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Awareness of nurses on neonatal jaundice in some selected tertiary level hospital at Dhaka city, Bangladesh

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Abstract

The present study aimed to assess the level of awareness of nurses on neonatal jaundice in some selected Tertiary Level hospital at Dhaka city, Bangladesh. Neonatal jaundice is one of the most common condition affecting newborn babies. About two thirds of neonates develop clinically apparent indirect hyperbilirubinaemia during first few days of life, thereby making it the most common clinical ailment in the neonates requiring urgent clinical evaluation as well as adequate management. Neonatal morbidity and mortality remain very high especially in the developing countries, of sub-Saharan Africa, Asia and Latin America, and one of the important contributors to this is neonatal jaundice. Because of early discharge of newborn after delivery, role of health care provider about recognizing jaundice has increased. The issue of neonatal jaundice continues to be one of the most important public health problems in many countries throughout the world. Neonatal jaundice (NNJ) is still a leading cause of preventable brain damage, physical and mental handicap, and early death among infants in many communities. Greater awareness is needed among all health care workers. Therefore nurse's knowledge has become an important predictor for the final outcome of neonatal jaundice. However, up to date these issues have received only limited attention, and obtaining information may be useful for developing programs to increase compliance. Consequently, the present study aimed to assess the level of awareness of nurses on neonatal jaundice in some selected hospital at Dhaka city, Bangladesh. The study is cross-sectional study which was conducted in different hospital in Dhaka city during the month of May. Data collection is a structured questionnaire. Data will be collected from 5 hospital in Dhaka city. Purposive sampling methods will be used in the study. Condition will be measured in different factors for socio demographic factors, knowledge and attitude related factors. Data will be analyzed by SPSS software program. Our country will be highly benefited by knowing the exact level of knowledge. This will help our nation to review of educational system and to suggest relevant strategic interventions for policy makers. This review can be used to identify research gaps and serve as a guide to researchers for undertaking research in priority areas to generate evidence for strategic interventions.

Keywords: Neonatal jaundice, nurses' awareness, tertiary hospitals, nursing knowledge, nursing practice, clinical awareness

Introduction

Neonatal Jaundice (NNJ) is a common condition of neonatal mortality and morbidity that needs medical evaluation and intervention. Neonatal Jaundice (NNJ) occurs due to yellow discoloration of the skin, sclera and other tissue. Its manifest due to high bilirubin level (more than 85mlmol/dl or 5gm/dl). Generally yellow color is seen on skin, sclera, face and chest on newborn. NNJ is caused by accumulation bilirubin in blood, it's may occurs from increased production of bilirubin or decreased ability to metabolized and excrete it. Bilirubin is forms when RBC (Red Blood Cell) breakdown and is normally metabolize in liver and excrete in urine and feces.

The most common condition is physiological jaundice; however pathological jaundice is also common in some region. Sometimes its occurs due to inadequate breastfeed. There are many other causes of NNJ is SGA (Small for Gestational Age) or LGA (Large for Gestational Age), premature baby, oxytocin use in labor, cephalo hematoma and family history of Neonatal Jaundice. In Bangladesh neonatal mortality rate (NMR) is very high. There are many

causes of neonatal death among them NJ is one of the most common. According to MOHFW (Ministry of Health and Family Welfare) survey, they noted 6.9% neonate are ill on NNJ. According to BDSH survey (1999-2013) result NMR is 41 in per 1000 live birth. Other health practitioner (like Homeopathic doctor, MBBS private medical doctor) are reported that neonatal jaundice are one of the causes of neonatal death. There are no exact disease profile of NNJ in Bangladesh. Maximum data are hospital based. In hospital, there are 30.71% neonate are admit with NNJ. In this admission maximum neonate suffer from physiological jaundice, pathological jaundice, jaundice due to septicemia etc. Among them 6% are die for neonatal jaundice. NNJ has several severe side effect like that brain damage (preventable), physical and mental handicaps and early death etc. That's why greater awareness is needed among all health care providers. NNJ is leading causes of mortality in developing country like sub Shaharian Africa, Aisa, and Latin America. Many parts of the world neonatal death due to uncongugated hyperbilirubinaemia. Jaundice is common, unless harmless but sometimes it can be develop more

severe illness.

The first 28 days (neonatal period) of life neonate face maximum health risk. It notice that 60% in term baby and 80% in preterm baby. Kernicterus bear maximum health risk due to unconjugated bilirubin in serum. There are 10% mortality and 70% morbidity occurs for Kernicterus. However, phototherapy and blood exchange correct all complication. Now a day's NNJ is considerate major health problem in Asian country and also a worldwide common public health problem. However, incidence of jaundice are not documenting large-scale prospective studies in any part of the world.

Available evidences showed that neonatal jaundice id leading causes of neonatal mortality and morbidity. These issues are reduced by awareness of health care provider (nurses). Therefore, the present study aims to provide baseline and reference data on the awareness of nurses on neonatal jaundice in some selected hospital at Dhaka city, Bangladesh. All questionnaires were checked for its completeness and correctness. Coding and classification were done. The analysis was done with the help of SPSS-23. Descriptive statistics was used for the interpretation of the findings. Cross tabulation and association was determined by use of chi-square test. Filled questionnaires were checked daily for completeness and consistency of the responses to eliminate possible errors.

Objectives of the study
General Objective
To assess the level of awareness of nurses on Neonatal Jaundice in some Selected Tertiary Level Hospitals of Dhaka City, Bangladesh.

Specific Objectives
1. To describe the personal and socio-demographic characteristics of nurses in some selected Tertiary level hospital of Dhaka City, Bangladesh.
2. To identify the level of knowledge of respondents on neonatal jaundice in some selected tertiary level hospital of Dhaka city, Bangladesh.
3. To find out the level of attitude of respondents on neonatal jaundice in some some selected tertiary level hospital of Dhaka city, Bangladesh.

Research question
What is the level of awareness of nurses on Neonatal Jaundice in some selected Tertiary Level Hospital at Dhaka City, Bangladesh?

Research Methodology
Study Design: It was a cross sectional descriptive study which assesses the level of awareness of nurses on Neonatal Jaundice in some selected tertiary level hospital of Dhaka city, Bangladesh.

Target population & Sample population: The study was conducted among nurses on Neonatal Jaundice in some selected tertiary level hospital of Dhaka city, Bangladesh.

Study Area: The study was conducted in selected hospital in Dhaka City, namely, Shaheed Suhurawardy Medical College and Hospital, Dhaka Medical College and Hospital and Mitford Hospital.

Study period: The study was conducted for the period from 1st May, 2018 to 1 st June, 2018.

Sample Size: Following formula was used to calculate the sample size: $n = Z^2 \alpha pq / d^2$

Where,
n = Number of desired sample size
$Z\alpha$ = Standard normal deviation (usually set at 1.96 which corresponds to 95% confidence interval)
p = Proportion in the target population
q = 1 - p
d = Degree of accuracy desired, usually set at 0.05%.
Therefore, there was no study found in this title, the prevalence rate has been considered to be 10%.
So that,
P= 10%
=0.10
Q= 1- P
= 1- 0.10
= 0.90

Hence,
Sample size is calculated as:
$n = (1.96)^2 \times 0.10 \times 0.90/(0.05)^2 = 138.2976 \sim 138$

Considering 5% loss to interview and incomplete data during interview process the sample size will be 5% more.
i.e., ultimate sample size will be 145.
Due to unavailability of sample I will take 50% respondents, therefore sample size is 73.

Inclusion criteria
- Staff nurses of selected hospitals
- Staff nurses who are present at the time of data collection.
- Staff nurses who are willing to participate.

Sampling Technique: Study sample was selected by convenient sampling to interview the study population.

Data Collection Tools: Formatted, structured and pretested questionnaire and face to face interviewing.

Data Management and Analysis Plan
Using computer softer SPSS v-23. Among the tests of significance, chi- square test to see the difference for proportion.

Results
There were 73 respondents in total. Out of these respondents, about 16.4% were male and about 83.6% were female. The Study records of respondents on age, sex, years of experience, marital status and their children were grouped them into different category as shown in the table 1.

Table 1: Personal and Socio-demographic Profile of respondents (n=73)

Personal and Socio-demographic Data		Frequency	Percentage%
Gender	Male	12	16.4
	Female	61	83.6
Age/Year	20-25	6	8.2
	26-30	27	37.0
	31-35	21	28.8
	36-40	13	17.8
	41-45	4	5.5
	46-50	2	2.7
Mean ±SD		32.25±5.79 years	
Years of Experience in NICU	Less than 1 year	21	28.8
	1-5 years	38	52.1
	> 5 years	14	19.2
	Mean ± SD	3.66 ± 2.9 years	
Years of experience in others department	No previous	19	26.0
	< 5 years	43	58.9
	> 5 years	11	15.1
	Mean ± SD	2.00 ± 3.09 years	
Training	Yes	33	45.2
	No	40	54.8
Marital Status	Single	18	13.5
	Married	55	87.7
If married have Children	Yes	56	76.7
	No	17	23.3

In the table 1, it is shown that the age of the respondents varied from 20 to 50 years. Around 37%, 28.8% were age of 26-30 years and 31-35 years old with mean age 32.25±5.79 years and maximum 83.6% are female. As regards 52.1% nurse have 1-5 years of experience and 58.9% nurses have >5 years experiences. Among them 45.2% nurses receive previous training. 87.7% of nurses are married and 76.7% of married nurses have children.

Table 2: Description of nurse's knowledge regarding to definition, causes and manifestation of Neonatal Jaundice (NNJ). (n=73)

Variable	Frequency	Percentage
* Neonatal jaundice (NNJ) occurs		
Due to increase bilirubin level in the blood	70	95.9%
Is a material causing yellowish discoloration	19	26.0%
Is a normal production of liver	8	11.0%
Normally liver discard excessive bilirubin before the labour	25	34.2%
Liver can't remove excessive bilirubin that lead to increase bilirubin level usually become in the 2nd or 3rd day	62	84.9%
*Causes		
Inadequate breast feeding	19	26.0%
Cephalohematoma	19	26.0%
Sepsis/infection	32	43.8%
Rh incompatibility	66	90.4%
Deficiency of specific liver enzyme	39	53.4%
Manifestation		
Only yellowish discoloration in the skin	6	8.2%
Only yellowish discoloration in the sclera	4	5.5%
Yellowish discoloration in the skin sclera, then all over the body	63	86.3%
Total	73	100%

*There was more than one selection that's why is not equally distributed.

From table 2, it indicates that about 95.9% of respondent having knowledge about the definition of Neonatal Jaundice they illustrate that Neonatal Jaundice occurs due increase bilirubin level in the blood, as regards causes, 90.4% of respondent mentioned that Rh incompatibility and 86.3% respondent know that yellowish discoloration in the skin sclera, then all over the body is manifestation of the Neonatal Jaundice.

Table 3: Description of nurse's knowledge regarding to bilirubin level, complication and side effect of Neonatal Jaundice (NNJ). (n=73)

Variable	Frequency	Percentage
*Bilirubin level		
Full-term babies more the 12 gm/dl	54	74.0%
Pre term babies more the 15 gm/dl	51	69.9%
Unknown	11	15.1%
*Complication		
Fever	24	32.9%
Paralysis	11	15.1%
Vision disability	62	84.9%
Hearing Disability	64	87.7%
Mental retardation	55	75.3%
*Side effect		
Bronzy baby syndrome	69	94.5%
Greenish stool	41	56.2%
Transient skin rashes	51	69.9%
Hyperthermia	47	64.4%
Dehydration	51	69.9%

*There was more than one selection that's why is not equally distributed.

From table 2, it indicates that about 74.0% and 69.9% of respondent having knowledge about the bilirubin level, they mentioned that full-term babies more the 12 gm /dl and pre term babies more the 15 gm/dl is considerate NNJ. 84.9% and 87.7% nurses have mentioned that the complication of NNJ is Vision disability and Hearing Disability. 94.5% and 69.9% respondent mentioned that bronzy baby syndrome and dehydration.

Table 3: Description of nurse's knowledge regarding to definition of phototherapy, therapeutic and nursing management of Neonatal Jaundice (NNJ). (n=73)

| Variable	Frequency	Percentage
*What is phototherapy		
Application of fluoresced light to the naked baby except genital organ and eye	59	80.8%
Application light to the naked baby except genital organ and eye	11	15.1%
I don't know	3	4.1%
*Therapeutic management of Neonatal jaundice		
Conventional phototherapy, extensive phototherapy, blood exchange and breast feeding	53	72.6%
Conventional phototherapy, blood exchange and breast feeding	13	17.8%
Conventional phototherapy, extensive phototherapy, blood exchange and breast feeding	7	9.6%
Phototherapy and breast feeding	2	2.7%
I don't know	3	3.0%
*Nursing management of Neonatal jaundice		
Assure effective phototherapy	73	100.0%
Provide eye protection and Proper covering shielding of gonad	72	98.6%
Proper position	71	97.3%
Hydration maintain	58	79.5%
Restricted infant parent interaction	8	11.0%

*There was more than one selection that's why is not equally distributed.

From table 3, it indicates that about 80.8% respondent know about the definition of phototherapy and also 72.6% have knowledge about therapeutic management of neonatal jaundice. As regard nursing care of neonate 100% nurse mentioned Assure effective phototherapy, 98.6% nurses mentioned Provide eye protection and Proper covering shielding of gonad, 79.5% nurse mentioned Proper position and 79.5% nurses mentioned Hydration maintain.

Table 4: Distribution of nurse's knowledge score regarding Neonatal Jaundice (NNJ) (n=73)

Total knowledge Score	Frequency	Percentage
Moderate	13	17.8%
Good	60	82.2%
Total	73	100.0%

From table 4, it indicates that about 82.2% respondent have good knowledge about the neonatal jaundice (NNJ).
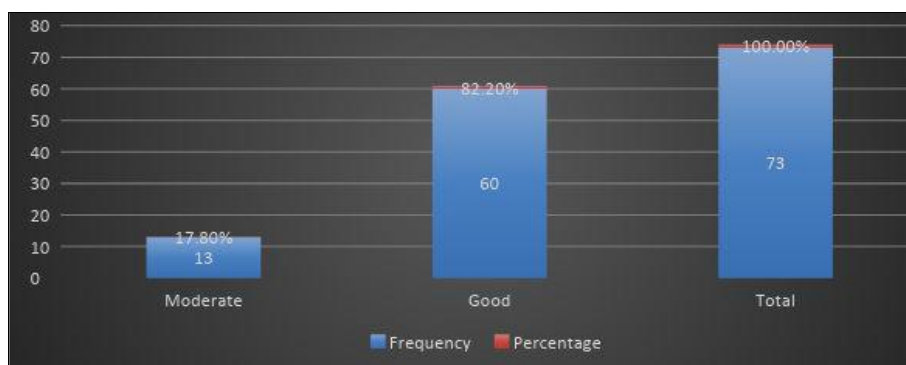
Fig 1: Distribution of nurse's knowledge score regarding Neonatal Jaundice (NNJ) (n=73)

Table 5: Relation between personal and socio-demographic data and nurses knowledge regarding Neonatal Jaundice (n=73)

Personal and socio-demographic data		Total Knowledge Score				X²	P value
		Moderate		Good			
		Frequency	Percentage	Frequency	Percentage		
Gender	Male	1	7.7%	11	18.3%	.881	.318 NS
	Female	12	93.3%	49	83.6%		
Age	20-25	4	30.8%	2	3.3%	t=2.996	.005 **
	26-30	5	38.5%	22	36.7%		
	31-35	4	30.8%	17	28.3%		
	36-40	0	0.0%	13	21.7%		
	41-45	0	0.0%	4	6.7%		
	46-50	0	0.0%	2	3.3%		
Years of Experience in NICU	Less than 1 year	7	53.8%	14	23.3%	t=5.478	.001 **
	1-5 years	5	38.5%	33	55.0%		
	> 5 years	1	7.7%	13	21.7%		
Years of experience in others department	No previous	6	46.2%	13	21.7%	t=3.866	.001 **
	< 5 years	6	46.2%	37	61.7%		
	> 5 years	1	7.7%	10	16.7%		
Training	Yes	0	0.0%	20	33.3%	2.339	.05*
	No	13	100.0%	40	54.8%		
Marital Status	Single	18	26.3%	0	0.0%	1.044	.307 NS
	Married	52	73.7%	3	100.0%		
If married have Children	Yes	8	61.5%	48	80.0%	2.039	1.44 NS
	No	5	38.5%	12	20.0%		
NS=Not significance		* P value ≤ 0.05		**P- value ≤ 0.01			

In the table 5, shows the Relation between personal and socio-demographic data and nurse's knowledge regarding Neonatal Jaundice of the respondents. This table shoe that years of experience in NICU and years of experience in others department have high significance.

Discussion
This study was undertaken to assess the level of awareness of nurse on Neonatal Jaundice in some selected Tertiary Level Hospital at Dhaka City, Bangladesh. The specific objective was to find out the personal and sociodemographic characteristics of nurses. In addition, the specific objectives were to identify the level of knowledge and attitude of nurses on NNJ in some selected tertiary level hospital at Dhaka City, Bangladesh.

In literature review, it is found that there was no studies about awareness on awareness of nurses on Neonatal Jaundice and its associated factors. In this study, face to face interview are taken from the respondents. This study confirms that 82.2% respondents have good knowledge about Neonatal Jaundice.

Based on the result on present study there were 73 respondents in total. Out of these respondents, about 16.4%

were male and about 83.6% were female. In this study show that 27(maximum) respondents age were between 26-30,21 respondents age were between 31-35.So maximum nurses age were 26 to 35 and their mean age is 32.25 ±5.79 years. As regards 52.1% nurse have 1- 5 years of experience in NICU and 58.9% nurses have > 5 years experiences in other department. Among them 45.2% nurses receive previous training. 87.7% of nurses are married and 76.7% of married nurses have children.

Regarding knowledge about Neonatal Jaundice 95.9% of respondent having knowledge about the definition of Neonatal Jaundice, 90.4%, 86.3% of respondent having knowledge about causes and manifestation of the Neonatal Jaundice. In this study also show that about 74.0% and 69.9% of respondent having knowledge about the bilirubin level of NNJ. 84.9% and 87.7% nurses have knowledge about complication of NNJ and 94.5% and 69.9% respondent have knowledge about side effect of NNJ.

There have been 80.8% respondent know about the definition of phototherapy and also 72.6% have knowledge about therapeutic management of neonatal jaundice. As regard nursing care of neonate 100% nurse mentioned Assure effective phototherapy, 98.6% nurses mentioned

Provide eye protection and Proper covering shielding of gonad, 79.5% nurse mentioned Proper position and 79.5% nurses mentioned Hydration maintain. In the knowledge score, about 82.2% respondent have good knowledge about the neonatal jaundice (NNJ).

As regards relation between personal & socio-demographic data and nurse's knowledge regarding awareness of neonatal jaundice, it is show that age, years of experience in NICU and training have high significance. Finally it can be conclude that majority of nurse's knowledge about the awareness of neonatal jaundice.

Conclusion
The study revealed that more than 82.2% respondent have good knowledge about the neonatal jaundice (NNJ), respectively only 17.8% have moderate knowledge about the neonatal jaundice. Among them 45.2% nurses receive previous training, respectively 54.8% have not receive any training.

Regarding knowledge about Neonatal Jaundice 95.9% of respondent having knowledge about the definition of Neonatal Jaundice, 90.4%, 86.3% of respondent having knowledge about causes and manifestation of the Neonatal Jaundice. In this study also show that about 74.0% and 69.9% of respondent having knowledge about the bilirubin level of NNJ. 84.9% and 87.7% nurses have knowledge about complication of NNJ and 94.5% and 69.9% respondent have knowledge about side effect of NNJ.

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In this study, Relation between personal and socio-demographic data and nurse's knowledge regarding Neonatal Jaundice of the respondents. This table shoe that years of experience in NICU and years of experience in others department have high significance.

So this study conclude that highest percentage of nurses had satisfactory knowledge while minor of percentage of nurses had unsatisfactory knowledge score regarding neonatal jaundice and also majority of nurses were competent regarding practice related neonatal jaundice.

Recommendation
From the finding the following recommendation are made---
- Establishment of in service training programs for NICU nurses aiming to refreshing their knowledge, practice for care of neonatal jaundice and for assigned nurses to improve their knowledge and practice.
- Strategic plan should be implemented at hospital that influence the knowledge and practice of nurses.

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