

# Effectiveness of Health Educational Program upon Nurses' practices toward Care of Newborns with Neonatal Jaundice

Suad H. Khudhair\*

PhD

**Abstract:**

**Background:** Effectiveness of health educational program upon nurses' practices toward care of newborn with neonatal jaundice in neonatal intensive care unit in pediatric teaching hospitals at Baghdad city.

**Objective:** The study aims to apply a health educational program to improve nurse practical skills toward neonatal jaundice and find the relationship between the nurses' practices and their demographic characteristics.

**Patients and Method:** A Quasi experimental study was carried out in 3 teaching hospitals (Welfare pediatric Teaching Hospital, Central Pediatric Teaching Hospital and Al-Kadhimiya Teaching Hospital) in Baghdad City from the 12th June 2015 to 28th of December 2015. The sample (30) nurses who are working in the neonatal intensive care unit. The data were collected through using constructed questionnaire which comprises (50) items. The questionnaire used in pre test before conduction of the program and post test 1 immediately after the application of the program, post test and repeated posttest 2 after two months from first post-test 1. The reliability of the questionnaire was determined through a pilot study and validity through a panel of experts. The data were analyzed through the application of descriptive statistic frequency, percentage, and the application of inferential statistical procedures, which include Pearson correlation coefficient and chi-square.

**Results:** The findings of the study indicated that nurses have poor practices in pretest. But post evaluation revealed good level of practices among nurses toward neonatal jaundice in the neonatal intensive care unit. The program reflects effects on nurse's practices. There were no statistical significant association between nurses' practices and their demographic characteristics. Conclusion: There was no statistical significant association between nurses' practice and their demographic characteristics. The study demonstrated that there was poor nurses' practice at NICU toward care of newborn with neonatal jaundice before application program in pretest and good practices in post 1 and posttest 2.

**Keywords:** Health educational program, Nurses' Practices, Neonatal Jaundice.

*J Fac Med Baghdad*  
2016 ;Vol.58, No .2  
Received Jan. 2016  
Accepted Mar. 2016

**Introduction:**

Jaundice is one of the most common conditions needing medical attention in newborn babies. Jaundice refers to yellow colouration of the skin and the sclera and is caused by a raised level of bilirubin in the circulation, a condition known as hyperbilirubinaemia. (1) Approximately 60% of term and 80% of preterm babies develop jaundice in the first week of life, and about 10% of breastfed babies are still jaundiced at 1 month of age. In most babies early jaundice is harmless. However, a few babies will develop very high levels of bilirubin, which can be harmful if not treated. (2) Neonatal jaundice also termed as icterus neonatorum or as neonatal hyperbilirubinemia. Some degree of jaundice is normal and probably not preventable. The risk of significant jaundice can often be reduced by feeding babies at least 8 to 12 time a day for the first several days and by carefully identifying infants at high risk (3). Practical approach of the nurses to the identification and care of neonates with jaundice can facilitate to prevention of Kernicterus and neurologic sequel caused

by severe neonatal hyperbilirubinemia, thus decreasing rates of morbidity and mortality. Primary prevention ensuring monitoring total serum bilirubin levels or transcutaneous bilirubin levels in all newborns and these measurements must be document in bilirubin chart (4) Nurses play an integral role in the implementation of universal screening for elevated bilirubin levels in the newborn. Nurses should assess the family's level of understanding and discourage behaviors that are not recommended or could actually cause the bilirubin level to rise, such as the administration of supplemental water. In addition, facilities and health care providers should promote and support breastfeeding as successful breastfeeding helps to decrease elevated bilirubin levels. Nurses should provide parents with both written and verbal education about newborn jaundice. (5) The hospitals should adopt facility-wide policies and procedures that ensure the standard of care for all newborns in order to prevent acute bilirubin encephalopathy and kernicterus. A mechanism should be in place that provides nurses with independent authority consistent with law to order total serum bilirubin (TSB) levels or to perform transcutaneous (TcB) bilirubin assessments based on identified risk factors for jaundice rather than potentially creating a delay while waiting

\* Dept. of Pediatric Nursing /College of Nursing/ University of Baghdad.  
Email: suadnoor@yahoo.com

for a medical order. Health care providers should work as a team to assure that all infants are screened for risk of elevated bilirubin levels (hyperbilirubinemia) prior to discharge from the hospital.(6)Nurses are often the health care providers who give discharge instructions to the family upon infant discharge, families should receive specific instructions to see their pediatric health care provider as appropriate for the newborn's gestational age and condition and to coincide with the time of anticipated peak bilirubin levels. It is important to recognize that late preterm infants' bilirubin levels normally peak between day five and seven of life compared with term newborns whose bilirubin levels tend to peak at day three to four of life. (7)

**Aims of the study:** The study aims to apply a health educational program to improve nurse' practices toward care neonates with neonatal jaundice.

**Patients and Method:**

Quasi experimental study was conducted on nurse who works in neonatal intensive care unit from 12<sup>th</sup> June 2015 to 28<sup>th</sup> of December 2015. The study was conducted at three teaching hospitals (Welfare pediatric Teaching Hospital, Central Pediatric Teaching Hospital and Al-Kadhimiya Teaching Hospital). The

sample of (30) nurses. The data were collected through using specially constructed questionnaire, which comprises two parts. The first one is demographic characteristics and the second part for nurses' practices, the questionnaire used pretest before application of the program and posttest (1) immediately after the application of the program and posttest (2) after 2 months.

Part I: Demographic Characteristics .The demographic characteristics for the nurses include nurses' age, level of education (the nurses, marital status, number of years of employment in nursing, years of experience in the neonatal intensive care unit and number of training courses.

Part II: Nurses' Practices. This part is concerned with data related to the nurses' practices and comprised of (50) items, have been rated and scored according to the three point likert scale for nurses' practices and score as (always, sometimes, never) the level of the scale were scored as (3 for always, 2 for sometimes, 1 for never. Therefore to estimate the nurse's practices are divided to three grades poor, acceptable and good. The validity of the questionnaire determine through a panel of (10) experts the reliability of the questionnaire will determine through a pilot study.The statistical analysis through the application of descriptive statistic frequency, percentage, and the application of inferential statistical procedures, which include Pearson correlation coefficient and chi-square.

**Results:**

**Table (1) shows the level of nurses' practices toward neonatal jaundice record poor level at pre –test of an educational program and good level for post-test 1 and posttest 2.**

Practices items		Pre-test		Post-test1		Post-test2	
Neonatal jaundice (NJ)		F	%	F	%	F	%
Definition N J & type.6 items	Poor	20	66.6	3	10.0	5	16.6
	Acceptable	6	20.0	6	20.0	7	23.4
	Good	4	13.4	21	70.0	18	60.0
<b>Total</b>		<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>
Causes of neonatal jaundice:12 items	Poor	18	60.0	3	10.0	9	30.0
	Acceptable	7	23.4	8	26.6	4	13.4
	Good	5	16.6	19	63.4	17	56.6
<b>Total</b>		<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>
Characteristics of physiological & pathological j.14 items	Poor	22	73.4	0	0	4	13.4
	Acceptable	6	20.0	8	26.6	9	30.0
	Good	2	6.6	22	73.4	17	56.6
	<b>Total</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>
Management of neonatal jaundice: 18 items	Poor	15	50.0	2	6.6	5	16.6
	Acceptable	15	50.0	10	33.4	15	50.0
	Good	0	0	18	60.0	10	33.4
	<b>Total</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>

Frequencies (F) Percentages (%)

**Table (2): shows that there is no statistically significant association between nurses' gender and their practices in pre-test, posttest 1 and post 2follow up (p value > 0.05), there are no differences between male and female mean of score of practices.**

Nurses practices Gender	No.	Pre test	Post 1	Post 2
		Mean ± SD	Mean ± SD	Mean ± SD
Male	5	8.4 ± 2.1	12.6 ± .3	17.1 ± 4
Female	25	15.1 ± 5.2	18.1 ± 4.6	17.2 ± 3.8
<b>Total</b>	<b>30</b>	<b>t = 0.8 d.f. =22 p = 0.7</b>	<b>t = 0.6 d.f. =22 p = 0.4</b>	<b>t = 0.2 d.f. =22 p = 0.6</b>

Table (3) shows that there is no statistically significant association between nurses' age and their practices in pre-test, posttest 1 and post 2, follow up, there is no differences between age groups mean of score of knowledge.

Nurses' practices Age	No.	Pre test	Post 1	Post 2
		Mean ± SD	Mean ± SD	Mean ± SD
Less than 20 years	2	3.8 ± 2.4	6.2 ± 2.2	16.6 ± 4
21 – 29	8	11.1 ± 2.3	15.8 ± 4.1	16.9 ± 3.4
30 – 39	10	13.1 ± 3.3	16.1 ± 4.5	16.5 ± 3.6
40 – 49	7	8.7 ± 2.5	12.7 ± 3.4	11.4 ± 4.1
50 years and more	3	4.1 ± 3.2	6.8 ± 3.1	6.3 ± 3.4
Total	30	t= 1.05 d.f.= 22 p = 0.3	t= 0.15 d.f.= 22 p= 0.8	t= 1.7 d.f.= 22 p= 0.8

Table (4): shows that there is no statistically significant association between nurses' education level and their practices toward care of neonate with jaundice in pretest, posttest 1 and post 2 follow up.

Nurses' practices with education level	No.	Pre test	Post 1	Post 2
		Mean ± SD	Mean ± SD	Mean ± SD
Secondary nursing school graduate	10	11.3 ± 4	12.6 ± 6.3	13.3 ± 5.8
Institute of graduate	12	12.2 ± 2	16.3 ± 3.8	17 ± 3.5
College of nursing	8	13.3 ± 3.8	16.6 ± 4.1	17.7 ± 3.2
Total	30	F = 0.5 d.f. = 22 p = 0.5	F = 1.03 d.f. = 22 p = 0.3	F = 1.5 d.f. = 22 p = 0.2

Table (5): shows that there is no statistically significant association between nurses' years of experience at neonatal intensive care unit and their practices in pre-test, posttest 1 and post 2 follow up.

Nurses practices years of experience at NICU	No.	Pre test	Posttest 1	Posttest 2
		Mean ± SD	Mean ± SD	Mean ± SD
Less than 1 year	1	1.2 ± 3.3	12.7 ± 5.2	13.5 ± 4.7
2 – 6 years	3	12 ± 2.2	17.2 ± 3.7	17.7 ± 3.1
7 – 11 years	9	13 ± 1.4	13 ± 1.4	14 ± 0
12 - 16 years	11	14.1 ± 4.4	17.9 ± 4.2	18.8 ± 3.6
17 years and more	6	11.2 ± 3.3	12.6 ± 3.8	14.3 ± 3.1
Total	30	F = 0.4 p = 0.7	F = 1.5 p = 0.2	F = 2.02 p = 0.1

Table (6): This table shows that there is no statistically significant association between nurses' practices and years of employment in nursing in pre- test, post1 and post 2 foll

Nurses' practices with years of employment in nursing	No.	Pre test	Post 1	Post 2
		Mean ± SD	Mean ± SD	Mean ± SD
Less than 1year	1	11. ± 2.6	13.1 ± 4.9	14.1 ± 4.3
2-6	4	13.5 ± 3.5	16.2 ± 3.6	17 ± 3.2
7 – 11	6	9.8 ± 2.3	19.4 ± 3.4	19.4 ± 4.1
12 – 16	8	13.5 ± 0.7	19 ± 1.4	16.6 ± 4.2
17 and more	12	13 ± 3.1	19.2 ± 3.1	20.1 ± 2.3
Total	30	F = 0.8 d.f. = 22 p = 0.4	F = 1.8 d.f. = 22 p = 0.1	F = 1.9 d.f. = 22 p = 0.1

**Discussion:**

The finding of the present study indicated that the majority of the study sample (83.0%) was female this result agree with (8) Shauq who mentioned that the majority of the sample are female according to study about assessment of nurses knowledge and practices toward the nosocomial infection in the neonatal intensive care units at Baghdad city. This may be explained as most of females had intimate toward care newborn infant so they like to work in pediatric hospitals. In regard to the age the study sample were (30-39) years old are married (60%), this result agree with (9) (Kudhaer) who mentioned that the most of sample between age (30- 39) in the study of assessment of nurses' knowledge and practices toward children with guillian –barre syndrome at pediatric hospitals in Baghdad 2009. moreover most of the sample graduated from the medical institute. This result agrees with (10).

(Asultani,)who mentioned that the most of sample graduated from the medical institute in his study about evaluation of the nurses' practices toward coronary artery bypass grafting patients in the intensive care units in Baghdad city 2006. In relation to the nurses' years of experiences in the neonatal intensive care unit that greater percentage of them had 12-16 years > experience and accounted (36.7%) and (40.0%) of them had more than 17 years of experiences in nursing this result supported by (11) Awhonn S. et.al. (2009), who mentioned that the nurse play vital role to ensure the standard of care for all newborns in order to prevent acute bilirubin encephalopathy and kernicterus and the nurses should work as a team to assure that all infants are screened for risk of elevated bilirubin levels (hyperbilirubinemia) prior to discharge from the hospital. Table 1 show fifty items of the questionnaire used to assess nurses' practice at neonatal intensive care unit. The results indicated that the nurses' practices are poor level in pre and become good level in post 1 and post 2. The nurses' improved practices after the application of the educational program. This results support by (12) Tina M. et.al.(2013) who mentioned that the nurses play an integral role in the implementation of universal screening for elevated bilirubin levels in the newborn, and mentioned that the nurse should promote and support breastfeeding as successful breastfeeding helps to decrease elevated bilirubin levels. Nurses should provide parents with both written and verbal education about newborn with jaundice. The nurses should promote and support breastfeeding 8 to 12 feedings per day for the first several days of life it will decrease total serum bilirubin levels. All hospitalized newborns should be routinely monitored by nursing staff for the development of jaundice every 8 to 12 hours, including vital signs and blood glucose. Measurement and interpretation of the bilirubin level can help determine the timing of discharge of patient and follow-up evaluations. (15). Table 2,3,4,5, and 6 respectively indicated that there were no statistical significant association

between nurses' practices and their gender, age, educational level, years of experiences in the neonatal intensive care and experiences in nursing ( $p>0.05$ ). These results agree with (16) Salih (2007) who mentioned that no statistical significant association between nurses' practices and their demographic characteristics in his study about assessment of pediatric nurses' knowledge and practices toward mucositis in children under chemotherapy

**Conclusions:**

There is no statistical significant association between nurses' practice and their demographic characteristics. The study demonstrated that there was poor nurses' practice at neonatal intensive care unit toward care of newborn with neonatal jaundice before application of program in pretest and good practices in post 1 and posttest 2 and recommended that great emphasize should be directed toward the educational aspects to the nurses toward neonatal jaundice.

**References:**

1. Kenner C. Wright J. *Neonatal Nursing (Handbook)*. Second edition. Saunders. USA. Elsevier Science, 2004, pp .355-360.
2. Datta P.: *Pediatric Nursing. Second Edition*, Jaypee Brothers Medical Publishers. New Delhi Jaypee Brothers Medical Publishers. 2009, P. 97-102.
3. Ball J. Bindler R. Cowen K. *Principles of Pediatric Nursing Caring for Children*. 15<sup>th</sup> edition. Pearson Education. Inc. Upper Saddle River. New Jersey. 2012. P.P.252-7.
4. Naderi et al. *Universal Screening for Hyperbilirubinemia. Journal of Pediatric Nursing*. 2009; 20, (3): 179-183.
5. Shahian M, Moslehi MA et al. *Effect of albumin administration prior to exchange transfusion in term neonates with hyperbilirubinaemia – a randomized controlled trial. Journal of Neonatal Nursing*. 2010; 10(23): 77-81.
6. Ball J. Bindler R. Cowen K. *Principles of Pediatric Nursing Caring for Children*. 15<sup>th</sup> edition. Pearson Education. Inc. Upper Saddle River. New Jersey. 2012. P.P.252-7.
7. Naderi et al. *Universal Screening for Hyperbilirubinemia. Journal of Pediatric Nursing*. 2009; 20, (3): 179-183.
8. Shahian M, Moslehi MA et al. *Effect of albumin administration prior to exchange transfusion in term neonates with hyperbilirubinaemia – a randomized controlled trial. Journal of Neonatal Nursing*. 2010; 10(23): 77-81.
9. Kaplan M., Hammerman C. *American Academy of Pediatrics guidelines for detecting neonatal hyperbilirubinaemia and preventing kernicterus. Journal of the American Academy of Pediatrics*. 2005; 90 (6): 448.
10. Sarah K. Moersche L. et. al. *A Practical Approach to Neonatal Jaundice Journal of the American Family Physician*. 2008; 77 (9): 1255- 1262.
11. Shauq A H. *Assessment of nurses knowledge and practices*

about the nosocomial infection in the neonatal intensive care units of Baghdad, Unpublished thesis, department of pediatric nursing, college of nursing, university of Baghdad, 2008.

12. Kudhaer W. Assessment of Nurses' Knowledge toward children with Guillian –barre Syndrome at pediatric Hospitals in Baghdad , Department of Pediatric Nursing, College of Nursing ,University of Baghdad, 2009.

13. Asultani H. Evaluation of the nurses' practices toward coronary artery bypass grafting patients in the intensive care units in Baghdad city. Master thesis, University of Baghdad, College of nursing, 2006.

14. Awhonn S, Chung M, Kulig J. et.al. Management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation. *Journal of Obstetric Gynecologic & Neonatal Nursing*.2009; 17(8): 98.

15. Tina M, Bolajoko O, Hendrik J, et.al. Treatment of neonatal jaundice with filtered sunlight in Nigerian neonates: study protocol of a non-inferiority, randomized controlled trial. *Journal of Advanced Nursing* 2013; 14(10):441–446.

16. Verklan, T. Malpractice and the Neonatal Intensive Care Nurse. *Journal of Clinical Issues*. 2003; 33 (1): 118-124.

17. Wells C, Ahmed A, and Musser A. Strategies for Neonatal Hyperbilirubinemia. *American Journal of Maternal/Child Nursing*. 2013; 38(6): 377-382.

18. Wong D, Hockenberry M, Wislon D and Winkelstien M: *Wong's Nursing Care of Infant and Children*.7<sup>th</sup> ed. London : Mosby. 2003. PP 323-327.

19. Salih, Y; Assessment of pediatric nurses' knowledge and practices toward mucositis in children under chemotherapy in Baghdad pediatric hospitals, Unpublished thesis, department of pediatric Nursing, college of nursing , University of Baghdad, 2007.