

Nurses Performance regarding Humanized Care of Newborn with Hyperbilirubinemia

Eman Salah Elmetwaly Abdelrahman Galala¹, Sahar Mahmoud El-khedr

Abdelgawad², Heba Saied El-mahdy³, Nagafa Hafez Farag⁴

¹ Assistant Lecturer of Pediatric Nursing, Faculty of Nursing, Tanta University.

² Professor of Pediatric Nursing, Faculty of Nursing, Tanta University

³ Professor of Pediatric Medicine, Faculty of Medicine, Tanta University.

⁴ Assistant Professor of Pediatric Nursing, Faculty of Nursing, Tanta University.

Corresponding Author: eman.salah@nursing.tanta.edu.eg

Abstract

Background: Jaundice is one of the most common diagnoses in the neonatal period, it is estimated to occur in 60% of term newborns in the first week of life. Humanized nursing care is a professional practice, educational, and research opportunity that nurses in the quickly evolving technological environment of the Neonatal Intensive Care Units must constantly investigate, assess, and improve. **Aimed of the present study to** assess nurses' performance regarding humanized nursing care of newborn with hyperbilirubinemia.

Research Design: A descriptive design was used. **Setting:** The present study was conducted at the Neonatal Intensive Care Units. **Subjects:** A convenient sample of 70 nurses was involved. **Tools:** Jaundice humanized care structured questionnaire, and nurses' comprehensive observational checklists. **The results:** It was found that the majority of nurses had low level of knowledge about neonatal jaundice and unsatisfactory practice of humanized care was reported by 92.9 % of the nurses. **Conclusion:** Most of the studied nurses had low level of total knowledge about neonatal jaundice and humanized nursing care. In addition, the majority of the studied nurses had unsatisfactory practice regarding care of neonatal jaundice and humanized nursing care. **Recommendations:** Periodic continuous training programs about humanized care should be provided to neonatal nurses. Humanized care must be integrated with the routine care of neonatal jaundice.

Keywords: Humanized, Hyperbilirubinemia, Nurses, Performance, Newborn.

Introduction

The neonatal period is possibly the most fragile in a human's lifespan. During these few days, the newborn adjusts to a new environment and moves from intrauterine to extrauterine life. The goal of nursing care during this period is to safeguard and support the newborns as they go through various physiological changes and adjust to extrauterine life⁽¹⁾.

Neonatal jaundice, which is characterized by a total serum bilirubin level greater than 5 mg/dl, is a common issue since neonatal jaundice affects 60% of full-term newborns and 80% of premature neonates within the first 3 days of life. Even though jaundice is a transient problem, it is a benign condition in the vast majority of neonates, and it is responsible for up to 75% of hospital readmissions in the first week following birth⁽²⁾.

There are two types of neonatal jaundice: pathological and physiological. Physiological jaundice is the most common kind, usually appearing after the first 24 hours of life and lasting no longer than a week. Neonatal jaundice is caused by physiological variables such as increased bilirubin production, poor hepatic conjugation, and increased bilirubin absorption by the enter hepatic circulation⁽³⁾. While a newborn's pathological jaundice usually appears on the first day of life and last for more than a week⁽⁴⁾.

Preventing bilirubin encephalopathy and reversing the hemolytic process, as with any blood group incompatibility, are the main targets of hyperbilirubinemia treatment. Pharmacological treatment, phototherapy, and exchange transfusions are the main forms of treatment⁽⁵⁾.

Nurses play an important role in the

implementation of universal screening for increased bilirubin levels in newborns⁽⁶⁾. Neonatal nurses should acquire advanced up-to-date knowledge and practices to save neonates' life⁽⁷⁾. A comprehensive approach to nursing management is essential for neonates suffering from jaundice. Nurses are responsible for early detection and identification, family education, management, and postnatal follow-up as members of the healthcare team. It is crucial to record the exact moment when jaundice first appears in order to distinguish between pathological and physiological jaundice⁽⁸⁾.

The newborn with his or her affected needs is suddenly separated from the mother and referred to the Neonatal Intensive Care Unit. They continue to be exposed to harsh stimuli, intense manipulation, light, noise, and changing temperatures, all of which generate an unfavorable and hostile environment. Hospitalization entails sophisticated technologies and specialized care, but the parents go through an uncomfortable experience that leaves them feeling anxious, fearful, and tense. Thus, in order to reduce tension and resolve problems, the nursing staff should offer builds positive support to parents. The National Humanization Policy is one of the new concepts the Brazilian Ministry of Health has implemented in the healthcare sector. Health care providers are included in the humanized care model as caregivers who must make behavioral adjustments. Remarkably, the humanization at birth, puerperium, and risk neonatal care policies have brought innovation to the conventional care of low birth weight and preterm infants.⁽⁹⁾

In order to implement humanized care for

the newborn, professionals have pushed for interventions that speak to the newborn's individuality and comprehensiveness, the safety and recovery of the newborn being assured by technology, the newborn being welcomed into the family, and the development of bonding and attachment, among other things. The humanization techniques discussed in Brazilian literature have emphasized the role of communication as a mediator of humanized care. The kangaroo position, or skin-to-skin contact, which encourages affectivity and weight gain; the promotion of breastfeeding as early as possible; the extension of the themes with interventions that permeate the safety measures in all care processes; and the affective touch, which demonstrates affection, empathy, and closeness between parents, neonates, and professionals.⁽¹⁰⁾

Nurses must frequently keep in mind that each neonate is a unique individual with specific demands and a unique way of being cared for while giving vital neonatal care. Nurses must provide loving care, a soothing voice, and a gentle touch. When a newborn's survival is in danger, they may need to be monitored and receive treatment in a NICU. Despite the intensive care unit's advanced technology, these newborns still require more individual attention care, which, in other words, means humanized care. Humanized care is a supplement to the best or most comprehensive care for neonates; it is not a substitute for high-tech care. A good mix and balance between technology-based care and human care enhances quality outcomes for survival⁽¹¹⁾. The technical apparatus at the NICU loses its meaning if it is not incorporated into the humanization process of care and if it is not linked to the ethical principles for life

maintenance and value. Nurses should feel "connected" and "tuned" to the neonates in their care by treating them with gentle touch, love, and compassion. In order to promote humanized care, one must be more attentive, sensitive, and, above all, take comfort measures, ensure the protection of newborns, welcome families, and pay attention to the environment. Humanized care encompasses values, a readiness to go above and beyond the call of duty, and a commitment to provide care.^(12,13)

Feeding techniques, gentle strokes, yakson touch, kinesthetic stimulation, and bird nest maintenance are essential components of this humanized care. Feeding not only provide proper supply of nutrients essentials, but also improving hydration among newborns with hyperbilirubinemia, promote the recovery of the gastrointestinal function of newborns with hyperbilirubinemia and normal frequency of defecation⁽¹⁴⁾. Touch is the primary means of human communication, and many stimulation techniques increase newborns' neurophysiologic maturation and growth to influence their long-term developmental outcomes. Although yakson touch and kinesthetic stimulation stimulate vagal activity, which in turn releases food absorption hormones like gastric and insulin and promotes excretion of bilirubin⁽¹⁵⁾.

Significance of the study

The most frequent cause of admission during the neonatal period is jaundice, which also poses the greatest health risk. In the world, jaundice affects about 50% of newborns, and it occurs in 60% of Egyptian births⁽¹⁶⁾. In order to guarantee competent nursing care and prevent the

complications of neonatal jaundice, nursing staff who provide care for newborns with jaundice should be well-versed in standard nursing protocols.⁽¹⁷⁾ The humanization of care is a broad and inclusive program that may prevent the onset of certain sequelae of jaundice that affect newborns. Humanized care should not be just a concept, but a practice based on the appreciation of the human and the uniqueness which are fundamental in the Neonatal Intensive Care units⁽¹⁸⁾. Nurses should have sufficient knowledge and practice humanized care at NICU so, the current study aimed to assess nurses' performance regarding humanized nursing care of newborn with jaundice.

Aim of the study is to:

Assess nurses' performance regarding humanized nursing care of newborn with hyperbilirubinemia.

Research questions:

1. What is the nurses' level of knowledge about humanized nursing care of neonates with jaundice?
2. What are the nurses' practices regarding humanized nursing care of neonates with jaundice?

Subjects and method:

Design: A descriptive study design was used.

Setting: This study was conducted at Neonatal Intensive Care Unit of Tanta Main University Hospital.

Subject: A convenience sample was of 70 nurses who were working on the Neonatal Intensive Care Unit in the previously mentioned setting was involved.

Tools of data collection:

Tool (I): Jaundice humanized care structured questionnaire: It was designed by researchers to collect data related to nurses' knowledge about humanized care. It consisted of the following parts:

Part (1): Nurses socio-demographic data including age, qualifications, experience, attendance of humanized care training courses.

Part (2) Nurses'-knowledge-about-neonatal jaundice such as definition, causes, pathophysiology, clinical manifestations, complications, management, side effect of phototherapy - and nursing intervention for neonatal jaundice.

Part (3): -Nurses'-knowledge related to humanized nursing as definition of humanized nursing care, component, feeding strategies, gent stroking, kinesthetic stimulation, and birds nest care. The questionnaire sheet for all 3 parts contained 18 questions; each question was scored from 0 to 2. The correct and complete answer was scored (2), while the correct and incomplete answer was scored (1), and the wrong or don't know answers were scored (0). The sum of all the questions was 36.

Tool II: Neonatal Nurses' practice observational checklists: It was developed by the researchers after reviewing the related literature^(19,20) to assess nurses' practice regarding routine care and humanized nursing care related to jaundice. It was including two parts: **Part (1) Routine care observational checklists:** It was used to observe routine nursing care including incubator care, eye, skin, and genitalia care, phototherapy care and care of peripheral intravenous line.

Part (2) Humanized care observational checklists: it was used to observe humanized nursing care of neonates with jaundice. It included the following items:

- Feeding strategies: Including type of feeding, frequency, digestive capacity and amount of milk.
- Gent stroking: the nurse stroking the whole body of the neonates from top to bottom.
- Kinesthetic stimulation: passive motion of the limbs singly and then together in the following order: right arm, left arm, right leg and left leg.
- Birds nest care: the bath towel wrapped around the newborn rolled and folded around him to promote security for neonates.

The total score for nurses' practice was calculated and classified as more than 80% is satisfactory practice while less than this percentage is unsatisfactory practice.

Method

1. Obtaining approval:

Actual official permission, acceptance was submitted from the Dean of the Faculty of Nursing to the Director of Tanta Main University Hospital and subsequently to the Head of NICU to get their approval for conducting the study.

2. Ethical considerations: -

Ethical approval was obtained before conducting the study, code no. (9/2021-34926/9/21).

3. Pilot Study: A pilot study involved 10% of the nurses was done.

4. The tools were revised by a jury of five experts of Pediatric Nursing. The jury reviewed the tools and its validity for comprehensiveness, accuracy, clarity, and relevance.

5. Actual phase of the study

- The researcher explained the aim of the

study to the participants to gain their cooperation and informed them that, the collected data was used for scientific research, and they had the right to withdraw from the study at any time, and their consent was obtained.

- Data collection was conducted two days per week. Nurses' knowledge about neonatal jaundice and humanized nursing care was assessed. Nurses were observed closely and evaluated while providing and humanized nursing care was assessed. Nurses were observed closely and evaluated while providing routine nursing care related to neonates. Also, humanized nursing care including feeding strategies, gent stroking, kinesthetic stimulation, and birds nest care. **(Tool II) part 1,2** were observed during their care of neonates with jaundice.
- A suitable statistical test was used according to the collected data.

Results:

As regards **table (1)** nearly half of the studied nurses (45.7 %) their age was from 20 to less than 30 with a mean age of 28.62 ± 4.676 years. It was evident that slightly more than one quarter of the nurses (27.2%) had a bachelor's degree in nursing science. The mean years of experience was 13.41 ± 6.97 years. All the nurses (100%) didn't attend any in-service training programs regarding humanized nursing care.

Nurses' knowledge about neonatal jaundice was illustrated in **table (2)**. It was evident that correct and complete answers were reported by 32.9% of the nurses about the definition of jaundice, 27.2% for causes, 30% for pathophysiology, and 25.7 % for clinical manifestations. A few percentages of nurses had correct and

complete answers about complications (5.7%), management (8.6%), and nursing intervention (15.7%).

Regarding nurses' knowledge related to humanized nursing care, it was noticed that a few percentages of nurses (8.6%) had a correct and complete answer about the definition of humanized nursing care, 12.9% knew the items of humanized care, 8.6 % knew feeding strategies and 4.3% knew gent stroking.

Table (3) Total scores of nurses' knowledge regarding neonatal jaundice and humanized nursing care of neonates with jaundice was illustrated in **table (4)** it was clear that, few percentages of the studied nurses (4.3%) had high level of total knowledge about neonatal jaundice. In the same context, only 4.3% of them had a high level of total knowledge about humanized nursing care.

Table (1): Percentage distribution of the studied nurses according to socio demographic characteristics (n=70)

Socio-characteristics	The studied nurses (n=70)	
	No.	%
Age (years):		
20 - < 30	10	45.7
30 - < 40	28	40.0
≥ 40	32	14.3
Mean ± SD	28.62 ± 4.676	
Nurses' qualifications		
Secondary Nursing School	29	31.4
Nursing Technical Institute	22	41.4
Bachelor of Nursing Science	19	27.2
Years of experience		
< 10 years	29	45.7
10 - < 20 years	32	41.4
20 - < 30 years	9	12.9
Mean ± SD	13.41 ± 6.97	
Pervious humanized nursing care program		
Yes	0	0.0
No	70	100.0

Table (5) Figure (1) clarifies nurses' total practice regarding routine care of neonates with hyperbilirubinemia. It showed that, most of the studied nurses (85.7%, 84.3% & 82.9%) respectively had unsatisfactory practice regarding peripheral intravenous line care, genitalia care and phototherapy care. It was clear that slightly more than two- thirds of the studied nurses (61.4 %) had unsatisfactory total practice regarding neonatal jaundice.

Table (6) Figure (1) it was found that more than three quarters (78.6 %) and 74.3% of the studied nurses respectively had unsatisfactory practice regarding gent stroking, kinesthetic stimulation and bird's nest care. It was noticed that only few percentages of them (7.1%) were satisfactory and the majority (92.9 %) had unsatisfactory total practice regarding humanized care.

Table (2): Percent distribution of nurses' knowledge regarding neonatal jaundice (n=70)

Nurses' knowledge about hyperbilirubinemia	The studied nurses (n=70)					
	Wrong answer or don't know		Correct and incomplete answer		Correct and complete answer	
	No	%	No	%	No	%
Definition	14	20.0	33	47.1	23	32.9
Causes	12	17.1	39	55.7	19	27.2
Pathophysiology	27	38.6	22	31.4	21	30.0
Clinical manifestations	21	30.0	31	44.3	18	25.7
Complication	38	54.3	28	40.0	4	5.7
Management	28	40.0	36	51.4	6	8.6
Side effect of phototherapy	39	55.7	21	30.0	10	14.3
Nursing intervention	22	31.4	37	52.9	11	15.7

Table (3): Percent distribution of nurses' knowledge related to humanized nursing care

Nurses' knowledge about humanized nursing care	The studied nurses (n=70)					
	Wrong answer or don't know		Correct and incomplete answer		Correct and complete answer	
	No	%	No	%	No	%
Definition	45	64.3	19	27.1	6	8.6
The main items	42	60.0	19	27.1	9	12.9
Feeding strategies	44	62.8	20	28.6	6	8.6
Kinesthetic stimulation	39	55.7	25	35.7	6	8.6
Birds nest care.	43	61.4	21	30.0	6	8.6
Gent stroking	37	52.8	30	42.9	3	4.3

Table (4): Total scores of nurses' knowledge regarding neonatal jaundice and humanized nursing care for neonates with hyperbilirubinemia

Total nurses' knowledge score	The studied nurses (n=70)	
	No	%
Total knowledge about neonatal jaundice		
Low knowledge	56	80.0
Moderate knowledge	11	15.7
High knowledge	3	4.3
Total knowledge about humanized nursing care		
Low knowledge	62	88.6
Moderate knowledge	5	7.1
High knowledge 0	3	4.3
Nurses' total knowledge		
Low knowledge	61	87.2
Moderate knowledge	8	11.4
High knowledge	1	1.4

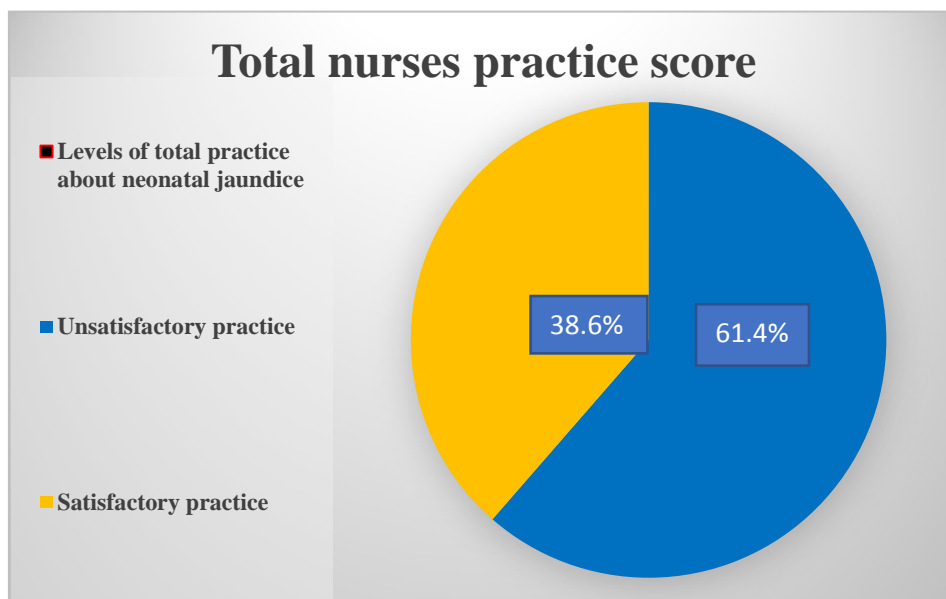
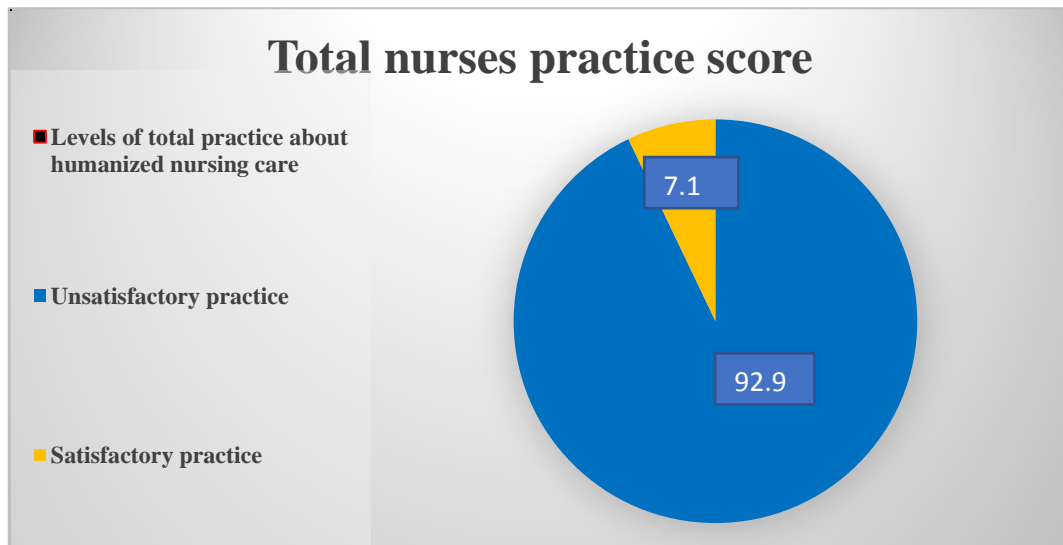
**Figure (1): Nurses' total practice regarding routine care of neonates with jaundice**

Table (6): Nurses' practice parts regarding humanized nursing care for neonates with hyperbilirubinemia (n=70)

Nurses' total practice score	The studied nurses (n=70)			
	Satisfactory		Unsatisfactory	
	No.	%	No.	%
Nasogastric tube insertion	46	65.7	24	34.3
Nasogastric tube feeding	36	51.4	34	48.6
Preparation of Formula feeding	46	65.7	24	34.3
Administration of formula feeding	44	62.9	26	37.1
Intravenous infusion	52	74.3	18	25.7
Gent stroking	15	21.4	55	78.6
Kinesthetic stimulation	15	21.4	55	78.6
Birds nest care	18	25.7	52	74.3
Total	5	7.1	65	92.9

**Figure (2): Nurses' total practice regarding humanized nursing care for neonates with jaundice**

Discussion

Neonatal jaundice is a common condition that requires medical attention during the neonatal period age, if left untreated, severe neonatal jaundice can develop and cause permanent disability or even death. Severe indirect hyperbilirubinemia may induce irreversible toxic consequences mainly in the nervous system. If severe indirect hyperbilirubinemia is not treated, it may cause toxic effects that are irreversible, primarily to the neurological system. The majority of healthcare workers are nurses, who work at almost every level of the healthcare system and are frequently the main point of contact for clinical treatment in NICUs. As a result, in order to effectively care for newborns suffering jaundice, nurses must possess the necessary knowledge and abilities regarding neonatal hyperbilirubinemia and humanized nursing care. ⁽²¹⁾

The current study was conducted to assess nurses' performance regarding humanized nursing care for newborn with jaundice.

It was obvious from the current study that all the nurses did not attend any humanized care in-service training. This may be occur because the concept of humanized care is not common among neonatal nurses and there is no specific training program regarding humanized nursing care. This finding was congruent with **Goda et al., (2022)** who found that nurses in their study didn't attend any training program at NICU ⁽²²⁾. Also, the current study was similar to **Elarousy et al., (2020)** who stated that all the studied nurses did not attend any workshops about neuroprotective developmental care ⁽²³⁾.

Nearly half of the studied nurses in the current study reported incomplete knowledge about neonatal jaundice. Which reflects their need for more theoretical

knowledge. This may be explained as nurses' knowledge acquired only from their experience at NICU. This finding was supported with **Ibrahim et al., (2019)** who showed that more than two-thirds of the studied nurses in their study had poor knowledge as regard definition of neonatal jaundice and more than three-quarters of them had poor knowledge regarding clinical manifestations before educational intervention ⁽²⁴⁾. While this result was contradicted with **Ahmed et al., (2017)** who conducted study about assessment of nurses' knowledge and practice about neonatal jaundice and reported that majority of the studied nurses had good knowledge about definition of neonatal jaundice ⁽²⁵⁾.

In the light of the findings of the current study, it was evident that, few percentages of nurses had correct and complete answer about main items of humanized nursing care. This explained as humanized care wasn't involved in the care of neonates at the NICU. All nurses hadn't any in-service education or training program about humanized care. Also, they do not feel competent enough to deliver humanized care to neonates. These findings are parallel to the findings of **El-Ziady et al., (2018)** who found that, majority of nurses in their study had poor knowledge regarding definition and component of developmental supportive care pre the intervention program compared to all of them who stated the correct answer post program ⁽²⁶⁾.

The current study revealed that few percentage of the studied nurses gave correct and complete answers about feeding strategies. From the researcher's point of view this may be due to a lack of attending nurses' training courses about feeding strategies, which help them to improve their total level of knowledge about feeding. This

finding was in accordance with **Gomaa et al., (2022)** **Abukari et al., (2021)** who reported that majority of nurses in their studies had inadequate total knowledge score regarding enteral feeding before conducting educational program ^(27,28). But this result was different from **Abo Elezz et al. (2021)** who proved that slightly more than half of the studied nurses had satisfactory knowledge related to enteral feeding before education ⁽²⁹⁾.

In relation to nurses' knowledge regarding kinesthetic stimulation and gent stroking it was observed that few percentages of the studied nurses gave correct and complete answer. This finding was inconsistent with **Fathi et al. (2022)** who found that nearly three- quarters of the studied nurses had competent actual knowledge before program application ⁽³⁰⁾.

Regarding nurses' knowledge about bird's nest care the present study revealed that, few percentage of the studied nurses gave correct and complete answers. This finding was in accordance with **Yun et al., (2022)** who stated that few percentage of the studied nurses had complete knowledge and practice about developmental positioning before educational program ⁽¹⁹⁾.

As regards nurses' total level of knowledge about neonatal jaundice it was obvious that, most of the studied nurses had low level of total knowledge. This may reflect the extent of need for more effort to improve the level of knowledge among nurses in order to gain the full information. Educational materials as booklets and prouhor can be useful in this area to improve their knowledge. However, health care professionals should always be encouraged to update their knowledge and maintain clinical competence in the care of neonates suffering from jaundice at NICU.

The current finding was in harmony with the findings of **Hussian et al., (2018)**, **Olanrewaju et al., (2020)**, **Santhi et al., (2020)** and **Salia et al., (2021)** who revealed that nurses had poor level of total knowledge about neonatal jaundice before the educational program ⁽³¹⁻³⁴⁾.

Concerning total nurses' knowledge about humanized nursing care, the current study revealed that, majority of the studied nurses had poor level of total knowledge. This result was in harmony with **La-Riva et al., (2021)** who found knowledge gap regarding the development and construction of care models on humanized care in public and private institutions worldwide ⁽³⁵⁾. Also, this result was consistent with **Abuhammad et al., (2023)** who found that most of the studied nurses had poor level of total knowledge before educational intervention⁽³⁶⁾.

Concerning total nurses' practice about routine nursing care related to neonates with jaundice. The current study observed that, more than two thirds of the studied nurses had unsatisfactory practice. This finding could be attributed to the absence of continuing educational programs at NICU. In addition, the nursing practice was based primarily on individual experience and regular care as new nursing staff was trained about routine care from their colleague at the practice setting. Evidence based nursing practice was not the standard of education or training and there is lack of in-service training. This finding wasn't in the same line with **Ashor et al., (2017)** who conducted study about effect of a designed nursing care protocol on clinical outcomes of neonates with hyperbilirubinemia and reported that more than two thirds of the studied nurses had unsatisfactory practice regarding nursing care of neonatal jaundice ⁽⁷⁾.

Regarding total nurses' practices about humanized nursing care the result of the current study illustrated that the majority of the studied nurses had unsatisfactory practice. This finding was consistent with the findings of **Hendy al., (2023)** who found that the majority of the studied nurses demonstrated incompetent practice before program. Also, **Riad al., (2023)** who concluded that all nurses had unsatisfactory level of practice before program ⁽³⁷⁾.

Conclusion

Based on the findings of the present study, it can be concluded that most of the studied nurses had low level of total knowledge about neonatal jaundice and humanized nursing care. In addition, more than two thirds of the studied nurses had unsatisfactory practice regarding care of jaundice and the majority of them had unsatisfactory practice regarding humanized nursing care.

Recommendation :

1. Each neonatal intensive care unit should have standardized clinical pathway nursing and protocols of care for neonatal jaundice.
2. Periodic continuous training programs and workshop must be done to update nurses' knowledge and practices regarding neonatal jaundice.
3. Humanized care must be integrated with the routine care for neonatal care at ICUs.
4. Further research must be done to examine the effect of humanized care in enhancing the care of neonates with jaundice.

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