Knowledge regarding resuscitation of newborn among nurses.

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Abstract

Newborn resuscitation is a technique of giving assistance to newborn to take 1st breath, at physiological adaptation period from intrauterine life to extra-uterine life when it borns newly. Nurses working in inpatient department along with especially labor room and neonatal intensive care unit should have proper knowledge regarding newborn resuscitation. The present study aimed to assess the knowledge regarding neonatal resuscitation among nurses working in inpatient department of selected wards in Gandaki Medical College Teaching Hospital and Research Center (GMCTHRC). Descriptive, cross sectional study design with purposive sampling technique was used to collect the data from 130 nurses. Semi structured self-administered knowledge questionnaire for knowledge was used for data collection. The collected data were analyzed using descriptive and inferential statistics.

The study revealed that, more than half of the respondents 64.6% had inadequate knowledge. There was significant association between knowledge level and working unit (p=0.013). Most of the nurses were found to have inadequate level of knowledge. There is urgent need to focus on education to upgrading the nurses' knowledge for improving the quality of nursing care.

Introduction

Neonatal resuscitation is defined as the set of interventions at the time of birth to support the establishment of breathing and circulation. The principle of resuscitation is to provide oxygen by helping breathing and metabolism with artificial respiration and to help blood circulation by giving pressure to ventricle with chest compression [1]. *Globally 2.5 million children died in the first month of life. Approximately 7000 newborn deaths every day with about one third dying on the day of birth and close to three quarters dying within the first week of life [2]. According to the Nepal's Demographic Health Survey (NDHS) 2016, 1 in 48 babies die in their first 28 days of life making up to 13,000 newborn deaths every year in Nepal. The overall neonatal mortality in Nepal is 21 per 1000 live births [3].*

Globally, the main direct causes of neonatal death are preterm birth (28%), severe infections (26%), asphyxia (23%), and neonatal tetanus (7%) [4]. In Nepal, major causes of death are infections (39%), birth asphyxia/birth injury (33%), congenital anomalies (8%) and pre-maturity or low birth weight (6%) [3,4]. Approximately 5% to 10% of the newly born populations require some degree of active resuscitation at birth (e.g. stimulation to breath) and approximately 1% to 10% born in the hospital are reported to require assisted ventilation [5].

Asphyxia due to poor resuscitation techniques had remained one of the leading causes of neonatal mortality and morbidity globally [6]. A cross-sectional descriptive study on knowledge of basic neonatal resuscitation among 427 midwives and nurses in public health institution Eastern Ethiopia. The finding of the study shows that 9.8% of the study participants had good knowledge about neonatal resuscitation and others are poor knowledge [7].

A study conducted on Knowledge and skills of newborn resuscitation among nurses working in maternity ward of nongovernmental health institution of Parsa District of Nepal. Census method was used and total 86 nurses were interviewed by using semi-structured interview schedule. The study findings revealed that 93% respondents had inadequate knowledge [8]. Neonatal resuscitation is a complex procedure that requires the use of specialized knowledge of the nurses. Appropriate assessment and resuscitation is an important part of neonatal care provided during the first minutes of life [9]. This is because we as a nurse are here to save newborn's life as well as to help the newborn and infant mortality rate. More than 100 million babies are born annually worldwide. They have to make transition from fluid filled environment in which the placenta serves as the gas exchange for the organ of the fetus and to an air filled environment in which baby's own

cardiopulmonary system has to independently function within minutes of birth for survival [10]. Based on the evidence from various studies, nurses' knowledge regarding neonatal resuscitation is shown poor. In the context of developing countries like Nepal few studies has been conducted till now. Taking into consideration of these issues, this study is aimed to assess knowledge regarding resuscitation of newborn among nurses.

Materials and Methods

Research design

The descriptive cross sectional study design was used to conduct this study.

Research setting and population

The study was carried out in Gandaki Medical College Teaching Hospital & Research Center, Pokhara. The population of the study was those who have completed PCL, BNS and B.Sc. Nursing and those registered in Nepal Nursing Council (NNC) and working in the in-patient departments of GMCTH in selected wards Neonatal Intensive Care Unit (NICU), Emergency, Labour, Operation Theatre, Postnatal Ward, Paediatric, Post.op and Paediatric Intensive Care Unit (PICU).

Sampling

Purposive sampling technique was used to select the subjects in the study. The sample size is considered for the study was 130 nurses who were working in selected wards were selected for the study.

Instrument

Semi-structured self-administered questionnaire was used to find out the socio-demographic data and knowledge of nurses regarding newborn resuscitation. The instrument was developed on the basis of extensive review of the literature, standard recommendations and protocols for neonatal resuscitation. The instrument consisted of 2 parts:

Part I: Questions related to socio-demographic and professional related variables

Part II: Questions related to knowledge regarding resuscitation of newborn.

The socio demographic and professional related information section included 11 items for obtaining information such as: age (in years), residence, professional qualifications, marital status, working unit, working experience, professional designation, information about neonatal resuscitation, source of information, in-service education, standing order or protocol etc.

The second section was designed to measure the knowledge of nurses regarding neonatal resuscitation. It contained a total of 24 questions. Among these 24 questions, 20 multiple choice questions were constructed in which each question had 4

options and 4 multiple response questions were constructed in which each questions had 5 options. The right answer was scored as 01 and the wrong option was scored as zero. The scoring was interpreted as: inadequate knowledge-score less than 50%, moderate knowledge-score between 51%-75% and adequate knowledge-more than 75% [11].

Data collection procedure

Data was collected after getting ethical clearance from Institutional Review Board of Gandaki Medical College (IRC-GMC). Written Permission was obtained from all the departments prior to commencement of the study. Written informed consent from each respondent was also taken prior to data collection. Data collection was done from 6 September to 13 November 2020. The duration of the data collection was 25-30 minutes.

Statistical analysis

Data was analyzed in Statistical Package for Social Science (SPSS) 20 version. Data were summarised using descriptive statistics and inferential statistics. Chi-square test was used to find out the association between levels of knowledge with selected socio-demographic variables.

Results

Table 1 shows that out of 130 respondents, nearly half of the respondents 48.5% was between the ages of 23-27 years. The mean age of the respondents was 25.06 ± 4.1 years. Similarly, most of the respondents 80% were stayed in urban area. Likewise, more than half of the respondents 61.5% had Proficiency Certificate Level (PCL). In regards to marital status, just half of the respondents were married and 16.2 % of the respondents had working in labor room, least of the respondents 7.7% had working in postnatal ward.

Variables	Frequency	Percentage
Age group (in years)		
18-22	39	30
23-27	63	48.5
28-32	18	13.8
33 and above	10	7.7
Mean ± SD=25.06 ± 4.1, Min:18 yrs, Max:38 yrs		
Residence		
Urban	104	80
Rural	26	20
Professional qualification		
Proficiency Certificate Level (PCL)	80	61.5
Bachelor of Nursing Sciences (BNS)	27	20.8

Bachelor of Science in Nursing (B.Sc)	23	17.7
Marital Status		
Married	65	50
Unmarried	65	50
Working Unit		
NICU	18	13.8
Emergency	18	13.8
Labour	21	16.2
Operation Theatre (OT)	18	13.8
PICU	17	13.1
Post.op	13	10
Postnatal ward	10	7.7
Pediatric	15	11.6
Min: Minimum, Max: Maximum		

Table 1: Socio-demographic information and professional related variables of the respondents.

Table 2 reveals that majority of the respondents 69.2% were staff nurse, 66.9% of respondents had ≤ 2 years working experience. All respondents had information about newborn resuscitation, 33.8% of the respondent had got information from health personnel and least of the respondents 5.4% had got information from radio, television and newspaper. Majority of the respondents 63.8% had not got in-service training on newborn resuscitation and just half of the respondents 51.5% had standing order or protocol available on neonatal resuscitation.

		n=130
Variables	**Frequency**	**Percentage**
Professional designation		
Ward Incharge	20	15.4
Senior Staff Nurse	20	15.4
Staff Nurse	90	69.2
Working Experience		
≤ 2years	87	66.9
>2 years	43	33.1
Have information about Newborn Resuscitation		
Yes	130	100
Source of information		
Radio	7	5.4
Television	7	5.4
Newspaper/Magazine	7	5.4
Internet	11	8.5

Health Personnel	44	33.8
School/College	42	32.3
Friends/Relatives	12	9.2
Training or in-service Education of Newborn Resuscitation		
Yes	47	36.2
No	83	63.8
Protocol or standing order available of Newborn Resuscitation		
Yes	67	51.5
No	63	48.5

Table 2. Socio-demographic information and professional related variables of the respondents.

Table 3 reveals that the mean score of respondents' knowledge on newborn resuscitation was 18.16 ± 4.68 standard deviation; percent of mean score was 47.17, range was 9-30.

				n=30
Variables	**Maximum possible score**	**Obtained range**	**Mean ± SD**	**Mean percentage**
Respondents knowledge score	40	9-30	18.87 ± 4.68	47.17%

Table 3. Mean score on respondent's knowledge of newborn resuscitation.

Table 4 reveals that 64.6% of respondents had inadequate knowledge where as 35.4% had moderate knowledge regarding newborn resuscitation. Score >75% is categorized as adequate/good knowledge, score 51%-75% is categorized moderate knowledge and score <50% is categorized as inadequate/poor knowledge. Grading was done according to instruction contained in one of the research article [1].

		n=30
Level of knowledge	**Frequency**	**Percentage**
Inadequate (<50%)	84	64.6
Moderate (51%-75%)	46	35.4
Total	130	100

Table 4. Level of Knowledge among Respondents.

Table 5 shows that level of knowledge was significantly associated with working unit (p=0.013). However age, professional qualification, work experience, professional designation were not significantly associated with the level of knowledge.

Level of Knowledge				
Variables	**Inadequate**	**Moderate**	**χ2**	**P-value**
	No (%)	**No (%)**		
Age				

≤ 24 years	43(66.2)	22(33.8)	0.135	0.714
>24 years	41(63.1)	24(36.9)		
Professional qualification				
PCL	54(67.5)	26(32.5)	0.757	0.384
BNS/B.Sc	30(60.0)	20(40.0)		
Work experience				
≤ 2 yrs	56(64.4)	31(35.6)	0.007	0.933
>2 yrs	28(65.1)	15(34.9)		
Professional designation				
Incharge/ senior staff Nurse	26(65.0)	14(35.0)	0.004	0.951
Staff nurse	58(64.4)	32(34.6)		
Working unit				
NICU/Labor	19(48.7)	20(51.3)	6.158	0.013*
Other Wards	65(71.4)	26(28.6)		

Table 5. Association between level of knowledge and socio-demographic characteristics of respondents.

Discussion

The study revealed that 64.6% of respondents had inadequate knowledge regarding newborn resuscitation. The mean of the respondents knowledge score on newborn resuscitation was 18.87 ± 4.68 standard deviation; range was 9-30. The finding was supported by some of the studies done at Ethiopia and Nepal. Study of Ethiopia showed that range of knowledge score of health professionals were 13-27, mean knowledge score of health Professionals' were 19.9 ± 3.1 [7]. Study done at Nepal 2018, which revealed that 93% of respondents had inadequate knowledge regarding newborn resuscitation. The mean of the respondents knowledge score on newborn resuscitation was 17.16 ± 2.68 standard deviation; range was 10-23 [8]. In contrast to the finding of study in Afghanistan showed the high levels of knowledge among midwives [12]. Likewise, in contrast to the findings from a study in Western Nigeria showed the 78% of the participants' demonstrated adequate knowledge in neonatal resuscitation [13]. This might be due to lack of exposure to an adequate number of real cardiopulmonary resuscitation cases, simulation-based training, and updating training, etc. This result shows that there is inadequate knowledge among nurses regarding neonatal resuscitation.

The finding of that study revealed that there was no significant association between the level of knowledge regarding newborn resuscitation with age (p=0.714), work experience (p=0.933). The finding were supported by the study done in Ethiopia which revealed that there was no significant association in the knowledge score of participants in terms of age (p=0.029), work experience (p=0.391) [8]. The finding of the study also revealed that there was association between knowledge score and working unit (p=0.013). In contrast to the finding from

study revealed that there was no significant association between knowledge score and working unit (P=0.209) [14].

Conclusion

Nurses should be known for newborn resuscitation. Inadequate/poor knowledge regarding newborn resuscitation among nurses observed in the study. Interventions like regular in-service training on newborn resuscitation are required to improve the knowledge of newborn resuscitation. Hence they can properly handle newborn resuscitation and that will be helpful in reducing the neonatal mortality and morbidity.

Abbreviations

NICU: Neonatal Intensive Care Unit; GMCTHRC: Gandaki Medical College & Research Center; PICU: Paediatric Intensive Care Unit; PNC: Postnatal Ward; Post Op: Post-Operative Ward.

Acknowledgement

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