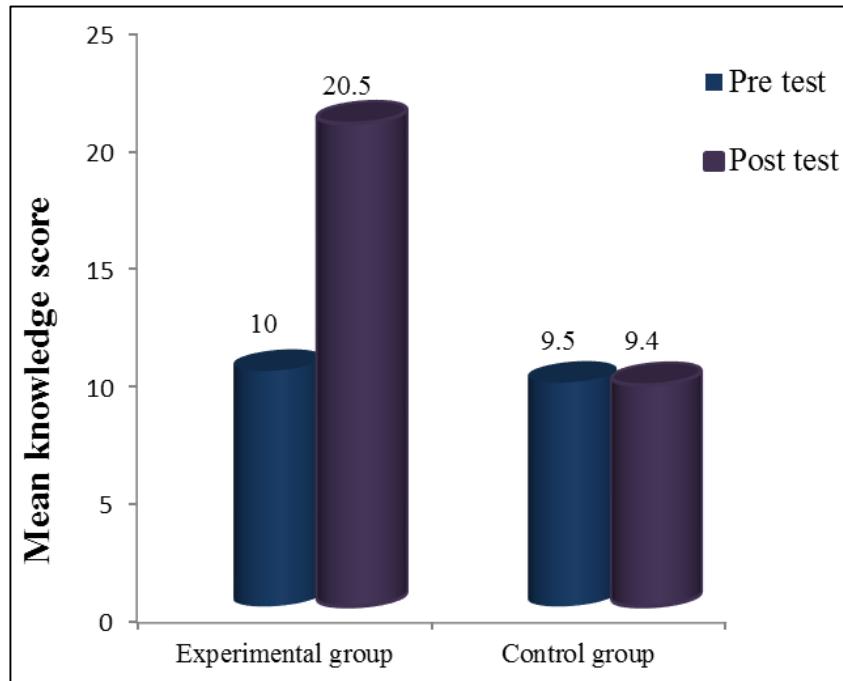


Fig 1: Comparison of pre test and post test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group.

Table 1: Association of pre test and post test mean knowledge regarding management of neonatal asphyxia among staff nurses with selected socio demographic variables in control group. N=30.

Socio demo-graphic variables	Pre test score					Post test score				
	N	Mean	S.D	F value	DF	Mean	S.D	F value	DF	
Age (In year)										
20-30	05	08.6	2.71	0.509 ^{NS}	3,26	09.00	1.87	0.318 ^{NS}	3,26	
31-40	10	10.4	2.16			10.00	2.4			
41-50	11	09.18	2.71			09.18	2.64			
51-60	04	09.25	3.5			09.00	2.31			
Clinical experience (In years)										
1-5	06	08.67	2.42	1.2693 ^{NS}	4,25	08.83	1.72	0.7973 ^{NS}	4,25	
6-10	07	09.71	3.3			09.42	1.81			
11-15	06	11.67	2.93			10.86	3.65			
16-20	06	08.5	2.17			09.16	1.94			
21-25	05	08.8	3.19			08.6	2.91			
Gender										
Male	00	00.00	0.00			00.00	0.00			
Female	30	09.5	2.89			09.4	2.32			
Professional qualification										
GNM	24	09.5	2.87	0 ^{NS}	28	09.37	2.42	t=0.1156 ^{NS}	28	
Post Basic B.Sc. (N)	06	09.5	3.27			09.5	2.07			
Workshop/In-service attended										
Yes	05	13.6	0.54	t=2.449*	28	12.8	2.18	t=2.702*	28	
No	25	08.68	2.42			9.72	1.72			
Ward										
Maternity	18	09.61	2.47	t=0.253 ^{NS}	28	9.22	1.92	t=0.5066 ^{NS}	28	
Pediatric	12	09.33	3.55			9.66	2.9			

*Significant, NS- Non Significant

Major findings

- In experimental group majority of respondents 10 (33.33%) were from both 31-40 & 41-50 years age group and in control group majority of respondents 11 (36.66%) were in the age group of 41-50 years.
- In experimental group majority of respondents 7 (23.33%) were having 21-25 years experience and in control group majority of respondents 7(23.33%) were having 6-10 years experience.
- All respondents 30 (100%) were females in both experimental and control group.
- Majority of respondents 24 (80%) were having qualification up to GNM followed in both experimental and control group.
- In experimental group majority of respondents 24 (80%) were previously not attended any workshop/in-service and in control group majority of respondents 25 (83.33%) were previously not attended workshop/in-service.
- In experimental group majority of respondents 17 (56.66%) were working in maternity ward and in control group majority of respondents 18 (60%) were working in the maternity ward.
- In pre test knowledge, maximum respondents 22 (73.34%) had average knowledge and 8 (26.66%) of them had below average knowledge in experimental group and in control group, maximum respondents 20 (66.67%) had average knowledge, 8 (26.66%) of them had below average knowledge and 2 (6.67%) had good knowledge.
- In post test knowledge, 24 (80%) respondents were having good knowledge, 2 (6.67%) had average knowledge & 4 (13.33%) had excellent knowledge in experimental group and in control group 23 (76.67%) respondents were having average knowledge & 7 (23.33%) had below average knowledge.
- In statistical statement, it was inferred that there is no influence of socio demographic variables except workshop/in-service attended on knowledge regarding management of neonatal asphyxia in experimental group.

Discussion

In this section the investigator discuss the result of the study. The findings of present study have been discussed according to objectives of research study.

The present study was conducted on staff nurses who were working in pediatric allied units of selected hospitals (Civil hospital Kapurthala; Civil hospital Phagwara; Civil hospital Nakoder; Civil hospital Tarntaran; Civil hospital Hoshiarpur)

The objectives of the study were:

Objective 1: To assess the pre-test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group- The findings of the present study shows that the 22 (73.34%) of staff nurses had average knowledge and 8 (26.66%) of staff nurses had below average knowledge in experimental group. 20 (66.67%) of staff nurses had average knowledge, 8 (26.66%) of them had below average knowledge and 2 (6.67%) had good knowledge in control group. In pre test there was no staff nurse who had excellent knowledge regarding management of neonatal asphyxia.

Mean pre test knowledge score of experimental group was 10 and control group was 9.5.

Objective 3: To assess the post-test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group- The findings of present study shows that 80% of staff nurses had good knowledge, 13.33% of staff nurses had excellent knowledge and 6.67% of staff nurses had average knowledge in experimental group whereas 76.67% of staff nurses had average knowledge and 23.33% of them had below average knowledge in control group.

Mean post test knowledge score of experimental group was 20.5 and control group was 9.4.

Objective 4: To compare the pre-test and post-test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group- Findings depict that the pre test mean knowledge score of experimental group was 10 and the post test mean knowledge score was 20.5. This difference in pre test and post test mean knowledge score of experimental group was statistically significant. Whereas, the pre test mean knowledge score of control group was 9.5 and the post test mean knowledge score was 9.4. This difference in mean knowledge score was statistically non- significant.

The difference of pre test mean knowledge score of staff nurses in control group was non-significant but was statistically significant in experimental group. The calculated 't' value (12.68) is more than the table value (1.96) so, the difference of post test mean knowledge score of experimental group was statistically highly significant. Hence, the research hypothesis (H_1) was accepted. It was concluded that structured teaching had significant impact on knowledge of staff nurses regarding management of neonatal asphyxia.

Objective 5: To determine association of pre-test and post-test knowledge regarding management of neonatal asphyxia among staff nurses in experimental and control group with selected socio demographic variables i.e. age (in years), clinical experience (in years), gender, professional qualification, workshop/in-service attended and ward. It was found significant association with the workshop/in-service attended because calculated t value was higher than the tabulated t value in both experimental and control group, means who attended workshop/in-service had more knowledge than who had not attend any workshop/in-service.

So, the crux of the matter is that research hypothesis H_1 is accepted and hence hypothesis H_0 is rejected. The experimental group has shown a dramatic change in the level of knowledge score indicate that structured teaching programme was effective to increase the level of knowledge among staff nurses who were working in the pediatric allied units of the selected hospitals of Punjab.

Conclusion

The study was undertaken to assess the effectiveness of the structured teaching programme on knowledge regarding management of neonatal asphyxia among staff nurses working in pediatric allied units of selected hospitals of Punjab. A total of 60 samples was taken (30 in experimental and 30 in control group). Convenience sampling technique

was used to collect data. The result was calculated by using descriptive and inferential statistics. From the findings it was concluded that the majority of staff nurses were from 41-50 years of age group and 100% staff nurses were females. 80% of them were not attended any in-service programme. The pre test mean knowledge score of experimental group was 10 and post test was 20.5 and pre test knowledge score of control group was 9.5 and post test was 9.4. There was a significant increase in knowledge in experimental group than the control group. The calculated 't' value (14.69) is more than the table value (1.96) so, the difference of post test mean knowledge score of experimental group was statistically highly significant. It was found significant association with the workshop/in-service attended i.e. $2.2102 > 1.96$.

Nursing implications

Nursing practice

The health and survival of newborn depends upon the health care providers's awareness, education, and skill in maintaining respiration and providing care to the newborn which is indispensable. Here, the nurse is the primary health care provider. The nurses who are working in the pediatric allied units in hospital setting should have adequate knowledge on management neonatal asphyxia which also promotes their confidence in babies care. This acquired knowledge will be greatly helpful to reduce the neonatal mortality rate.

Nursing Education

In nursing schools, colleges and other nursing education institutions, pediatric nursing students should be adequately prepared to provide care and managing neonatal asphyxia. The study emphasizes the significance of short term in-service education for nurses in advance knowledge on the management of neonatal asphyxia and make use of facilities available in the management of neonatal asphyxia.

Nursing administration

The nursing administrator should take part in health policy making, developing protocol standing orders related to pediatric allied unit regarding management of neonatal asphyxia. The nurse administrator in the hospitals and corporation health post setups can provide in service education for the nurses who are working in the pediatric allied unit. Appropriate placements of nurses who are specialized in neonatal care are capable of imparting information and will promote trust and confidence among peer groups.

Nursing Research

This study has shown an impact of structured teaching program to pediatric allied unit staff nurses on management of neonatal asphyxia. Because of staff nurses lack of experience, awareness and availability of resources they may need continuous education on management of neonatal asphyxia. So nurse researchers can investigate the existing knowledge and skill of pediatric allied unit staff nurses and educate them on management of neonatal asphyxia. Since the knowledge is imparted by the nurses, the research can be done to assess the knowledge and learning needs of the nurses who are working in specialized units.

Recommendations

On the basis of the findings of the study the following recommendations have been made.

1. A similar study can be replicated on a large sample to generate the findings.
2. A comparative study can be conducted between private and government hospitals.
3. A similar study can be replicated only on the labor room staff nurses because they are the very first care giver to the newborns and neonatal intensive care unit staff nurses are next to them.

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