



العلمي و البحث العالي التعليم وزارة  
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## Assessment of Knowledge , Attitude Practice of iraqi Parents and towards Neonatal Jaundice (NNJ)

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## INTRODUCTION

Neonatal jaundice (NNJ) is the yellowish discoloration of newborn's skin and sclera due to pathological hyperbilirubinemia, also often reflect as a normal physiological phenomenon. Worldwide newborn jaundice occurs in 60% and 80% of full and preterm neonates respectively. the majority of which resolves without any treatment.

**Physiological jaundice occurs on the 2nd and 3rd day of life and due to the breakdown of fetal hemoglobin and the inability of the immature hepatic metabolic pathways to adequately excrete the bilirubin.** Development of pathological jaundice has perinatal, neonatal and genetic factor as well as administration of some increase the incidence of neonatal jaundice could also be observed in breast feed neonates receive suboptimal milk intake result in inadequate fluid and nutritional intake[6]. In Iraq, ABO incompatibility was observed in 15.67% of neonates with indirect hyperbilirubinemia, glucose-6-phosphate dehydrogenase (G6PD) deficiency was observed. Neonatal jaundice contribute significantly to neonatal morbidity and mortality. Possible complications arising from unconjugated hyperbilirubinemia include acute bilirubin encephalopathy, kernicterus, seziures, cerebral palsy, mental retardation and deafness. Kernicterus involves staining of basal ganglia by bilirubin and is associated with diffuse damage of neurons, serum bilirubin levels more than 20 mg/dl in normal weight, otherwise healthy infants are 1. associated with high incidence of kernicterus.

## OBJECTIVE OF THE STUDY

- *Assess parent's knowledge toward newborn jaundice .*
- *Assess parent's attitude toward newborn jaundice .*
- *To find out whether there are any association between parents' practices and attitude with age, educational level, residential area and occupation .*
- *To see whether there is a significant correlation in the knowledge, attitude & behavior on Neonatal Jaundice in the study population.*

## **METHODS**

This is a cross-sectional study involving 150 expectant parents in Hilla between may -april 2024 . The participants were from Hilla and the selected age group was from 18 to 45 years old . The selected sample size for this study was randomly determined. A self-administered questionnaire was developed after a careful review of the literature on the subject.

The questionnaire consists of :

1. Parent's demographical data, which included: gender, age, educational, employment status residential area .
2. Parent's knowledge towards NNJ; its content : definition, knowledge resources, causes and risk factors, complication, dangerous signs, treatment , effective types of phototherapy, prevention.
3. Parent's beliefs toward the effect of sunlight on treatment of NNJ.
4. Parent's attitude towards NNJ in their affected child.

### **Data Collection and statistical analysis**

Survey was conducted using a self-administered structured questionnaire generated by the author , designed to obtain the respondent's information. Data were collected by nine data collectors who were a medical students by meeting with the mother at hospital ( Babil teaching hospital for maternity and children Alnoor hospital for children and Al Emam al Sadiq)and some Cases from out of hospital and asked her all questions related to her knowledge about NNJ after demonstrating. Descriptive statistics were used to describe the answers of the participants in the study using numbers and percentages.

The study was done after approval of ethical board of Babylon university/College of medicine.

## Results:-

	NO.	Percent
<b>Place of residence</b>		
Village	35	23.3 %
City	115	76.7 %
<b>Age</b>		
15 _ 30	115	76.7 %
31 - 40	24	16 %
40 _ 50	8	8.3 %
<b>Income</b>		
Less than 500,000	37	24.7 %
500,000 - 1000,000	63	42 %
More than 1000,000	50	33.3 %

**Table (1):** Demographic data of the participants

A total of (150) Iraq Parents participated in this study. Participants were from all regions of Iraq , with the highest percentage from city (76.7%), The highest percentage of the participants are from the age group 15 \_ 30 (76.7%) and the least is from the age 40 - 50 years ( 8.3%) (Table 1).

As regards knowledge of NNJ (68%) had sufficient knowledge and (32 %) had no knowledge at all. Source of knowledge was least from social network services (19.3%) and mostly from relatives and friends followed by treating doctor (48%\_28%) respectively. In (60%) of the participants, knowledge was gained after their child had NNJ.

The most common warning signs for necessary treatment were refused to feed and high fever (42.7%-34%) respective. The attitude of participating parents regarding treating their children was mostly treating them by increase breast feeding ( 64.7%) , while about (11.4%) thought NNJ is not dangerous enough to be treated at the hospital.

Regarding the personal history; most of the participants had 2-4 children (53%) while those having more than 4 children were (25%).

White light (40%) followed by blue light (57.3%) was the most effective type of phototherapy as stated by parents, while (32%) of participants mentioned that sunlight was beneficial (Table 4) . .

Regarding prevention of NNJ in (28%) stated that prior knowledge of NNJ will prevent it followed by health diet during pregnancy and follow up (28.7 – 18.7%). The best way to educate about NNJ is social network program (19.3%) and provid brochures to the mother during antinatal care visit (80.7%) (Table 6)

	Frequency	Percent
<b>How many children she has?</b>		
1_2	106	70.7 %
3_4	30	20%
> 5 children	14	9.3 %
<b>The sex of the affected child</b>		
Female	69	46%
Male	81	54%
<b>How to give birth to an affected child?</b>		
Normal delivery	79	52.7%
Cesarean	71	47.3%
<b>During childbirth, was she given treatments that contribute to uterine contraction ( oxytocin) ?</b>		
Yes	65	43.3%
No	85	56.7%
<b>Does she have sufficient knowledge about NNJ ?</b>		
Yes	102	68%
No	48	32%
<b>What is the source of the knowledge?</b>		
From health care worker	18	12%
Relative , friends	72	48%
Doctor how treated her child	42	28%
Social network services	8	19.3%
No source of the knowledge	10	22.7%
<b>When did she get the knowledge?</b>		
After the child had NNJ	90	60%
Before the child had NNJ	60	40%
<b>Does she have any history of child with NNJ ?</b>		
One child	34	22.7%
Two child	19	12.7%
Above Two	12	8%
No child	85	56.7%
<b>Warning signs for necessity of treatment</b>		
High fever	51	34%
Refused to feed	64	42.7%
Crying	26	17.3%
Convulsions	20	13.3%
Don't know	45	30%

Table(2): Showing some personal history and knowledge regarding NNJ

	Frequency	Percent
<b>What were their actions when their child had NNJ?</b>		
Increase breast feeding	97	64.7 %
Exposed to sunlight	23	15.3 %
Exposed to neon light	45	30%
Home light	54	36 %
Getting herbal medication	6	4%
Treated at hospital	64	42.7%
Getting antibiotics	15	10 %
Do no things	6	4 %
<b>If they didn't treated their child at hospital, why?</b>		
Fear from hospital	26	17.4%
Don't want to exposed child for blood sample	12	8.6 %
Don't need treatment	22	14.8%
They thought that NNJ not dangerous	17	11.4%
No answer	72	48.3 %
<b>What is the effective treatment for NNJ?</b>		
Phototherapy at hospital	51	34%
Continues breast feeding	79	52.7%
Exchange blood transfusion	1	0.6%
Herbal medication	1	0.6%
Don't need treatment	2	1.4 %
Don't know	16	10.7%

**Table (3):** Answers of participants regarding treating their children who had NNJ

	Frequency	Percent
<b>What is the effective type of phototherapy?</b>		
White	60	40 %
Green	4	3.7 %
Blue	86	57.3%
<b>What are the effects of sunlight on treatment of NNJ?</b>		
Beneficial	48	32 %
Harmful	6	4%
Neither beneficial nor harmful	29	19.3 %
Don't know	67	44.7 %

**Table (4) :** Answers of participants regarding effects of light as treatment

	Frequency	Percent
<b>Does she think NNJ has complication?</b>		
Yes	105	70 %
No	45	30%
<b>If yes, what are the complications?</b>		
Development al delay	34	22.7%
Seizure	7	4%
Blindness ,deafness	5	4%
Death	27	18%
No answer	77	51.3%

**Table (5)** questionnaire complications of NNJ

	Frequency	Percent
<b>How to prevent NNJ?</b>		
Prevent infections	1	0.6 %
Prenatal screening and follow up	28	18.7 %
Health diet during pregnancy	43	28.7 %
Prior knowledge of NNJ	42	28 %
Don't know	36	24%
<b>What is the best way to educate and stimulate awareness of people about neonatal jaundice?</b>		
Social networking programs	29	19.3 %
Provide brochures to the mother during antenatal care visit	121	80.7 %

**Table (6):** Answers of participants regarding prevention and education

## DISCUSSION

The delay in seeking medical advice for NNJ can lead to severe hyperbilirubinemia and this may contribute significantly to neonatal morbidity and mortality<sup>11</sup>. Therefore, in order to have an effective management of NNJ, parents must have adequate knowledge, perception and early care seeking behavior. Many similar studies were conducted, but our study was the only one to include both parents with the biggest number of participants (150). Also, our study was comprehensive to cover many parts such as definition, etiology, warning signs for the necessity of treatment, effective type of treatment, complications, and prevention. We also asked specific questions about the source of knowledge, effective type of phototherapy, sunlight benefit for the treatment of NNJ, history of an affected child with NNJ and parents' attitude toward their affected child, and we asked about the best way to educate and raise awareness of people toward NNJ.

In our study, a total of (150) participates, Most of them live in the city (76.7%). Most of the age group were between 15-30 of years old (76.7%) and As regards knowledge of NNJ (68%) had sufficient knowledge and their source of knowledge was mostly from relatives and friends (48%), in 60% the knowledge was gained after the. Most common warning signs for the necessity of treatment were refusal to feed and fever (42.7% and 34%) respectively. The effective treatment of NNJ as stated by parents was mostly continuous breast feeding (52.7%) and phototherapy at the hospital (34%).

Blue light (57.3%) were the most effective type of phototherapy as stated by parents, (32%) of participants believed that sunlight was a beneficial treatment for NNJ and (5%) believe that sunlight was harmful. The most common complications of NNJ as stated by participants were developmental delay was (22.7%) and death (18%). Parents' attitude toward their children who had NNJ was mostly treating them by increasing breast feeding (64.7%) and treated at the hospital (42.7%) and 15.3% of people exposed their children to sunlight. while about (11.4%) thought NNJ is not dangerous enough to be treated at the hospital. The best way to educate about NNJ was providing mothers with



brochures during antenatal care visits (80.7%) This study provides an association between parents' sociodemographic factors and their knowledge and attitudes related to NNJ in Iraq. We found that Iraqi parents had average knowledge of NNJ and only (42.7%) of them sought medical treatment at the hospital, while others sought different treatments; mostly breast feeding (64.7%) and exposure to sunlight (15.3%) and (4%) did nothing.

In this study a total of 150 mothers, mothers who had one child with NNJ was 34(22.7%) ,mothers who had two children was 19(12.7%) and above two was 12(8%).In this research, About had from 1-2 children with percentage 70,7% which is the highest percentage followed by 30 who had 3 - 4 child with 20% and 14 of them who had above 5 children 9.3% which is the lowest percentage, Regarding the income the highest percentage 42%,have income 500,000 – 1,000,000 followed by 24.7% with income less than 500,000 while the lowest percentage 33.3% with income more than 1,000,000..medical advances and improvement of maternal health care as well as education and overall standards of living in Iraq have reduced the incidence of maternal mortality and have improved the maternal knowledge about NNJ, but in some attitudes is related to income so we found the mothers who have less income, have less knowledge because less income affects their visits schedule.

Increased attention must be directed at addressing the problem of early initiation of breastfeeding given the strong association between early initiation of breastfeeding and neonatal mortality and particularly against a backdrop of high rates of neonatal mortality in Iraq.Mortality rates among young children are the single most important indicator of child health in low- and middle income countries.

Iraqi mothers' knowledge & practices on care of neonatal jaundice is studied by this research who aimed to determine the gaps of knowledge and practices of care of neonatal jaundice among Iraqi mothers.

The results showed that a majority (68%) of them knew about neonatal jaundice and showed minority of them don't have knowledge (32%).

Maternal education level and having a previous offspring with jaundice are major factors affecting the knowledge of the mothers on hyperbilirubinemia.

The education and knowledge are not sufficient by themselves to change the behavior. Thus, more studies are needed to investigate the influences on health-seeking behaviors in Iraq

The health care provider can influence mothers' attitudes and practices related to NNJ. Several previous studies have demonstrated significant improvement of maternal knowledge and behavior concerning neonatal care following antenatal visits.

**In This study** we Find the rate of neonatal Jaundice is higher in **vaginal delivery compared with cesarean section** . where vaginal delivery 52.7% and cesarean section 47.3% due to The Following reasons:

1-the use of oxytocin in labor induction, which could increase neonatal jaundice, causing the activity of glucuronyl transferase

2-Various fetal scalp lesions are related to the use of the instrumental delivery Blood sequestered in these lesions could result in an increased bilirubin load on the functionally limited neonatal liver, leading to the development of hyperbilirubinemia.

3-Delayed cord clamping in full-term neonates is widely recommended, ( The cord clamp helps to stop blood flow from the three blood vessels that travel from the placenta through the umbilical cord, and the cord is then cut close to baby's bellybutton. ) while in practice, it is rarely implemented in cesarean section due to the fear of neonatal jaundice and excessive maternal blood loss. The optimal timing of cord clamping remains uncertain. This study was to fully evaluate the effects of delayed cord clamping on short-term hematological status and jaundice in term neonates delivered by cesarean section.

Compared with the early cord clamping group, delayed cord clamping merely increased the transcutaneous bilirubin level of neonates on the day of birth rather than that on the following five days.

**Oxytocin** is a peptide hormone and neuropeptide that is normally produced in the hypothalamus and released by the posterior pituitary. It plays a crucial role in various aspects

1-Oxytocin starts labor by causing contractions in the uterus muscles.

2-stimulates contractions of breast tissue to aid in lactation after childbirth

Synthetic forms of oxytocin, such as Syntocinon and Pitocin, are used in healthcare to induce labor in childbirth if it hasn't started naturally or to strengthen contractions. They are also used to speed up delivery of the placenta and reduce the risk of heavy bleeding.

The percentage of women who are taken synthetic oxytocin in labor about 43.3 and about 56.7 didn't take it, The study found that oxytocin did not affect the serum bilirubin level of the umbilical cord and did not significantly affect serum bilirubin level

on days 1 and 3. However, it significantly affected serum bilirubin level on day 2. On the other hand, another study suggested that raised plasma bilirubin levels in cord blood, probably enhanced by the breakdown of fetal red cells, appeared to be a dose-dependent effect of oxytocin<sup>2</sup>. This study also found that a larger proportion of babies in the induced group manifested a greater severity of jaundice.

In the study by D'Souza et al. (1986). Revealed that babies delivered by oxytocin induced labor may develop hyponatremia who have 50% chance to develop neonatal jaundice.

## Conclusion

Hyperbilirubinemia is more severe in newborns. Therefore precautionary measure should be adopted by both parents, and clinicians to diagnose and treat the disease properly. Government and public health organizations should arrange seminars, workshops and trainings for mothers regarding neonatal jaundice. Medical scientists should search for new treatments and preventive measures having no side effects and capable of recovering babies more speedily. Partners should screen their ABO blood groups as well as Rh factor before marriage. Consanguineous marriages should be avoided.

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