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A study of knowledge and skill among Nurses regarding basic neonatal resuscitation in selected districts of Chhattisgarh

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Abstract - Millions of newborns worldwide are not breathing at delivery every year, and the vast majority of them need some kind of infant resuscitation. Safe and healthy babies can only be ensured if delivery room staff has a solid grasp of infant resuscitation techniques. Finding out how well-versed nurses are in neonatal resuscitation was the driving force for this research. To assess nurses' familiarity with neonatal resuscitation techniques, a descriptive cross-sectional research was conducted. Participants were chosen using a census-style random selection process. The 86 nurses working in the maternity ward of the non-governmental health institution in the Parsa District were interviewed using a semi-structured interview schedule, and their skills were evaluated using an observational rating scale. 93% of respondents had insufficient knowledge (85% score) and 90.7% had insufficient ability (85% score) in Newborn Resuscitation, according to the study's results. There are statistically significant correlations between the amount of time spent in the workforce (p=0.034), time spent working in a maternity ward (p=0.028), and completion of newborn resuscitation training (p=0.001), all of which contribute to a higher level of competence when it comes to resuscitating newborns. Findings showed a good connection between respondents' knowledge score and ability score on the same question about infant resuscitation (p0.0018). In this Study discuss the knowledge and skill among Nurses regarding basic neonatal resuscitation in selected districts of Chhattisgarh.

Keywords - Nurses, Neonatal, Knowledge, Chhattisgarh

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INTRODUCTION

The birth of a baby is one of life's most wondrous moments. Few experiences compare to this event. Newborn babies have amazing abilities, yet they are completely dependent on others for feeding, warmth, and comfort. The baby was protected from infection in the mother's womb and kept warm and fed by the placenta. After the birth these protections are gone, and it takes a newborn baby some time to adapt but especially so in the first 24 – 48 hours after birth. The air temperature is much cooler than in the womb, they must get nourishment from the breast rather than the placenta and they are not protected from outside infections by the womb. It takes most newborn babies 1 week to 4 weeks to become strong and adapt to being outside the womb and for small babies this will take even longer.

Oxygen is needed both during fetal life and after birth. Before birth oxygen is supplied to the fetus with diffusion across the placental membrane from maternal blood. After birth there are three major changes occur. 1. Absorption of fetal alveolar fluid 2. closure of umbilical vessel 3. Decrease pulmonary resistance. Although most of the transition takes place within few minutes after birth, the process may take several hours for completion. What can go wrong in this process? The baby may encounter difficulty either before birth, during labor or after birth. Problems before birth and during labor reflect compromise in placental blood flow. Difficulties after birth usually reflect problems with baby's airway or /and lungs. Normal transition may be disrupted by –lungs do not fill with air, the expected increases in systemic blood pressure may fail to occur, pulmonary arterioles may remain constricted.

Removal of lung fluid from the air spaces is facilitated by respiration soon after birth. The first few breaths after birth are effective in expanding

the alveoli and replacing the lung fluid with air. Problem in clearing lung fluid occur in infants whose lungs do not inflate well with the first few breaths such as those who are apnoeic at birth or have weak initial respiratory effort as with premature and sedation.

Oxygenation depends not only on air reaching the alveoli, but also on pulmonary blood flow. During intrauterine period capillaries are in the state of vasoconstriction. After birth, pulmonary vasodilatation takes place resulting in fall in pulmonary vascular resistance and increased blood flow in the pulmonary circuit.

During labor with each uterine contraction, transient foetal hypoxia occurs. However, unless prolonged or sever, this does not lead to persistent acidosis or organ dysfunction. As soon as the umbilical cord is clamped and cut, the placenta is no more a gas exchange organ. The baby initiates respiration because of the stimulation of the respiratory center through chemoreceptors and nervous reflexes. The lung expands resulting in a marked decrease in pulmonary vascular resistance therefore the first few breaths should be powerful enough to inflate the lung and clear the foetal lung fluid through the circulatory and lymphatic systems.

Perinatal asphyxia is an insult to the foetus or newborn due to a lack of oxygen and / or/ lack of perfusion. Asphyxiated infant has hypoxemia and acidosis. In the presence of hypoxemia and acidosis, the pulmonary arterioles remain constricted and ductus arteriosus remains open. If decreased pulmonary perfusion exists, proper oxygenation of the tissues of the body is impossible, even when the infant is being properly ventilated. In mildly asphyxiated babies whose oxygen and pH are slightly lowered, it may be possible to increase pulmonary perfusion by quickly restoring adequate ventilation.

Approximately 3-5% of India's 25 million newborns are born with complications such as hypoxia, hypercapnia, hypoperfusion, and acidosis. This may cause problems in a number of different organs. Acute infant's first response to an oxygen deprivation is fast breathing. When a newborn is asphyxiated, they stop breathing, their heart rate drops, their neuromuscular tone weakens, and they go into a state called apnoea. Tactile stimulation and oxygen exposure at this time usually result in breathing. If the apnea lasts too long, the baby will start breathing deeply in gasps, their body temperature will drop even more, their blood pressure will drop, and they will become almost limp. Unless resuscitation with aided ventilation and oxygen is started quickly, the newborn will not respond to stimulation and will not restart breathing on its own.

Why IMR continues to be high in India?

Slow progress in reducing the infant death rate is a crucial factor in this predicament. Neonatal causes account for 37% of all fatalities in children under the age of five worldwide (within the first 4 weeks of life). As reported by the third wave of the National Family Health Survey, newborn mortality accounted for half of all fatalities among children under the age of five, making neonatal causes the leading cause of death in this age group by a significant margin. This is supported by data from both the PFC 2007 and the SRS. More concentrated efforts are needed to address this issue. Worldwide, almost 4 million infants don't make it beyond the first month of life. It's believed that one million people in India fall under this category. (Information gathered from PFC 2007 and SRS). India has the greatest rate of newborn mortality, with 1.1 million infants dying before their fourth week of life every year. A shockingly high 36 baby deaths for every 1000 live births is the current neonatal mortality rate in India (SRS 2008). Diverse states have vastly different NMR statistics, with the lowest seen in Kerala and the highest in Chhattisgarh, Jharkhand, UP, and Madhya Pradesh. The first week of life is considered the most critical in neonatology. Eighty percent of newborn fatalities occurred in the first week of life. Among reality, the rate of mortality in newborns has risen from 26 per 1,000 to 29 per 1,000 births (SRS 2004 & 2007). Perinatal asphyxia accounts for 23% of all newborn mortality; severe infections account for 36%; premature births account for 25%; neonatal tetanus accounts for 4%; and congenital deformities account for 4%..

Health Goals for India: 12th Five-Year Plan

The Infant Death Rate has dropped to 25. The goal was to achieve an MMR of 100, which means that the rate of maternal mortality has been eliminated. The government has made strategic investments to boost MCH indicators throughout the nation, with a particular emphasis on states with a high fertility rate in order to reduce maternal and child mortality, which is central to the National Rural Health Mission (NRHM).

There are a total of 5161 sub-health facilities and 783 primary care clinics in addition to the 27 district hospitals, 15 civil hospitals, and 29 city civil hospitals run by the State government. The State also has a polytechnic, as well as ten municipal family welfare centers and a facility for people with leprosy.

Several obstacles stand in the way of Chhattisgarh's progress toward its goal of boosting the health and nutrition of its people. The rising prevalence of noncommunicable chronic illnesses is one of the newest epidemiological concerns facing public health. A demographic shift is occurring as a result of the growing number of people in the senior population. Disease patterns may be affected by several things, including

environmental variables and climatic shifts. The health care system is already stretched thin dealing with issues including maternal and infant mortality, infectious illnesses, and the HIV/AIDS epidemic. More has to be done to help. According to a study conducted in 2014, the infant mortality rate in this state was 48 per 1,000 live births, which is much higher than the national average. There is a neonatal death rate of 35 per 1,000 live births (37 in rural areas and 29 in urban areas), and a mortality rate of 61 per 1,000 for children less than 5. Although Chhattisgarh has made significant strides in the right direction over the last several years, it still has a long way to go before it can claim success in meeting the MDGs.

REVIEW OF LITERATURE

Médecins Sans Frontières et all (2019) The paper detailing June's findings on the high newborn death rates in Pakistani hospitals was published in June. In order to better understand the risk factors for infant mortality, they report the clinical features of the newborns hospitalized between 2013 and 2016. Methods: They looked at regularly gathered medical data on babies (7 months) in Chaman and Dera Murad Jamali (DMJ) hospitals. The Poisson regression method was used to evaluate the correlation between clinical variables and mortality. There were a total of 5,214 hospitalized children (male to female ratio of 1.60) and 1,178 deaths (23%). After seven days of hospitalization, each additional day was linked with a lower chance of death. There was a striking correlation between death and the first two days in hospital. Infant death rates were significantly greater in cases where tetanus, necrotizing enterocolitis, premature birth, sepsis, or hypoxic-ischemic encephalopathy were the major diagnoses. The death toll always seems to rise around September of each year.

Owusu BA et.al (2018) The results of a research on infant mortality at a Ghanaian teaching hospital's neonatal unit were published in the journal African Health Science. The primary aim of the research was to calculate the infant mortality rate. From 2013 to 2014, information on newborns admitted to an intensive care unit was studied. There were 5,195 newborn hospitalizations. Overall, newborn mortality occurred at a rate of 20.2%. There was a greater rate of neonatal death among infants who were extremely premature, had a low birth weight, had an Apgar score of 4 or lower at 5 minutes, were referred from other hospitals, and were diagnosed with respiratory distress and birth asphyxia.

Florence Fezeka Ndzima-Konzeka (2017) Trained midwives' knowledge of newborn resuscitation was tested in a research done in the Eastern Cape's Chris Hani Health District Hospitals. The goals of this study were to (1) identify midwives with neonatal resuscitation training, (2) assess midwives' knowledge of neonatal resuscitation during delivery, and (3) describe the correlations among these variables. The research was conducted quantitatively using a descriptive correlational strategy. Some 110 certified nurse-midwives working in the maternity wards of the 13 institutions that make up the Chris Hani Health District were included in the sample. To assess midwives' knowledge of newborn resuscitation, a systematic, self-administered questionnaire was designed. STATA (version 13) was used to analyze the data. The participants' mean knowledge scores were 79%, with a range of 63% to 97%. (SD 7.8). At least an 80% level of understanding was required for passing.

Endale Gebreegziabher et al (2014) I just did some research and had it published in the World Journal of Emergency Medicine V- 5(3): 196-203. Between 15 February and 30 April 2014, researchers in Northwest Ethiopia performed a cross-sectional study on health workers' knowledge and abilities related to newborn resuscitation. Residents and nurses in the fields of obstetrics and gynecology (ob-gyn), midwifery, and pediatrics were all included. Through the use of the t-test and the analysis of variance, we compared the participants' mean scores on knowledge and skills based on their sex, age, occupation, level of education, number of years in the workforce, and past employers. Statistical significance was assumed at a P value of less than 0.05. With a 90% response rate, this research was able to enroll 150 individuals. Mean knowledge and competence ratings for midwives, nurses, and residents were 19.9 (SD=3.1), and 6.8 (SD=3.9), respectively. Midwives scored 19.7 (SD=3.03), nurses scored 20.2 (SD=2.94), pediatric residents scored 19.7 (SD=4.4), and obstetricians scored 19.6 (SD=3.3). Midwives had a mean score of 7.1 (SD=4.17), whereas nurses had a mean score of 6.7 (SD=3.75), pediatric residents had a mean score of 5.7 (SD=4.17), and obstetric residents had a mean score of 6.6 (SD=3.97). Researchers found that midwives, nurses, and residents lacked standardization in their understanding and practice of newborn resuscitation.

Gomathi S and Nagam Priyanka Grace (2018) have just released a Pre-experimental research to assess the usefulness of a Video-Assisted Teaching Programme for educating BSc Nursing students in Neonatal Resuscitation. Purposive sampling was used to pick 100 BSc Nursing students from a subset of nursing schools. Once the video-assisted learning program had been in place for 15 days, a posttest was administered to assess its effectiveness. After taking the pretest, 100% of students were found to have insufficient knowledge, while 84% had just modest experience. Knowledge and practice scores increased to 45% and 92%, respectively, in the subsequent exam. The results of the pre- and post-tests for practices show that the Video Assisted Teaching Programme is very successful in teaching practices. Post-test results on both the knowledge and practice dimensions were unrelated to a number of

demographic factors. A total of 44 people (52% of the total) were found to have insufficient knowledge. According to the data, there was a noticeable improvement in test-taking skills after receiving the information. The results demonstrated that the incorporation of technological advances into the classroom aided in the development of nursing students' theoretical and practical competence.

OBJECTIVE OF THE STUDY

- To find the correlation between knowledge score and skill score egarding basic neonatal resuscitation among Nurses.
- To find the association with pretest knowledge score and selected socio demographic variables regarding basic neonatal resuscitation among Nurses.

METHODOLOGY

According to Nancy Buns and Susan K research design is a blue print for conducting a study, maximizes control over factors that could interfere with the validity of the findings, guides the planning and implementation of a study in a way that is most likely to achieve the intended goal.

The research design adopted for this study is pre-experimental, one group pre-test post-test research design.

O1 X O2: - The knowledge before and after the intervention of hands-on training programme

X: The intervention – hands on training programme.

The schematic design for the study

Group	Before	Treatment	After
Experimental group	O1	X	O2

KEYS: -

O1: - Pre-test Group

X: - Intervention

O2: - Post-test Group

Variable

Qualities, properties or characteristics of persons, things, or situations that change or vary and are manipulated or measured in research.

Dependent Variable: "It is the outcome or the response that the researcher wants to predict or explain". (Nancy Burns & Susana K)

In the present study knowledge and skill on basic neonatal resuscitation are the dependent variables.

Independent variable: "It is a stimulus or activity that is manipulated or varied by the researcher to create an effect on the dependent variable". (Nancy Burns & Susana K)

In the present study hands on training programme on basic Neonatal resuscitation with demonstration and videos is the independent variable.

Population

Population represents the entire group of the study population that is all elements (individual, objects, and subjects) that meet criteria for inclusion in the study

Socio demographic data of Nurses

There are 8 questions in total and includes demographic variable like age, marital status, working set up, working place, years of work experience, number of deliveries conducted per month, any in-service education or training received regarding neonatal resuscitation, IMR rate.

Questionnaire regarding basic neonatal resuscitation.

The tool contains 25 questions regarding preparation, initial steps, positive pressure ventilation regarding basic neonatal resuscitation.

RESULT AND DISCUSSION

Frequency And Percentage Distribution Of Subjects According To Socio-Demographic Variables

Frequency and percentage distribution of subjects based on level of knowledge score regarding basic neonatal resuscitation.

Category	Pre test		Post test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Very Good	31	6.2	298	59.6
Good	319	63.8	196	39.2
Average	131	26.2	4	0.8
Below average	19	3.8	2	0.4

Post-knowledge						Total
Below average			Average	Good	V. Good	
Pre-Knowledge	Below average	Count	1	2	12	3	19
		% of Total	0.2%	0.4%	2.4%	0.6%	3.8%
	Average	Count	0	1	66	64	131
		% of Total	0.0%	0.2%	13.2%	12.8%	26.2%
	Good	Count	0	1	118	200	319
		% of Total	0.0%	0.2%	23.6%	40.1%	63.8%
	V. Good	Count	0	0	0	31	31
		% of Total	0.0%	0.0%	0.0%	6.2%	6.2%
Total		Count	2	4	196	298	500
		% of Total	0.4%	0.8%	39.2%	59.6%	100.0%

Table show that 63.8 % of the subject had good knowledge, 26.2% of the subjects had average knowledge, 6.2% of the subjects had very good knowledge and only 3.8 % of the subjects had below average knowledge, where as in post test 59.6% of the subject had very good knowledge, 39.2 % of the subjects had good knowledge and only 0.8% and 0.4 % of the subjects had average and below average knowledge.

Using McNemar – Bowker test it can be concluded that there is a significant difference in the proportion for each category of knowledge before and after intervention.

Frequency and percentage distribution of subjects based on level of skill score regarding basic neonatal resuscitation.

Category	Pre skill score		Post skill score	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Very Good	0	0	384	76.8
Good	71	14.2	116	23.2
Average	261	52.2	0	0
Below average	168	33.6	0	0

Pre- skill * Post skill Crosstabulation

Post skill				Total
Good			V. Good	
Pre- skill	Below average	Count	94	74	168
		% of Total	18.8%	14.8%	33.6%
	Average	Count	22	239	261
		% of Total	4.4%	47.8%	52.2%
	Good	Count	0	71	71
		% of Total	0.0%	14.2%	14.2%
Total		Count	116	384	500
		% of Total	23.2%	76.8%	100.0 %

Table Show that 14.2 % of the subject had good skill score, 52.2 % of the subjects had average skill

score, 33.6 % of the subjects had below average skill score and none of the subjects had very good skill score whereas in post skill score 76.8% of the subjects had very good skill score, 23.2 % of the subjects had good skill score and none of the subjects had average and below average score.

Using McNemar – Bowker test it can be concluded that there is a significant difference in the proportion for each category of skill score before and after intervention

CONCLUSION

According to Densie F. Polit research plays an inevitable role to improve the body of knowledge in nursing. Research provides nurse the credibility to influence decision making to meet the needs of the people. It plays an important role to improve the body of knowledge in nursing. Practicing nurse should contribute to research because they are individuals observing human response to health and illness. When nurse base their clinical practice on science and research and document their clinical outcome, they will be able to validate their contribution to health, wellness, cure, not only to their patients, family, and institution but also to nursing profession. Researcher has the responsibility to acquire information by the most reliable means and make it available and understandable in Primary Health domain.

REFERENCES

1. Owusu, B. A., Lim, A., Makaje, N., Wobil, P., & SameAe, A. (2018). Neonatal mortality at the neonatal unit: the situation at a teaching hospital in Ghana. African health sciences, 18(2), 369-377.

2. Praveen Khilnani , Mritunjay Pao, ,2009, Practical approach to Pediatric Intensive care, 2nd edition, Jypee brothers medical publishers(P) Ltd. new Delhi, page no-18-35.

3. Polit and Hungler. 1999. Essential of nursing research and application, 7th edition, New York: J.B. Lippincott Company, 151-157.

4. Suraj Gupta Text book of Pediatrics 11th edition, jypee medical publication, page 186-188

5. Singariya, M. R. (2013). Assessment of Progress Made in Health Infrastructure and Manpower through NRHM and Their Impact in Reducing IMR in India. Journal of Finance and Economics, 1(4), 118-127

6. Tao, X. U., Wang, H. S., YE, H. M., YU, R. J., Huang, X. H., Wang, D. H., ... & Keenan, W. (2012). Impact of a nationwide training program for neonatal resuscitation in China. Chinese medical journal, 125(8), 1448-1456.

7. Thesis - Florence Fezeka Ndzima-Konzeka (2017) assess the knowledge of basic neonatal resuscitation among midwives at district hospitals.

8. OP Ghai, Vinod K Paul, Arvind Bagga,2009, Essential Pediatrics, 7th edition CBS Publishers $ distributors, Pvt Ltd, New Delhi, 96-102,139-140

9. van Deursen, B., Lenglet, A., Ariti, C., Hussain, B., Karsten, J., Roggeveen, H., ... & Martin, A. I. C. (2019). Risks and seasonal pattern for mortality among hospitalized infants in a conflict-affected area of Pakistan, 2013-2016. A retrospective chart review. F1000Research, 8.

10. Vaid, A., Mammen, A., Primrose, B., & Kang, G. (2007). Infant mortality in an urban slum. The Indian Journal of Pediatrics, 74(5), 449-453.

11. WHO, MDG-4 reduce child mortality, updated May 2015, Target 4.A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.

12. 6th International Neonatal Nursing conference (ICNN) (2009), Work shop on essential Newborn nursing for small hospitals page no. 60-79.

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