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Nurses Knowledge Regarding Care of Premature Babies at A Tertiary Level Hospital in Dhaka

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Abstract: **Research Title:** Nurses' Knowledge Regarding Care of Premature Babies at a Tertiary level Hospital in Dhaka. **Aim:** To assess the level of nurses' knowledge regarding care of premature babies at tertiary level hospital in Dhaka. **Method and Material:** A descriptive type of cross sectional study was taken to assess the level of nurses' knowledge regarding care of premature babies who was employed in DMCH, Dhaka from July 2023 to June 2024. 50 samples were selected by convenient sampling technique and data was collected through a self- administered structured questionnaire including 25 multiple choice questions and data were analyzed by using descriptive statistics. **Result:** In the light of the present study, the findings show that the 44 % nurses had average knowledge, 20% nurses had poor knowledge, 14% nurses had good knowledge, 12% nurses had very good knowledge and 10% nurses had excellent knowledge. The overall nurses' knowledge on care of premature baby is on average level. **Conclusion** The study revealed that most of the respondents were aged between 31-35 years and most of them had 6-10 years experience. It is seen that 62% of the respondents completed Diploma degree and 52% received training related to care of premature baby among all the respondents. **Recommendation:** The recommendation emphasis on giving special training related to care of premature baby. Moreover the study recommends further assessment of knowledge level along with the attitude and practice of nurses in future.

Keywords: Premature baby, Care, Nurses, Knowledge.

INTRODUCTION

Prematurity is described as a childbirth that occurs before 37 completed weeks of pregnancy (less than 259 days). It is responsible for almost one-third cause of all baby deaths (Ali &Hamad ,2022). Preterm is defined as babies born alive before 37 weeks of pregnancy completed. There are subcategories of preterm birth based on gestational age. Such as- Extremely preterm: less than 28 weeks (5%), Very preterm: 28 to less than 32 weeks (10%), Late and moderate preterm:32 to less than 37 weeks (84%) (WHO,2022). The risk factors of preterm birth includes history of preterm birth, teens and over age 35years, multiple pregnancy, hypertension, poor nutrition, smoking, alcohol uses those are mostly preventable by providing proper care (Centers for Disease Control and Prevention, 2022).

Globally every year, an estimated 15 million babies are born preterm that is more than 1 in 10 babies. Preterm birth complications are leading cause of death among children under 5 years of age responsible for approximately 1 million of death in 2015 (World Health Organization, 2022). Premature infants are more likely to experience medical issues and developmental delays in later life. As a result of their incomplete organ development, they can have a variety of disorders (Ali &Hamad, 2022). Prematurity is a worldwide health problem of newborn and significant cause of prenatal morbidity and mortality industrialized countries, 70% of mortality and 75% of morbidity cases occur due to preterm birth. It is contributing to significant long-term neuro development problems, pulmonary dysfunction and visual impairment (Mohammed & Alsawaf, 2016).

Prematurity has become an epidemic and it is a major cause of death and a significant cause of long-term human loss globally (Fadlalmola & Elhusein, 2020). Inequalities in survival rates around the world are stark. In low income settings, half of the babies born at or below 32 weeks (2 months early) die due to a lack of feasible, cost-effective care such as warmth, breast feeding support and basic care for infections and breathing difficulties. In high – income countries, almost all these babies survive.

Sub optimal use of technology in middle-income setting is causing an increased burden of disability among preterm babies who survive the neonatal period (WHO,2022). Worldwide 15 million babies are born too soon every year. Among them 36% of newborn deaths occur due to preterm birth (Issa, Madwah&Mosawi , 2018).

Bangladesh is in third position among highest rate of preterm birth in the world (Acharya, *et al.*,

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2022). In Bangladesh preterm birth rate is 14% . In this country 603,700 babies are born too soon each year and 20,000 children under 5 die due to direct preterm complications such as- Respiratory Distress Syndrome, Patent DuctusArteriosus, Intraven tricular hamorrhage, anemia, polycythemia, Hyper bilirubinemia, poor weight gain. Most neonatal death occur within the first week of life, major cause is complications of prematurity (NNHP, 2018).

It is well known that the scope of practice of nurses to provide care immediate after birth, postnatal care, care in Kangaroo Mother Care corner, Neonatal intensive Care Unit etc. which has great impact on the prevent of preterm babies death (Ali &Hamad, 2022). The care of premature babies immediate after birth by nurse can increase the survival possibilities which reduce the morbidity & mortality rate of newborn. Nurses' can play a vital role to help the premature babies for survival and growth without long-term complications (Mohammed &Alsawaf, 2016).

Most premature babies are born just a few weeks early and they can be saved with simple care of nurses, and for more critical premature babies need additional skills equipment and commodities (Lawn, *et al*., 2013).

Nurses' knowledge can have a great impact on care of premature babies. Prematurity is one of the most leading causes of neonatal death in the worldwide. However nurses can play an important role to provide care for premature babies therefore why researchers were intended to conduct a study to assess the knowledge of nurses regarding care of premature babies at a tertiary level hospital in Dhaka .

JUSTIFICATION OF THE STUDY

Universally, the premature babies are existed in all population. Preterm with high mortality and morbidity trigger public health problem in the world , that is a serious and big problem which leads to increase in mortality and morbidity rate among the group of newborn (Ali, *et al*., 2019). Each year 15 million babies are born preterm and their survival chances vary dramatically around the world (Lawn, *et al*., 2013). Just because absence of viable and cost effective care such as warmth , early breastfeeding support , breathing support and basic care the mortality and morbidity rate is high in developing country(Kabo, *et al*., 2022).

In Bangladesh, the second leading cause of neonatal mortality is premature birth that is (Khatun, *et al*., 2012). Premature birth is recognized as a major factor for neonatal mortality in developing country. It is the leading cause of perinatal mortality as it has immediate complication and also later complication.

In the last decade, Bangladesh is strongly committed to reduce preventable child and maternal deaths by 2030 to achieve the sustainable Development Goals (SDG). One of the main goals of SDG is to reduce maternal and neonatal mortality rate. Bangladesh achieved many things in maternal health but newborn mortality rate is still high. And the prematurity is one of the main causes of neonatal mortality. So for achieving the target, care of prematurity is a significant component.

A good care of preterm baby plays an important role in reducing morbidity and mortality and improve the survival for newborn. As the nurse plays an important role as a front line care giver for providing care to premature baby so it is important to assess their knowledge regarding care of premature baby. Newborns survival depends on the care providers knowledge and skills to deliver appropriate newborn care interventions. Therefore, this study was aimed to assess the nurses' knowledge regarding care of premature babies at a tertiary level hospital.

Research Question:
What is the level of nurses' knowledge regarding care of premature babies at tertiary level hospital in Dhaka?

Research Aim:
To assess the level of nurses' knowledge regarding care of premature babies at tertiary level hospital in Dhaka.

Objectives:
1.To assess the level of nurses' knowledge regarding concept of premature baby.
2.To identify the level of nurses' knowledge regarding management of premature baby.
3.To measure the level of nurses' knowledge regarding the complications of prematurity.
4.To find out the level of nurses' knowledge regarding the preventive measures of prematurity due to preterm labor
5.To state socio-demographic characteristics of nurses.

Research Variables
A. Socio-demographic variables

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1. Gender
2. Age
3. Working experience
4. Professional Education
5. Religion
6. Marital status
7. Training received related to care of premature baby

B. Knowledge Related Variable

1. Concept of premature baby.
2. Management of premature baby.
3. Complications of premature baby.
4. Prevention of prematurity due to preterm labor

Operational Definition

Knowledge:

In this study, knowledge refers to the nurses' understanding regarding care of premature babies including concept, management, complications and prevention which was measured by a structured questionnaire.

Nurse:

In this study, nurse is a person who is registered from Bangladesh Nursing and Midwifery Council (BNMC) and had been working as a senior staff nurse in the maternity units specially labor, postnatal, Kangaroo Mother Care corner and Neonatal intensive care unit in Dhaka Medical College Hospital.

LITERATURE REVIEW

Related literature were reviewed and organized according to objectives:

The birth of a baby is a wonderful yet very complex process. Premature babies face more challenges than normal healthy baby for survival in extra uterine world. So these babies need more care for surviving. Although there are several organizations around the world dedicated to protecting mothers in their prenatal stage as well as their babies, and even with the great efforts taken and developments to avoid premature births, the rate of premature newborns is still high all around the world (Hashim, 2020; Ali, *et al*., 2019). The nurse is a key factor in helping the premature babies to thrive and survive by increasing their survival and growth possibilities (Mohammed &Alsawaf, 2016).

In this section, literature review carries diversity of information about concept (definition, incidence prevalence, classification, risk factor) management, complications, prevention of premature baby; role & responsibility of nurses and their knowledge level.

Concept of Premature baby:

Preterm births are babies born before 37 weeks of gestational period or 259 days from the first day of the last menstrual cycle. Prematurity is described as a childbirth that occur before 37 completed weeks of pregnancy (less than 259 days) (World Health Organization, 2023; Ali &Hamad , 2022).

World Health Organization , (2022) stated that globally every year, an estimated 15 million babies are born preterm that is more than 1 in 10 babies .

152 million babies born preterm in the last decade. Approximately 1 in 10 babies born too early & every 40 second, 1 of those babies die (PAHO, 2023).

A study published on kathmandu university medical journal whose title was preterm Birth, Exasperation to the South Asian Countries. In this study author disclose the preterm delivery rate in south asian countries. In lower and middle income countries, most preterm babies die due to lack of even simple interventions. India ranks top in the world for deaths due to complications of preterm birth. Similarly, other South Asian countries, Pakistan, Bangladesh, Afghanistan and Nepal rank 3rd, 6th, 9th and 20th in the same. In short in south asia , premature birth rate are following:

Table 1: South Asia Premature BirthRate

Country	Preterm birth rate
Afghanistan	66%
Bangladesh	14%
Bhutan	10.2%
India	13%
Maldives	7.9%
Nepal	14%
Pakistan	15.8%
Srilanka	10.7%

(Acharya, *et al*., 2022)

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Preterm birth in Bangladesh is 14%. In this country 603,700 babies are born too soon each year and 20,000 children under 5 die due to direct preterm complications (NNHP, 2018).

There are subcategories of preterm birth based on gestational age. Such as- extremely preterm: less than 28 weeks (5%), Very preterm: 28 to less than 32 weeks (10%), Late and moderate preterm:32 to less than 37 weeks (84%) (WHO, 2022).

Several factors have been identified as risks for preterm birth. Socio -demographic factors such as ethnicity, older age of mothers and smoking, lack of education (Gurung, *et al*., 2020)factorsto increase the risk of the incidence of premature birth, including maternal age, education, parity, pregnancy interval, preterm birth history, history of abortion, premature rupture of membranes (PROM), ante partum hemorrhage, antenatal care, and maternal diseases, for example hypertension, anemia and even some of preterm births that occurred spontaneously don't show apparent risk factors(Hidayat, *et al*., 2016)

Management of Premature Baby:

Most premature babies (> 80%) are born between 32 and 37 weeks of gestation, and many die needlessly due to the lack of simple care (Fadlalmola and Elhusein , 2020). Premature babies need following special care to minimize complications of prematurity:

Thermal care:Infants suffer thermal instability through the loss of body heat, mainly through their skin and respiratory tract to the environment by way of radiation, conduction, convection and evaporation (Dail, 2018). Simple methods to maintain a baby's temperature after birth include drying and wrapping, increase environmental temperature, coverage the baby's head, skin to skin contact with the mother and covering both with a blanket. Equipment dependant warming techniques include warping pads or warm cots and radiant heaters or incubators; however, these require additional nursing skills and careful monitoring (Lawn, *et al*., 2013).

Feeding support:Feeding from own mother's milk is not always an option for preterm babies, and choosing between alternative means of feeding should be made in light of their effect on their health (Poulimeneas, 2021). Most premature babies require extra support for feeding such as- spoon feeding, cup feeding, naso gastric feeding and par enteral nutrition (Who,2023)

Apart from, Kangaroo mother care (KMC), respiratory support, infection prevention are very crucial component for managing premature babies (Lawn, *et al*., 2013).

Complications of Premature Baby:

Premature babies are faced with several complications such as respiratory distress syndrome (RDS), chronic lung disease (CLD), necrotizing enterocolitis (NEC), patent ductusarteriosus (PDA), and intraventricularhemorrhage (IVH). These problems can even be severe and deadly and also lead to the death of these premature baby (Armanian, *et al*., 2019). Preterm infants are at great risk for medical complications and future developmental disabilities (Hashim, 2021).

Prevention of Premature Baby:

Prevention of preterm birth is very important. In the beginning, the pregnant women who are at risk for preterm labor should be defined and to ensure that these women would be under effective treatment. Nurses are the first healthcare team who meet pregnant women for the antenatal care and follow-up appointment. Therefore, nurse play a crucial role to prevent preterm birth by: screening at antenatal care, providing suggestion to change health behavior, ensuring to receive effective treatment, informing early sign-symptom of preterm birth, educating family member to take care of pregnant women and much more (Buayaem, Yapan&Pongprasobchai, 2019). There are limited medicines in clinical use for spontaneous preterm birth. Several drugs can delay preterm labor – tocolytics (betameimetics, COX inhibitors, calcium channel blockers, magnesium sulfate, oxytocin receptor antagonists, nitric oxide) are probably effective at delaying preterm birth by 48 hours. Cervical cerclage can prevent preterm birth as well according to situastion (McDougall, *et al*., 2023; Munim, *et al*., 2022; Care, *et al*., 2022).

Role And Responsibilities of Nurses in Care of Premature Baby:

Premature babies face with several type of critical condition that needs to get critical care. It focuses on holistic and continuing care to gain growth and development of premature babies including and also reducing risks of complications, mortality and morbidity and promote long term quality life. Nurses play significant roles to providing nursing

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care that aware of developmental care for premature babies. The core concepts of developmental care premature babies are as follows: safeguarding sleep; minimizing stress and pain; partnering with families; optimizing nutrition; protecting skin and positioning and handling; creating healing environment; following doctors order. Nurses are responsible for all these concepts those are standard care to improve the quality of life of premature babies which takes place from delivery room to home as a holistic and continue care (Phianching, &Klankhajhon, 2022).

Nurses play an important role in exchanging information, improving decisions, empowerment and self-management in premature baby care (Astuti, Rohsiswatmo, Wanda &Utari (2024).

Nurses Knowledge Regarding Care of Premature Baby

In 2022, a descriptive study was carried out for nurses working in the NICU in maternity and pediatric teaching Hospital.The aim of this study was to explore the Nurses Knowledge and Practice on the Care of Premature Babies. A non-probability sampling technique was used, sample size was 51 nurses with at least one years of experience working in the NICU and New born ward and their age was 20-25 years old. Regarding to levels of education, the majority of nurses 68.6% were Diploma in Nursing,76.5% of the Nurses in the "Neonatal Intensive Care Unit" have one to five years of experience. According to the study findings, 90.2% of nurses had moderate 7.8% had high and 2.0% had low knowledge regarding care of premature babies. The study also revealed that Nurses had high knowledge regarding complication and ideal care of premature baby (Ali and Hamad, 2022).

A descriptive cross-sectional study was done in Saudi Arabia in 2020.It was a Hospital base survey, and the study was carried out at JaaferIbnOufPediatrics specialized Hospital, Khartoum State and Qmdurman Maternity Hospital, Omdurman State. The aim of this study was to assess the nurses knowledge and practice on the care of preterm baby in a neonatal intensive care unit (NICU). Total sample size was 72 eligible Nurses who were graduated in B.Sc and had at least 6 month experience. At the time of study, the data was obtained through interview questionnaires. 20.8% respondents stated that they needed training courses on CPAP and a 2.8% of them stated that they needed courses on the care of preterm infants. According to this study, most nurses had relatively poor knowledge and practices about the aspects of premature care. The study shows that nurses had poor knowledge and practice regarding the care of Premature babies (Fadlalmola and Elhusein , 2020).

A Descriptive quantitative study was carried out to determine assessing the Nurses knowledge towards ideal nursing care for premature baby. This study was conducted at Kerbala Paediatric Teaching Hospital, Iraq. A non-probability sampling technique (purposive sample) was used, sample size were 41 Nurses who work in premature care unit, most of them were female, their age were less then 30 years. The Majority of Nurses that participated in this study have a secondary school of qualification in nursing. Majority of the nurses who is working in premature department within less than 5years experience in premature unit. The data was collected through the structured questionnaire and by the means of interviewing technique. The study revealed that high nurses knowledge regarding complication and ideal caring of premature baby (Hashim, 2020).

Researchers have not found studies on nurses' knowledge regarding care of premature baby in Bangladesh.

Most of the literature show how nurses' knowledge can effect on care of premature babies. Prematurity is one of the most leading causes of neonatal death in the worldwide. However nurses can play an important role to provide care for premature babies therefore the researchers are intended to conduct a study to assess the nurses' knowledge regarding care of premature babies at a tertiary level hospital in Dhaka.

RESEARCH METHODOLOGY

The research methodology describes the entire process of the study whichcovered the areas of research design, study place, study population, study period and sample size, sampling technique, selection criteria for the study, research instruments, pretest and finalizing of the questionnaire, data collection procedures, data processing, analysis and presentation and ethical considerations.

Study Design:

A descriptive type of cross- sectional study design was used to assess the Nurses' knowledge regarding care of premature babies at Dhaka Medical College Hospital in Dhaka.

Study Period

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The study period was from July, 2023 to June 2024.

Study Setting
This study was conducted at Dhaka Medical College Hospital in Dhaka. It is a public medical college and hospital located in Dhaka, Bangladesh. It houses a medical school as well as a hospital and bed capacity is 2600. There are all kinds of facilities available for ensuring quality services including gynecological and obstetric, neonatology , outpatient department and emergency unit. It is the largest tertiary level of government medical college hospital in Bangladesh where all categories of patients come throughout the country for receiving better curative, preventive and rehabilitative care in nursing and medical aspects.

Study Population
The population of the selected study area who were working at gynae and Obstetric and Neonatal Intensive Care Unit (NICU) department in Dhaka Medical College Hospital. The total number of nurses were given placement in these units were 130 (One hundred thirty) who was considered as a study population in this study.

Sample Size
Sample size was 50, selected conveniently through maintaining inclusion criteria from the total numbers of population for conducting this research.

Sampling Techniques
A non-probability type of purposive sampling technique was adopted for selecting the sample size of this study. It was useful for the researchers because of a number of limitations towards the short duration and cost for data collection.

Selection Criteria:
Inclusion criteria:

- Nurses who were working in Dhaka Medical College Hospital
- Nurses who were accessible during data collection period.
- Nurses who were willing to participate in this study.

Exclusion criteria:
Nurse who did not meet the inclusion criteria.

Research Instruments:
A structured questionnaire was developed by the researchers based on relevant literature and was reviewed by the research experts to make it simple and understandable to respondents for data collection. The questionnaire was divided into two parts. Part-1 was covered demographic information of the respondents. Part -2 was covered 25structured questionnaires about knowledge regarding the care of premature babies. Each knowledge related question carried out multiple(4) options, 1(one) was correct answer and each correct answercarried 4 marks . The questions were prepared in accordance with the objectives of the study. The total correct answers were mentioned among the total options. 4 (four) marks was allocated for each correct answer.

Validity and Reliability
Validity is about the accuracy of measure and reliability is about the consistency of measure where both of are used to evaluate the quality of study. The tool was assessed and reviewed by the experts for validity. It was evaluated comprehensively based on clear objective and variables. Then it was pretested on 10 (ten) nurses in ShaheedSuhrawardy Medical College Hospital , Dhaka with the same characteristics of the targeted respondentsfor reliability, after reviewing of pretesting results, the necessary corrections was made for finalizing of data collection procedure by the researchers.

Grading Criteria:
The grading criteria were according to the obtained number by the respondents. Total correct answer of knowledge related questions were allocated. Total question was 25 and each right answer carried 4 (four) marks and total marks were counted. The overall score estimated based on the following criteria.

Table 2: Grading Criteria Were According to the Obtained Number by the Respondents

Knowledge level	Grading criteria
Excellent knowledge	90-100%
Very good knowledge	80-89%
Good knowledge	70-79%
Average knowledge	60-69%
Below average knowledge	> 60

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Excellent Knowledge: The respondents who obtained 90%-100% correct answer considered as having excellent knowledge.

Very Good Knowledge: Respondents who obtained 80%-89% considered as having very good knowledge.

Good Knowledge: Respondents who obtained 70%-79% correct answer considered as having good knowledge.

Average Knowledge: Respondents who obtained 60%-69% correct answer considered as having average knowledge.

Below Average Knowledge: Respondents who obtained less than sixty percent (60%) correct answer considered as having poor knowledge.

ETHICAL CONSIDERATIONS

This study was granted from the College of Nursing, Mohakhali Dhaka. Permission was sought from the concern authority and was granted before undertaking the study. Participants were informed about the objectives and method of study and a written consent was taken from the participants prior to participation. The researchers explained clearly about the purpose of the study; the procedure; the possible benefit; and ensured free from risk of the study of the participants. Subjects autonomy and confidentially were strictly maintained and their willingly participation. Participants were informed about their right to withdraw from the study without any repercussions.

DATA COLLECTION METHODS

Permission was granted from principal, College of Nursing Mohakhali, Dhaka and from the Dhaka medical College Hospital before collecting data. The data were collected conveniently through a self-administered structured questionnaire. Researchers informed the aim of the study and all the necessary things to respondents. Questionnaire was physically distributed and data collected by a group of researchers with informed consent and the help of supervisor and ward in charge of the hospital.

Data Management

The collected data were checked, organized, coded and summarized by manually based on objectives of the study.

Data Analysis, Interpretation and Presentation

Collected data were analyzed manually by the researchers with help of micro soft excel and scientific calculator. Master sheet was used to see both demographic and knowledge related information together at a glance. Data were analyzed by descriptive statistics such as - frequency and percentages, mean and standard deviation. The result was presented in the form of table, bar and pie chart.

RESULTS

This chapter contains socio-demographic and knowledge related results presented in different forms of tables, bar and pie charts and their interpretation shortly.

Part-1 Socio-demographic Results

Table 3: Distribution of the respondents by age

n=50

Age	Frequency(f)	Percentage (%)
25-30 years	16	32%
31-35 years	17	34%
36-40 years	11	22%
>40 years	06	12%
Total	50	100 %
Mean= 34.68 years, Standard Deviation= 5.88, Minimum=26 years, maximum=54years		

The above table shows that the majority nurses' (34%) were in the age group between 31-35 years, 32% were in 25-30 years, 22% were in 36-40 years and 12% were in>40 years among the respondents. Mean= 34.68 years, Standard Deviation= 5.88, Minimum=26 years, maximum=54years.

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Table 4: Distribution of the respondents by working experience
n=50

Working experience	Frequency(f)	Percentage (%)
1-5 years	14	28%
6-10 years	29	58%
>10 years	07	14%
Total	50	100 %

The above table shows that 28% respondents had 1-5 years experience, 58% respondents had 6-10 years experience and 14% respondents had more than 10 years experience among all the respondents.

Table 5: Distribution of respondents by educational level
n=50

Education level	Frequency(f)	Percentage (%)
Diploma Degree	31	62%
Bachelor's Degree	18	36%
Master's Degree	01	2%
Others	0	0%
Total	50	100.0

From the above table, it is seen that 62% of the respondents completed Diploma degree, 36% of the respondents completed Bachelor degree, 2% of the respondents completed Master's degree among all the respondents.

Table 6: Distribution of respondents by religion
n=50

Religion	Frequency(f)	Percentage (%)
Islam	40	80%
Hindu	10	20%
Buddhist	0	0%
Christian	0	0%
Total	50%	100.0

The above table shows that, 80% respondents were Muslim and 20% of the respondents wereHindu among all the respondents.

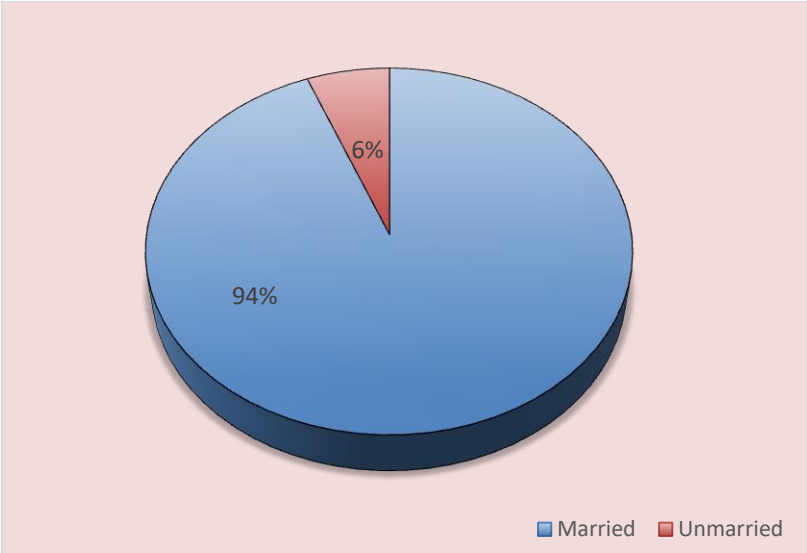

Figure 1: Distribution of the respondents by marital status
n=50

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The above pie chart shows that 94% of the respondents were married, 6% were unmarried among the total respondents.

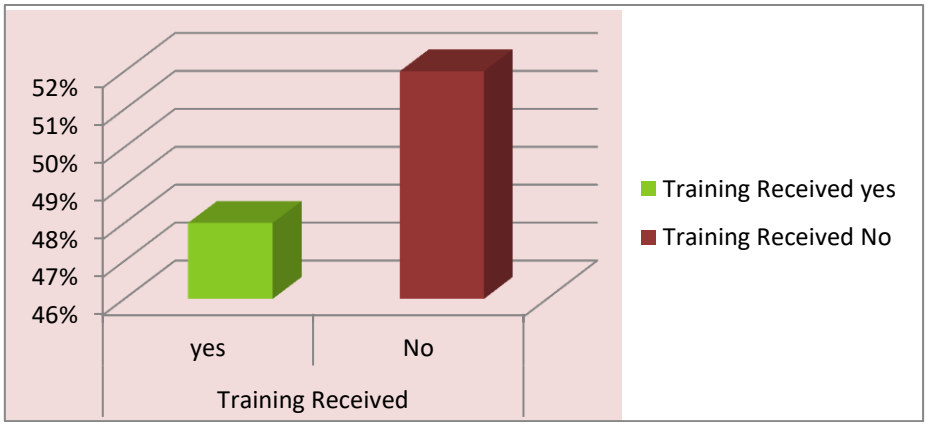

Figure 2: Distribution of the respondents by received training related to care of premature baby
n=50

The above figure shows that 48% respondents received special training related to premature baby and 52% of the respondents did not receive any training related to care of premature baby.

KNOWLEDGE RELATED RESULTS

Table 7: Distribution of the nurses' knowledge regarding premature baby means
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Born before 28 weeks			9	18
Born before 36 weeks			12	24
Born before 37 completed weeks	29	58		
Born before 40 weeks			0	0
Total	29	58	21	42

The table shows that 58% of the respondents provided correct answer regarding premature baby means and 42 % respondents provided incorrect answer among all of the respondents.

Table 8: Distribution of the respondents' knowledge regarding Common criteria of premature baby
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Normal birth weight			1	2
Born in 38-42 weeks			0	0
Thick hair			2	4
Thin, transparent and gelatinous skin	47	94		
Total	47	94	3	6

The table shows that 94% of the respondents provided correct answer on the criteria of premature baby and 6 % provided incorrect answer among all of the respondents.

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Table 9: Distribution of the respondents' knowledge regarding Criteria of stable premature baby-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Birth weight 1kg- 1.5 kg			21	42
Oxygen required > 40%			0	0
Able to breast feed	24	48		
Heart rate < 80 b/min			5	10
Total	24	48	26	52

The table shows that 48% of the respondents provided correct answer on the criteria of stable premature baby and 52 % provided incorrect answer among all of the respondents.

Table 10: Distribution of the respondents' knowledge regarding classification of premature baby
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Moderate preterm: 32 to < 37 weeks			1	2
Very preterm: 28 to <32 weeks			1	2
Extremely preterm: <28 weeks			2	4
All of the above	46	92		
Total	46	92	4	8

The table shows that 92% of the respondents gave correct answer on the classification of premature baby and 8% gave incorrect answer among all of the respondents.

Table 11: Distribution of the respondents' knowledge regarding risk factor of preterm labor
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Smoking	34	68		
Maternal age 18-28 years			14	28
Normal weight of mother			1	2
Normal presentation of fetus			1	2
Total	34	68	16	32

The table shows that 68% of the respondents gave correct answer on the risk factor of preterm laborand 32% gave incorrect answer among all of the respondents.

Table 12: Distribution of the respondents' knowledge regarding main cause of neonatal death
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Complication of prematurity	28	56		
Diarrhea			1	2
Pneumonia			20	40
Fever			1	2
Total	28	56	22	44

The table shows that 56% of the respondents provided correct answer in term of cause of neonatal death and 44% provided incorrect answer among the respondents.

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Table 13: Distribution of the respondents' knowledge regarding normal body temperature of premature baby-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
36.5 C- 37.4C	21	42		
35.5 C- 36.4 C			14	28
37.8 C- 38 C			9	18
37 C – 38 C			6	12
Total	21	42	29	58

The table shows that 42% of the respondents gave correct answer on normal body temperature of premature baby and 58 % gave incorrect answer among all of the respondents.

Table 14: Distribution of the respondents' knowledge regarding care of premature baby should start-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
After 24 hours			9	18
Immediate after birth	41	82		
After 72 hours			0	
After 48 hours			0	
Total	41	82	9	18

The table shows that 82% of the respondents provided correct answer regarding care of premature baby should start and 18% has given incorrect answer among all of the respondents.

Table 15: Distribution of the respondents' knowledge regarding feeding method for stable premature baby-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Breast feeding	24	48		
Spoon feeding			1	2
NG tube			1	2
All the above			24	48
Total	24	48	26	52

The table shows that 48% of the respondents provided correct answer on feeding method for stable premature baby and 52% provided incorrect answer among all of the respondents.

Table 16: Distribution of the respondents' knowledge regarding stable premature baby should start breast feeding
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Within 1 hour	41	82		
2 hours			3	6
After 24 hours			3	6
Can be delayed			3	6
Total	41	82	9	18

The table shows that 82% of the respondents provided correct answer on stable premature baby should start breast feeding and 18 % provided incorrect answer among all of the respondents.

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Table 17: Distribution of the respondents' knowledge regarding prematurity recommends firs
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Kangaroo Mother Care	39	78		
Breast feeding after 24 hours			4	8
Bathing within 3 days			5	10
Artificial feeding			2	4
Total	39	78	11	22

The table shows that 78% of the respondents gave correct answer on prematurity recommends first and 22% gave incorrect answer among all of the respondents.

Table -18: Distribution of the respondents' knowledge regarding Kangaroo mother care can be given by
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Only Mother			11	22
Only Father			1	2
Nurse			0	
Anyone of Family	38	76		
Total	38	76	12	24

The table shows that 76% of the respondents provided correct answer on Kangaroo mother care can be given by and 24% gave incorrect answer among them.

Table 19: Distribution of the nurses' knowledge regarding duration of Kangaroo Mother Care in a day
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
10 hours			4	8
2 hours			12	24
20-22 hours	25	50		
15 hours			9	18
Total	25	50	25	50

n=50

The above table shows that 50% of the nurses' gave correct answer on duration of Kangaroo Mother Care in a day and 50% of the nurses' gave incorrect answers among them.

Table 20: Distribution of the nurses' knowledge regarding the best option for preterm delivery
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Delivery should be done in primary center			9	18
Premature baby should not be referred after delivery			1	2
Delivery should be shifted to a center where NICU is Available	40	80		
Home delivery			0	0
Total	40	80	10	20

The above table shows that 80% of the nurses' gave correct answers on the best option for preterm delivery and 20% of the nurses' gave incorrect answers among them.

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Table 21: Distribution of the nurses' knowledge regarding the steroid helps to mature the lungs of premature baby-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Dexamethasone	43	86		
Algin			1	2
Oxytocin			6	12
Insulin			0	0
Total	43	86	7	14

The above table shows that 86% nurses provided correct answers that is dexamethasone and 14% nurses gave incorrect answers among them.

Table 22: Distribution of the nurses' knowledge regarding short term complication of preterm baby-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Breathing Problem	40	80		
Cerebral palsy			6	12
Hearing problem			3	6
Impaired Learning			1	2
Total	40	80	10	20

The above table shows that 80% nurses provided correct answers regarding short term complication of preterm baby and 20% nurses gave incorrect answers among all nurses.

Table 23: Distribution of the nurses' knowledge regarding long term complication of preterm baby-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Hypothermia			0	
Breathing Problem			4	8
Developmental Delay	32	64		
Feeding problem			14	28
Total	32	64	18	36

The above table shows that 64% nurses' gave correct answers regarding long term complication of preterm babyand 36%nurses' gave incorrect answers among them.

Table 24: Distribution of the nurses' knowledge regarding preterm birth complications are the leading cause of death among-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Under 5 years	41	82		
Above 5 years			7	14
< 7 years			2	4
8 years			0	0
Total	41	82	9	18

The above table shows that 82% nurses' gave correct answers regarding preterm birth complications are the leading cause of death among and 18% nurses' gaveincorrect answers among them.

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Table 25: Distribution of the nurses' knowledge regarding the common problem of premature baby-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Cancer			0	0
Anemia			10	20
Infection	37	74		
Rheumatic fever			3	6
Total	37	74	13	26

The above table shows that 74% nurses' gave correct answers regarding the common problem of premature baby and 26% nurses' gave incorrect answers among them.

Table 26: Distribution of the nurses' knowledge regarding sign and symptom of preterm labor-
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Headache			2	4
Runny nose			1	2
Vomiting			5	10
Premature Rupture of membrane	42	84		
Total	42	84	8	16

The above table shows that 84% nurses' gave correct answers on sign and symptom of preterm labor and 16% nurses' gave incorrect answers among them.

Table 27: Distribution of the nurses' knowledge regarding premature baby loses the body temperature rapidly because
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Rest in more flexed attitude			9	18
Has more subcutaneous fat tissue			10	20
Absent the storage of body fat	21	42		
Wrap the baby accurately			10	20
Total	21	42	29	58

The table shows that 42% nurses' gave correct answers regarding premature baby loses the body temperature and 58% nurses' gave incorrect answers among them.

Table 28: Distribution of the nurses' knowledge regarding preterm labor can be prevented by
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Proper ANC	40	80		
Disinterested to consult with doctor			3	6
Regular exercise			6	12
Unaware about antenatal visit			1	2
Total	40	80	10	20

The above table shows that 80% nurses' provided correct answer that is proper ANC and 20% of the nurses' provided incorrect answers among them.

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Table 29: Distribution of the nurses' knowledge regarding the following drug is used for the prevention of preterm delivery
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Folic acid			29	58
MgSO4	20	40		
Analgesia			1	2
Algin			0	0
Total	20	40	30	60

The table shows that 40%nurses' provided correct answers that is MgSO4 and 60%nurses' provided incorrect answers among them.

Table 30: Distribution of the nurses' knowledge regarding surgical procedure for prevention of preterm delivery
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
Tubectomy			2	4
Visual Inspection of cervix with acetic acid (VIA)			4	8
Manual Vacuum Aspiration (MVA)			13	26
Cervical Cerclage	31	62		
Total	31	62	19	38

The table shows that 62% nurses' provided correct answers regarding surgical procedure for prevention of preterm delivery and 38% nurses' provided incorrect answers among them.

Table 31: Distribution of the nurses' knowledge regarding the drugs that is contraindicated for prevention of preterm delivery
n=50

Items	Correct answer		Incorrect answer	
	(f)	(%)	(f)	(%)
MgSO4			3	6
Nifedipine			7	14
Oxytocin	17	34		
Tocolytic			23	46
Total	17	34	33	66

The table shows that 34% nurses' provided correct answers regarding the drugs that is contraindicated for prevention of preterm delivery and 66% nurses' provided incorrect answers among them.

Table 32: Level of nurses' knowledge regarding care of premature baby
n=50

Variable	Level	Grading Criteria	(f)	(%)	Obtained Score	Mean Score
Nurses' Knowledge	Excellent	90-100%	5	10	472	94.4
	Very Good	80-89%	6	12	488	81.33
	Good	70-79%	7	14	520	74.28
	Average	60-69%	22	44	1416	64.36
	Below Average	<60	10	20	516	51.6
Total			50	100	3412	
Total mean score 68.24						

The above table shows that 10% nurses had excellent knowledge, 12% nurses had very good knowledge, 14% nurses had good knowledge, 44% nurses had average knowledge and 20% nurses had below average knowledge.

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Table 33: Distribution of respondents' knowledge regarding care of premature babies based on educational level
n=50

Education level	(ʃ)	Percentage (%)	Obtained score	Mean score
Diploma Degree	31	62%	2040	65.80
Bachelor's Degree	18	36%	1340	74.44
Master's Degree	01	2%	64	64
Training received related to premature baby	24	48%	1692	70.5
	26	52%	1700	65.38

Above table shows that 62 % respondents had diploma degree, their total obtained score was 2040 and mean score was 65.80. 36% respondents had Bachelor's Degree, their total obtained score was 1340 and mean score was 74.44 among all respondents, only 2% respondents obtained 64 score. Based on receiving training 48% respondents received trainingamong all of the respondents and their total obtained score was 1692 and mean score was 70.5 and 52% respondents did not received any training regarding care of premature babies and their total obtained score was 1700 and mean score was 65.38.

DISCUSSION

The study aimed to assess the level of nurses' knowledge regarding care of premature babies in Dhaka medical college hospital which is a tertiary level hospital in Dhaka, Bangladesh. Sample size of the study was 50 among the total number of population. Premature is live born newborns delivered before 37 completed weeks from the 1st day of last menstrual period and it is one of the leading causes of newborn mortality and morbidity. This section discusses the results and major finding in relation to the research question and its objectives.

In this study, twenty-five multiple choice knowledge related questions were prepared regarding care of premature babies including concept, management, complications, and preventions.

The socio-demographic characteristics related data were analyzed by frequency, percentage, mean and standard deviation. The respondents were all female and highest age was 54 and lowest was 26 and theirmean age was 34.68 years, SD ± 5.88. In terms of experience, 28% respondents had 1-5 years' experience, 58% respondents had 6-10 years' experience and 14% respondents had more than 10 years' experience among all the respondents and their mean experience was-7.72% years. Among them, 52% received training related to care of premature baby and 48% did not receive any training.

Furthermore, 62% of the respondents completed Diploma degree, 36% of the respondents completed bachelor's degree, 2% of the respondents completed master's degree among all the respondents.

Subsequently the significant findings regarding the knowledge-based questionnaire, it was revealed that 58% of the respondents provided correct answers on when premature babies are born, and 42 % respondents provided incorrect answer.

Regarding the common criteria of premature baby, 94% of the respondents provided correct answers and 6% provided incorrect answers.

Based on the criteria of stable premature baby, 48% of the respondents provided correct answer that was ''able to breastfeed'' and 52 % selected wrong options.

Respondents' knowledge on the classification of premature baby shows that 92% of the respondents gave correct and 8% gave incorrect answer.

Respondents' knowledge regarding risk factor of preterm labor shows that 68% of the respondents gave correct answer and 32% gave wrong answers.

It is revealed that 78% of the respondents gave correct answers on the question of prematurity recommends first, and 22% gave incorrect answers.

Moreover 76% of the respondents provided correct answer on the question of Kangaroo mother care can be given by and 24% gave incorrect answers.

50% of the nurses gave correct answers on the question of the duration of Kangaroo Mother Care in a day and 50% answered it wrongly.

80% of the nurses gave correct answers on the best options for preterm delivery and 20% of the nurses did mistakes.

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On the question of the steroid helps to mature the lungs of premature baby, around 86% of the nurses provided correct option and 14% selected other options.

80% of the nurses provided correct answers regarding short term complication of preterm baby and 20% of the nurses provided answers wrongly.

Regarding the long-term complication of preterm babies**,** 64% of the nurses gave correct answers and 36% selected wrong answers.

82% of the nurses gave correct answers regarding preterm birth complications are the leading cause of death among,and 18% viewed it wrongly.

74% of the nurses gave correct answers regarding the common problem of premature babies and 26% of the nurses gave incorrect answers.

On the question of sign and symptom of preterm labor 84% of the nurses gave correct answers and 16% of the nurses gave wrong options.

42% of the nurses gave correct answers regarding premature baby loses the body temperature and 58% of the nurses selected wrong answers.

Regarding the question on preterm labor can be prevented by, 80% of the nurses provided correct answers that are proper ANC and 20% of the nurses did mistake.

40% of the nurses provided correct answersfollowing drug is used for the prevention of preterm delivery that is MgSO4 and 60% of the nurses' provided incorrect answers.

62% of the nurses provided correct answers regarding the question on surgical procedure for prevention of preterm delivery and 38% of the nurses provided incorrect answers.

The drug that is contraindicated for prevention of preterm delivery 34% of the nurses' provided correct answers that is oxytocin and 66% of the nurses' provided wrong answers.

Moreover, there were significant differences in knowledge towards care of premature babies based on educational level. The study revealed that the precipitants who had Diploma degree, their mean score was 65.80 and who had bachelor's degree, their mean score was 74.44 and who had master's degree, their mean score was 64. Those respondents who completed bachelor's degree comparatively had better knowledge.

Furthermore, respondent's who received training related to premature babies their knowledge was better than who did not receive any training. Similarly, one of the studies revealed high nurses' knowledge regarding care of premature babies because they participated in training related to management of premature babies. (Hashim, 2021).

According to grading criteria this study revealed that 10 % respondents had excellent knowledge, 12% had very good knowledge, 14% had good knowledge, 44% had average knowledge and 20% had below average knowledge. The overall knowledge level regarding care of premature babies was average. In contrast, a study revealed poor nurses' knowledge regarding care of premature baby (Fadlalmola and Elhusein, 2020).

Current study findings revealed that nurses' knowledge regarding care of premature babies in DMCHis average that is not optimal and it is not enough to reduce neonatal mortality and morbidity rate which has a great negative impact to achieve to SDG. In contrast, for improving nurses' knowledge regarding care of premature babies regular training is recommended.

CONCLUSION:

A descriptive type of cross-sectional study was conducted to assess nurses' knowledge regarding care of premature baby at Dhaka Medical College Hospital. Sample size was 50 nurses among the total population. Data were collected through structured questionnaire with informed consent. The study revealed that the knowledge level regarding care of premature babies was average. Therefore the researchers recommended nurses' need training regarding care of premature baby.

LIMITATIONS OF THE STUDY

- This study was conducted at only one hospital, so it does not reflect overall feature of all hospital in Bangladesh
- The study sample was selected purposively where all number of the population have no equal chance to participate in this study.
- There was no allocated budget for conducting the research project.
- The nurses were very busy with their patient's management work since the respondents were less cooperative with the researchers.
- The study only focused on the assessment of knowledge level but not the attitude and practice of nurses.

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RECOMMENDATION

Based on the findings of the study, the following recommendations were included:

- Special training on newborn management is recommended to all nurses and refresher training frequently.
- Concern authority should give more emphasis on monitoring to the responsible team of gynae and obstetrics department and neonatal unit.
- Arrange workshops and seminars on care of premature babies to update nurses' knowledge level.
- Further research with large samples is recommended on nurses' knowledge and practice on care of premature babies.
- To give regular updated medical information through monthly meeting from the higher authorities to the nurses and Midwives.

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