

## Evaluation of Nurses' Practices about Care Neonates with Diaphragmatic Hernia in Neonatal Intensive Care Unit

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### ABSTRACT

When it comes to providing care for neonates diagnosed with diaphragmatic hernia, the expertise and experience of nurses play a vital role. They need to be able to recognize the indicators of distress, offer the required interventions, and carefully monitor the status of the neonates to ensure the best outcome possible. It is essential to maintain open lines of communication and work closely with the multidisciplinary team in order to deliver the highest level of care possible for these neonates. The result displays that the assessment of nurses' practices about diaphragmatic hernia in neonatal intensive care unit the findings are poor level .

**Objective(s):** This study aims to evaluate nurses' practices about care neonates with Diaphragmatic Hernia in neonatal intensive care unit and find out the relationship between Nurses' Practices and their demographic characteristic.

**Methodology:** A descriptive study design was conducted in march 22<sup>h</sup>, 2023 to May 23<sup>th</sup>, 2023, for (30) nurses who works in neonatal intensive care units (10) from Children Welfare Teaching hospital, (10) from Al-Yarmouk Teaching Hospital and (10) from Baghdad Teaching Hospital at Baghdad city. The nurses were selected from morning and night shift. The study questioner was consisting to tow parts. demographic data, nurses' knowledge about care of neonates with diaphragmatic hernia. The reliability of questioner was determined through a pilot study consist from (10) nurses they work in the neonatal intensive care unit at the Central Children's Teaching Hospital at the City of Baghdad, (5) from morning shift and (5) from night shift and the validity of the questionnaire consists of (10) experts (8) from College of Nursing /University of Baghdad and (2) from Children Welfare Teaching Hospital .

**Results:** The result of this study show that the age group (25- 30 yares) takes the highest percentage (f=16)(53%) most of the study sample (f=20)(66.6% ) was females, more of nurses are married (f=20)(72%) the years of experience (f= 18)(60%) of them seen with "6- 11"(year) in neonatal intensive care unit the highest percentage, (f=18)(60%) regarding level of education refer to "diploma" in the of nurses, only (33%)(f=10) of nurses reported they participated in the trending courses about diaphragmatic hernia, Most participant in the sample of study they haven't information (f=16)(55%) of them reported they have in which they got their information from internet the study show that the nurses' practices about care of neonates with diaphragmatic hernia in neonatal intensive care unit are poor level

**Conclusion:** the age for nurses refers to "25- 30" years. The gender refers to that more half are female, most of the nurses are married, more than half of them seen with "6-11" years of experience. Only 3 of nurses are participated in training courses about diaphragmatic hernia. The study show that the nurses practices are poor level .

**Recommendations:** Adopted the program in continuing nursing education to raise nurses' Practice about Congenital Diaphragmatic Hernia. Hold courses every 6 months for nurses on caring for neonates with Congenital Diaphragmatic Hernia. Preparing illustrated guidebooks and pictures on caring for neonates with Congenital Diaphragmatic Hernia.

**Keywords:** Evaluation, Nurses, Practices, Care, Neonates, Diaphragmatic Hernia.

### INTRODUCTION

When caring for neonates who have diaphragmatic hernia, the administration of drugs is one of the most crucial components of the care that is provided. The potential adverse effects of the drugs used to treat respiratory distress, such as surfactant, steroids, and bronchodilators, are something that registered nurses need to be educated of. In addition to this, they need to be knowledgeable with the appropriate administration

procedures, such as bronchopulmonary dysplasia and nebulization [1].

Nursing treatment for neonates diagnosed with diaphragmatic hernia should always include pain control as one of its primary focuses. Pain could be experienced by these neonates as a result of the compression of their lungs and the surgical intervention that they might have. The ability to recognize the indications of pain and give appropriate interventions, including non-pharmacological

approaches and/or the administration of pain medication as recommended, is required of registered nurses [2].

The prevention and treatment of infection is an essential component of nursing care for neonates diagnosed with diaphragmatic hernia. The use of invasive procedures on these neonates, including intubation, nasogastric tubes, and surgery, puts them at an increased risk of contracting an infection. In order to prevent and treat infections, nurses are required to be aware about the symptoms of infection and to take the necessary precautions, such as practicing adequate hand hygiene and donning the right personal protection equipment [3].

Because neonates with diaphragmatic hernia are at a high risk for developing difficulties, it is essential for nurses to have a solid understanding of the potential complications, such as pneumonia, sepsis, and bronchopulmonary dysplasia. They need to be able to identify the warning signals of these issues and take the required action to prevent or treat them [4].

The provision of emotional support for the families of neonates is an essential part of the function that nurses perform in the medical administration of the facility. It is crucial for nurses to provide these families with information, comfort, and support since they may be going through a difficult time [5].

In addition, nurses play an important part in the process of discharging neonates who have diaphragmatic hernia and providing them with follow-up care. They are responsible for ensuring that the family has the information and resources necessary to continue providing care for the neonate at home, and they should also provide information regarding follow-up appointments and long-term management of the condition [6].

For nurses to be able to offer neonates diagnosed with diaphragmatic hernia with the highest level of care possible, they need to remain up to date on the most recent research and developments in the field. They should participate in ongoing education and make sure they are up to date on the most recent evidence-based procedures for the care of these neonates [7].

## MATERIALS AND METHODS

**Design of the Study:** A descriptive study design was conducted in march 22<sup>th</sup>, 2023 to May 23<sup>th</sup>, 2023, for (30) nurses who works in neonatal intensive care units (10) from Children Welfare Teaching hospital, (10) from Al-Yarmouk Teaching Hospital and (10) from Baghdad Teaching Hospital at Baghdad city. The nurses were selected from morning and night shift. The study questioner was consisting to tow parts. demographic data, nurses' Practices about care of neonates in neonatal intensiv care unit with diaphragmatic hernia. The reliability of questioner was determined through a pilot study consist from (10) nurses they work in the neonatal intensive care unit at the Central Children's Teaching Hospital at the City of Baghdad, (5) from morning shift and (5) from night shift and the validity of the questionnaire consists of (10) experts (8) from College of Nursing /University of Baghdad and (2) from Children Welfare Teaching Hospital.

**Sample of the Study:** A non – probability purposive sample selected from nurses who were working in neonatal intensive care unit. The sample is study (30) nurses.

**Data Analysis:** The data were analyzed and interpreted through use of the application of Statistical Package for Social Sciences (SPSS), version 26.

## RESULTS OF THE STUDY

**Table (1): Distribution of the Sample according to their Socio-demographic Characteristics:**

No.	Characteristics	Sample Study N=30		
		f	%	
1	Age (Years)	20 – 25	6	20
		25 – 30	16	53
		30 – 35	6	20
		35 and more	2	5
		<b>Total</b>	<b>30</b>	<b>100</b>
	<b>M±SD</b>	<b>24.3 ± 4</b>		
2	Gender	Male	10	33.4
		Female	20	66.6

		<i>Total</i>	<i>30</i>	<i>100</i>
3	<b>Years of experience (year) in Neonatal Intensive Care Unit</b>	1 – 6	5	15
		6 – 11	18	60
		11 or more	7	25
		<i>Total</i>	<i>30</i>	<i>100</i>
		<i>M±SD</i>	<i>8 ± 3</i>	
4	<b>Level of education in nursing</b>	Secondary school	6	20
		Diploma	18	60
		Bachelor	6	20
		Postgraduate	0	0
		<i>Total</i>	<i>30</i>	<i>100</i>
5	<b>Training courses</b>	No	20	66.6
		Yes	10	33.4
		<i>Total</i>	<i>30</i>	<i>100</i>
6	<b>Trained inside</b>	None	25	85
		1	5	15
		<i>Total</i>	<i>30</i>	<i>100</i>
7	<b>Trained outside</b>	None	30	100
		0	0	0
		<i>Total</i>	<i>30</i>	<i>100</i>
8	<b>Having information</b>	No	16	55
		Yes	14	45
		<i>Total</i>	<i>30</i>	<i>100</i>
9	<b>Sources of information</b>	None	14	45
		Internet	9	30
		Books	7	25
		Television	0	0
		<i>Total</i>	<i>30</i>	<i>100</i>

No: Number, f: Frequency, %: Percentage, M: Mean, SD: Standard deviation

The descriptive analysis in this table shows that average age for nurses in the sample the study average age for nurses is  $24.3 \pm 4$  years and 53% of them seen with age group of “25 – 35” years. The gender refers that 66.6% in the sample the study is female. The average years of experience for nurses in the sample of study refers to  $8 \pm 3$  year and 60% of them associated with “6- 11” year of

experience. Regarding level of education, the highest percentage refers to “diploma” as 60% of them in the sample of study. Concerning participation in training courses only three (15%) in the sample of study have participated in the training courses inside country. Most participant in the sample of study they haven’t information, 55% of them reported they have in which they got their information from internet (30%).

**Table (2): Nurses’ Practices about Diaphragmatic Hernia**

Levels of practices	Sample of Study (N= 30)			
	f	%	M	S.D
Poor	25	83.3	49.25	1.618
Fair	5	16.6		
Good	0	0		
<i>Total</i>	<i>30</i>	<i>100</i>		

**f: Frequency, %: Percentage, M: Mean of total score, SD Standard deviation of total score.**

**Poor=**  $M \pm SD = 49.25 \pm 1.618$

This table (2) displays the nurses' practices about diaphragmatic hernia in neonates; the findings reveals that nurses are show poor level of practices during the study (100%,  $M \pm SD = 49.25 \pm 1.618$ )

**Table (3): Nurses' Practices related to the "Preoperative Care" neonates with diaphragmatic hernia**

Items Preoperative Care	Sample of Study (N=30)	
	M	Ass.
Before the operation, the newborn is received as soon as it is born and its breathing is supported with a respirator, and it is prepared for the hernia repair operation, which is performed in the first week of the newborn's life after its condition has stabilized.	1.12	Poor
Oxygen: Measures to give oxygen such as a breathing tube (a device that helps air get in and out of the lungs) may be needed.	1.00	Poor
Giving treatment to the patient before the operation and as prescribed	1.22	Poor
Explain the details of the operation and complications to the parents	1.00	Poor
Before the operation, infants need parenteral nutrition until the repair is completed and the intestines regain their functions, according to the doctor's orders	1.31	Poor
Place the child in a calm and comfortable environment.	1.24	Poor
Treatment of acid reflux from the stomach by placing a gastric emptying tube and according to orders	1.00	Poor
Treating hypoxia and tissue ischemia helps the affected child and facilitates the best way to pass the surgical procedure and reduces complications.	1.25	Poor
Artificial respiration is absolutely necessary in this case, and it is the most effective, and it is set at a rate of less than 60 breaths per minute, and the ambopac is not used.	1.55	Poor
Affected children suffer from an acidic metabolic environment as a result of decreased heart pumping and decreased blood flow to the tissues. This can usually be relieved before surgery by giving plasmapheresis and sodium bicarbonate as ordered by the doctor	1.00	Poor
Giving the child, in the event that he did not exceed the lack of oxygen through ventilation and even with the help of a respirator, Tolazoline (1-2 mg / kg / hour) and according to the treatment program previously prescribed by the doctor	1.60	Poor
Circulatory insufficiency is treated with plasma and dopamine (2-10 $\mu\text{g}$ / kg / min) and dilution of the acidic metabolic medium with sodium bicarbonate, and the treatment program prescribed by the nurse is followed and under the supervision of the specialized medical team.	1.00	Poor
An ultrasound of the heart may be done to assess its function and assess any potential problems.	1.33	Poor
The child is placed under observation to monitor his condition from 4 to 16 hours, and the newborn child undergoes surgery if his condition is stable.	1.00	Poor
<i>Nursing documentation for the child before the operation including:</i>		
The neonates name and age	1.21	Fair
Date of admission	1.00	Fair
Record vital signs (temperature, pulse, and respiration)	1.14	Poor
Recording all that was given to the child in terms of blood or treatments, according to what was prescribed to him	1.17	Fair

Preparing the child for the operation	1.00	Fair
Write the nurse's name and signature in a clear and understandable handwriting	1.18	Fair
<b>Total</b>	<b>1.16</b>	<b>Poor</b>

**M: Mean, Poor= 1 – 1.6**

The table (3) presents of the nurses’ practices about “pre-operative care”; the findings indicate that nurses in the sample of the study show poor level of practices . (mean= 1-16).

**Table (4): The Nurses’ Practices related to the“Post-operative Care” Neonates with Diaphragmatic Hernia**

Post-operative Nursing Care	Sample of studyn=(30)	
	M	Ass.
A newborn needs care after the operation from several weeks to several months until the lungs regain their functions and become able to breathe normally.	1.20	Poor
<i>Nutrition is very important and includes:</i>		
Through the stomach tube after the operation.	1.00	Poor
Parenteral nutrition according to the doctor's orders	1.33	Poor
After tube feeding they move to oral feeding gradually.	1.00	Poor
Keep dressings sterile and dry	1.24	Poor
<i>Use a good sterilization technique to preserve the wound and prevent infection by:</i>		
Take care of the operation site and change the bandage as prescribed	1.00	Poor
Wash hands well before changing bandages	1.21	Fair
Wearing paws	1.14	Fair
Use sterile tools	1.00	Fair
The child needs to stay in the intensive care unit for a period of time after the surgery.	1.16	Poor
The nurse educates the baby's family that although the abdominal organs are now in place, the baby’s lungs and blood vessels in the lungs is still not fully developed and need to adapt to the environment outside the womb.	1.35	Poor
The nurse usually performs artificial respiration for a period after the operation if the child needs it, continuing to put the child on the resuscitation device	1.00	Poor
Even after artificial respiration ends, a child may still need oxygen and medications to help with breathing for weeks, months or years.	1.43	Poor
The nurse should keep in mind that pulmonary hypertension (poor development of blood vessels in the lungs) may persist and may require continued treatment.	1.00	Poor
Monitor any symptoms of infection and inflammation and inform the specialist immediately, including: (high temperature, redness of the operation site and the presence of an abscess at the operation site)	1.25	Poor
Record the treatments given with time and dose	1.30	Fair
Write the nurse's name and signature in a clear and understandable handwriting	1.35	Fair
<b>Total</b>	<b>1.17</b>	<b>Poor</b>

**M: Mean, Poor= 1 – 1.17**

The table (4) presents the nurses’ practices about “post-operative care”; the findings indicates that nurses show poor level of practices (mean= 1.17)

## DISCUSSION

Table (1) show that the predominant age of nurses in sample of the study refers to that about less than half of them seen with age group of “25- 30” years.

A Turkish study depicts the same finding as the average age of the interviewers was 27.7 (7). The finding also agrees with that of a study conducted in Iraq by Thamer and Abbas (8) who stated that about one third of the participants were in their twenties. And a study conducted in Iran found that the age group with the highest prevalence was 21-35 years (29%) followed by 66-80 years (28.5%) (9). Another two studies conducted in Iraq found that the predominant age group is 30-39 years (10,11), while according to Shauq and Mualaa (12) one quarter of the nurses were within the age 20-25 years' group, the same result revealed in a recent study by Obaid and his colleagues (13). Accordingly, the results of Obaid and Mohammed (14) depicts that half of the nurses were in their thirties.

The gender refers that most of nurses in sample of study are females and remaining are males.

In agreement with the findings of the present study, a study from Egypt also found that the vast majority of nurses in the study were females (4). Also a study from Nigeria approved that only one third of the participants are males, and this support our result (2). A Study conducted in Iran contradicts with the findings of the current study which revealed that the majority of the patients were men (68.2%) (9). Another Iranian study also found that all the nurses were females (5).

In the same line a study took place in Egypt also found that 60% of the studied samples were females (6). While in turkey the results of a study performed to investigate nurse's knowledge found that 21.8% of them were male and 78.2% were female (7). And in agreement with a study fulfilled in China which found that only 10% of the participants were male, while more than half of them were in their thirties of age study. A study conducted in Baghdad city hospital found that the vast majority of nurses working in the pediatric units are female (15), also the same researcher conducted a study in 2022 found that about 60 percent of the nurses are females (16). Accordingly, a study conducted by Ahmed and his co-authors (17) stated that more than half of the participants are males.

Concerning years of experience of nurses in the sample of study refers to more than half of them having “6-11” year of experience.

Relating to nurses' years of experience, a study by Aly and his colleagues showed that about two third of studied nurses had less than ten years of experience (1), this finding is in agreement with our

results. In this regard, Elsayed and Mohammad (18) mentioned that about two third of studied nurses had less than ten years of experience. But a study conducted by Ehwarime and his co-authors found that about two thirds of the nurses had 1–5 years working experience (2). Furthermore, as regards years of experience, it was found that more than half of the study subjects had 15 or more years of experience in the CCUs, while 44% had less than 15 years of experience in the CCU (3). In the same context a study from Egypt found that two thirds of nurses had more than 4 years of experience (4).

Regarding level of education, the highest percentage refers to “diploma” as reported among less three fifths of nurses in the sample of study.

A study conducted by an Egyptian researcher found that the majority of the studied sample was graduates of the Technical Nursing Institute (1), and this finding agree with that of the present study. Such findings also in agreement with (18) who reported that half of studied nurses had have a technical nursing education. In this respect, Eldesouky (19) reported that less than two third of studied nurses were graduated from secondary nursing school and more than one third of them graduated from technical nursing institute. This was contradicted with Oyesanya (20) who found few number of diploma nurses and bachelors ‘were more than two third, while masters or doctorate holders represent sixteen percent.

Concerning participation in training courses only three of them in the sample of study have participated in the training courses inside country.

This was consistent with Shehab and colleagues (4) who reported that all of studied nurses had no training and also there is no protocol of care and Refaey (21) who reported that most of studied nurses had not received training. In the same regard a study in Nigeria found that none of the participants had received any training about the topic of the study except from their basic schools of nursing (2).

Most the participants in the sample of study reported they haven’t information about diaphragmatic hernia, while few them reported they have information about diaphragmatic hernia, in which they got their information from internet.

The result in table (2) show that the nurses’ practices about care of neonates with diaphragmatic hernia reveals that nurses in the sample study are show poor level of practices during the test time.

The presentation on the table (3) show that the nurses’ practices about “pre-operative care”; the findings indicate that nurses in the sample study show poor level .

In the table (4) show that the nurses' practices about "post-operative care"; the findings indicate that nurses in the sample study show poor level .

According to such findings, in another study conducted about CDH findings depicts that nurses reported that the neonates have a relatively long period of hospitalization for surgery, and they are separated from their parents for a long time, which will adversely affect the parent-neonates relationship. After the neonates are discharged from the hospital, parents are very prone to have anxiety and difficulties in parenting. Perceived pressure level can reflect the size of individual psychological pressure. Parents are worried about the health of their babies after experiencing mother neonates separation, and they often have a lot of psychological pressure [8,9,10,11,12].

With regard to the respiratory status, a study showed that reasonably arrange the breathing exercise time to determine whether the neonates can tolerate the breathing exercise. If the neonates has a phlegm sound, he should tap his back in time to discharge phlegm. Note that the movements should be gentle, with a frequency of 100 times per minute. You need to knock your back along the bronchus rhythmically, from bottom to top, from outside to inside. At the same time observe the neonates complexion, breathing and other conditions [9,13,14,15,16].

It was found that nurses practice when dealing with CDH, will be, if necessary, a cotton swab can be inserted into the neonates mouth to stick the secretions out. Position before breastfeeding: Raise the head of the by 30°, in a head-high-foot-low position or a left-side lying position. After breastfeeding, choose the right decubitus position, and stick to the prone position for 30 minutes. The lateral position can enhance the strength of the diaphragm, improve the contraction ability of the diaphragm, and regulate the ventilation function of neonates [10,17,18,19,20].

Similarly, Prone position can reduce the occurrence of atelectasis and other conditions. Malnutrition hinders the growth, development, and repair of the lungs, so adequate energy and nutrient intake are particularly important. Start to supplement adequate calcium, phosphorus, and vitamin D as soon as possible [11,21,22,23].

**Conclusion:** the age for nurses refers to "25-30" years. The gender refers to that more half are female, most of the nurses are married, more than half of them seen with "6-11" years of experience. Only 3 of nurses are participated in training courses about diaphragmatic hernia. The study show that the nurses practices are poor level

**Recommendations:** The study recommended to Provide ongoing training on diaphragmatic hernia : As the participation in training courses about diaphragmatic hernia , it is recommended to offer regular and mandatory training sessions on this topic to enhance nurses 'practices and improve patient care outcomes.

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