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المرحلة الدراسية _ الرابعة

Assessment of Knowledge, Attitude and Practice of iraqi Parents

towards Neonatal Jaundice (NNJ) :

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ABSTRACT

Background : Neonatal jaundice occurs worldwide and contributes significantly to neonatal morbidity and mortality. Recently, newborns are being discharged early from hospitals, so parents have the primary responsibility for early recognition, appropriate response and seeking proper treatment. Objectives: To assess parents' knowledge, attitude and practice towards NNJ in different regions in Iraq .

Methods : This is a cross-sectional study involving 300 expectant parents during April-may 2022 had been performed. A self-administered questionnaire was created to obtain respondents information. Descriptive statistics were used to describe the answers of participants in the study. Comparing the answers to different questions within different groups was done using Pearson chi-square test .

Results : Out of 300 participants, females were (55.33%) while (44.67%) were males. Participants were from all regions of Iraq, with the highest percentage from city (63.67%), while 36.33% from villages. Age group 20-30 years constituted (53.67%), and age above 50 years was 5.33% . Most of the participants had a primary school level 35.67 %). Relatives and friends were the main sources of knowledge for (37.67 %) of the participants, followed by treating doctor in (26.67%). In (59.67%) of the participants' knowledge was gained after their child had NNJ, while in (5.67%) their child was free of NNJ. Warning signs knowledge depended on the level of education and occupation where university graduates and health care workers were most knowledgeable and the difference was significant. Awareness about necessity and effectiveness of treatment were dependent on older age, occupation, and place of residence. Hospital treatment was done only by (26%), believing that it wasn't a serious disease in (10.33%) of participants, while (1.33%) believed that it needed no treatment at all.

Conclusion : Knowledge, attitude, and practice of parents in our study, depended on age, level of education, occupation, and place of residence might have contributed to the delayed appropriate management of severe hyperbilirubinemia. We recommend the engagement of health professionals in educational settings like seminars, workshops and periodical counseling sessions to provide appropriate knowledge to parents .The attitude of mothers on NNJ, previous and current child history of NNJ, ANC follow-up and residence were variables that had a significant association with mother's knowledge on NNJ. Enhancing NNJ educational programmes targeting mothers in raising awareness on the prevention of NNJ in the population are the recommended interventions

Keywords: Neonatal Jaundice , prevention, genetic factors .

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 [1]. However, in about 10_8% of newborns, neonatal jaundice can be severe [2]. A bilirubin level more than 85 mmol/l mg/dl manifests neonatal jaundice [3]. Physiological jaundice occurs on the 2nd and 3rd day of life [4] and due to the breakdown of fetal hemoglobin and the inability of the immature hepatic metabolic pathways to adequately excrete the bilirubin [5]. 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. (7). Neonatal jaundice contribute significantly to neonatal morbidity and mortality. Possible complications arising from unconjugated hyperbilirubinemia include acute bilirubin

encephalopathy, kernicterus, seizures, cerebral palsy, mental retardation and deafness[8]. 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 [9].

Kernicterus has at least 10% mortality and 70% morbidity [10]. It is incurable, but if jaundice is seized early and effective therapy started soon, kernicterus is preventable [11]. Recently, newborns begin discharge early from hospital, so parents have the primary responsibility for early detection of jaundice and seeking proper treatment at the right place. Therefore, it is important that parents should have correct knowledge of how to recognize newborn jaundice as well as how to respond appropriately, because often the delay in seeking medical advice usually due to parents' action and sometimes they do self-medication with herbal medicine and homemade remedies due to inadequate knowledge[12], also misconceptions include the beneficial role of sunlight in reducing severe jaundice. Aladag et al reported that out of 300 parents interviewed, 24.33% considered sunlight to be useful for neonates with jaundice[13]. This study has been conducted in order to assess knowledge and attitude of Iraqi parents towards recognition, causes, complications, treatment, and prevention of neonatal jaundice that may contribute to delayed presentation and inappropriate management of severe hyperbilirubinemia. To address the above knowledge gaps concerning neonatal jaundice, this study assessed a broad range of caregivers' knowledge, attitude and practice regarding neonatal jaundice in a tertiary referral facility in Alhalah region of Iraq. Understanding the knowledge level, attitudes and identifying the practice of caregivers are key in improving newborn survival and reducing neonatal mortality rate. The study findings will also add to the body of knowledge of existing data on neonatal jaundice in Iraq and also serve as useful information for educating expectant parents on appropriate health-seeking behaviors in a bid to reduce neonatal mortality rates in Iraq. Neonatal jaundice may be on account of different parameters such as birth weight, gestational age, premature rupture of membranes, maternal infectious diseases or other illness during pregnancy, having different sources of origin, hence having different types[14]

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 300 expectant parents in Hilla between April - May 2022. The participants were from Hilla and the selected age group was from 20 to 30 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 , affective 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 amam 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.

Result

A total of (300) Iraq Parents participated in this study. Females (55.33%) were more than males. Participants were from all regions of Iraq , with the highest percentage from city (63.67%), The highest percentage of the participants are from the age group 20-30 (53.67%) and the least is from the age above 50 years (5.33%) Most of the participants were with primary school level of education (35.67%). Regarding the occupation, (57.33%) were unemployed and lowest percentage were officer (0.67%) (Table 1).

	NO.	Percent
Gender		
Female	166	55.33 %
Male	134	44.67 %
Place of residence		
Village	109	36.33 %
City	191	63.67 %
Age		
20 - 30	161	53.67 %
31 - 40	123	41 %
Above 50 years	16	5.33 %
Level of education		
Illiterate	17	5.67 %
Primary school	107	35.67 %
Mild school	86	28.67 %
High school	43	14.33 %
University	83	27.67 %
Occupation		
Students	20	6.67 %
Unemployed	172	57.33 %
Teachers	31	10.33 %
Officer	2	0.67 %
Health care worker	19	6.33 %
other	56	18.67 %
Income		
Less than 500,000	138	46 %
500,000 - 1000,000	136	45.33 %
More than 1000,000	26	8.67 %

Table (1): Demographic data of the participants

Regarding the personal history; most of the participants had 2-4 children (53%) while those

having more than 4 children were (25%). Yellow discoloration of sclera (52%) and skin (46.67%) as well changes color of urine and stool (10.67%) were the main definition of NNJ .

Only (27.33%) had no knowledge. In (13.33%) no history of a child with NNJ was found. As regards knowledge of NNJ (72.67%) had sufficient knowledge and (27.33%) had no knowledge at all. Source of knowledge was least from social network services (17.67%) and mostly from relatives and friends followed by treating doctor (37.67%_26.67 %) respectively. In (59.67%) of the participants, knowledge was gained after their child had NNJ, while in (5.67%) their child was free of NNJ (Table 2).

. Blood incompatibility and haematological disease and hereditary disease were the most etiological factors (Figure 1). The knowledge for etiology of NNJ differs significantly between age groups, the percentage was highest in the 20-30 age group (53.67%) and lowest in the 31_40 age group (41%). Also, the knowledge for etiology of NNJ differed significantly by levels of education. Participants who know about the etiology of NNJ were highest in the primary education level (35.67%) and lowest in the Illiterate level (5.67%). It was also different according to occupations being highest in unemployed (57.33%) and lowest in the officer group (0.67%). The most common warning signs for necessary treatment were refused to feed and high fever (61.67%-26.67%)

respectively (Figure 2). Knowledge about warning signs for necessary treatment differed by level of education. It was more in primary school level of education (35.67%) and least in Illiterate (5.67%). The attitude of participating parents regarding

treating their children was mostly treating them by increase breast feeding (49%) , while about (10.33%) thought NNJ is not dangerous enough to be treated at the hospital (Table 3) .

The effective treatment of NNJ was mostly continues breast feeding (59.67%) followed by phototherapy at hospital (47%) (Figure 3) .

White light (64.33%) followed by blue light (28%) was the most effective type of phototherapy as stated by parents, while (24.33%) of participants mentioned that sunlight was beneficial (Table 4) . Knowledge was more in the age group of 20_30 (53.67%) than other groups, and it was also more in unemployed (57.33%) than parents having other occupations. Knowledge about effective treatment of NNJ was more in city residents NNJ than village resident (63.67% and 36.33%) respectively,. Healthcare workers had more knowledge about effective treatment of NNJ than other occupations The most common complications of NNJ stated by participants were physical disability and developmental delay (22.33% and 13.67%) respectively (Table 5) .

Knowledge about the complication differed by age group, younger individual (age group 31_40) had more knowledge about complication than older groups.Regards knowledge about the complications, where healthcare workers had the highest level of knowledg because their occupations related to more medical informations.

Regarding prevention of NNJ in (28.67%) stated that prior knowledge of NNJ will prevent it followed by health diet during pregnancy and follow up (22.67 %). The best way to educate about NNJ is social network program (53%) and provid brochures to the mother during antinatal care visit (37.33%) (Table 6)

	Frequency	Percent
How many children she has?		
1	67	22.33 %
2 - 4	159	53 %
>4 children	75	25 %
Does she have sufficient knowledge about NNJ?		
Yes	218	72.67 %
No	82	27.33 %
What is the definition for NNJ?		
Yellow discoloration for sclera	156	52 %
Yellow discoloration of skin	140	46.67 %
Color change if urine, stool	32	10.67 %
Don't know	35	11.67 %
Does she have any history of child with NNJ?		
One child	104	34.67 %
Two child	111	37 %
Above two	36	12 %
No child	40	13.33 %
What is the source of the knowledge?		
From health care workers	67	22.33 %
Relative, friends	113	37.67 %
Social network services	53	17.67 %
Doctor how treated her child	80	26.67 %
No source of the knowledge	25	8.33 %
When did she get the knowledge?		
After the child had NNJ	179	59.67 %
Before the child had NNJ	130	43.33 %
She had knowledge and her didn't have NNJ	17	5.67 %
Percentage of etiology of NNJ		
Blood incompatibility	47	15.67 %
Hematological disease and hereditary	25	8.33 %
Congenital hypothyroidism	5	1.67 %
Infectious diseases	9	3 %
Breast feeding	16	5.33 %
Prematurity	15	4.33 %
Don't know	195	65 %
Warning signs for necessity of treatment		
High fever	80	26.67 %
Refused to feed	185	61.67 %
Crying	46	15.33 %
Convulsion	6	2 %
Don't know	41	13.67 %

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

Fig.1: Percentage of etiology of NNJ

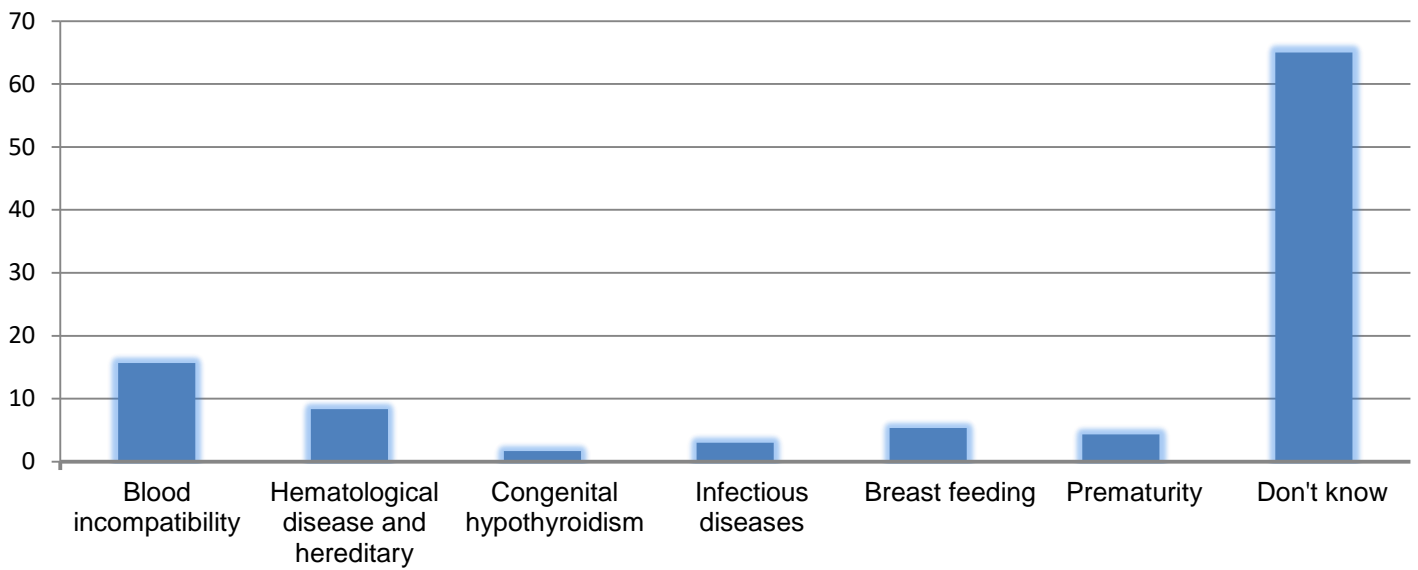
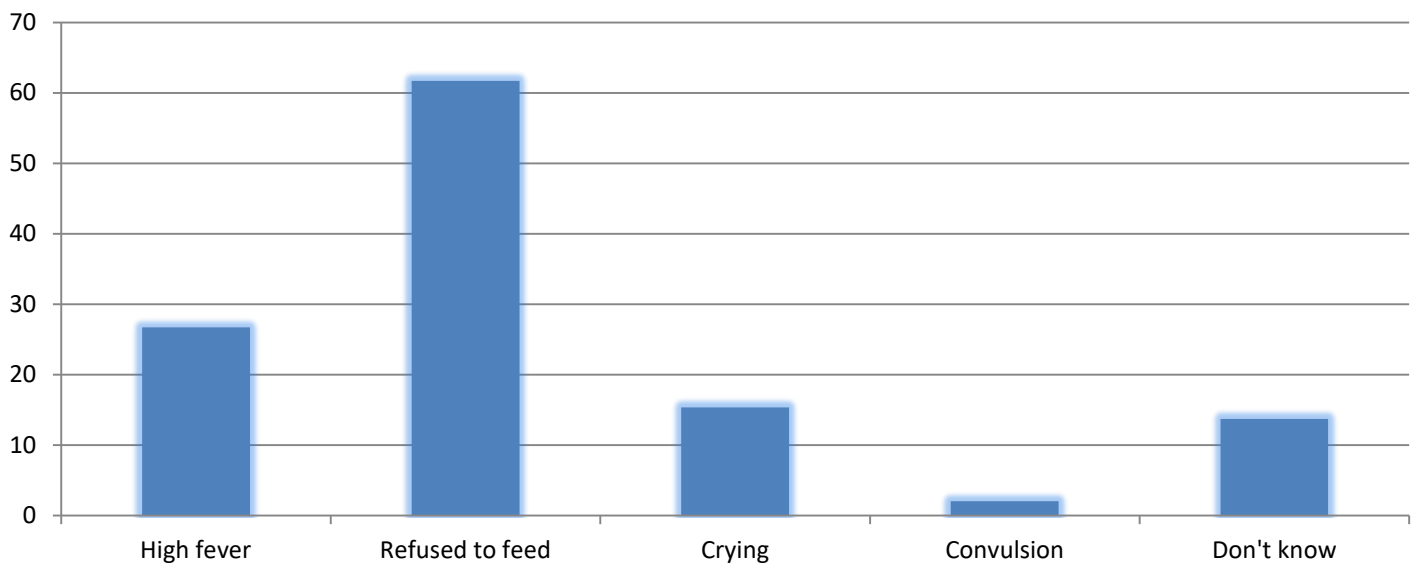


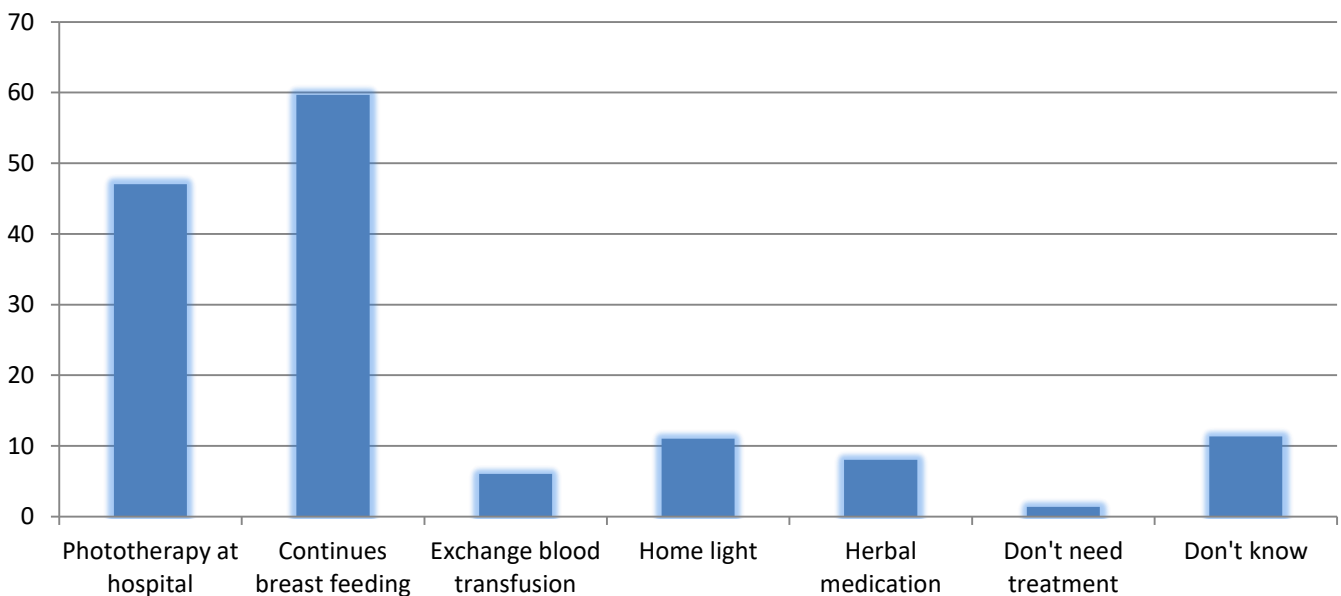
Fig. 2: the warning Signs for the necessity Of treatment



	Frequency	Percent
What were their actions when their child had NNJ?		
Increase breast feeding	147	49 %
Exposed to sunlight	73	24.33 %
Exposed to neon light	46	15.33 %
Home light	38	12.67 %
Getting herbal medication	23	7.67 %
Treated at hospital	78	26 %
Getting antibiotics	12	4 %
Do no things	9	3 %
No answer	11	3.67 %
If they didn't treated their child at hospital, why?		
Herbal is better	37	12.33 %
Fear from hospital	34	11.33 %
Don't want to exposed child for blood sample	19	6.33 %
Don't need treatment	46	15.33 %
They thought that NNJ not dangerous	31	10.33 %
No answer	115	38.33 %
What is the effective treatment for NNJ?		
Phototherapy at hospital	141	47 %
Continues breast feeding	179	59.67 %
Exchange blood transfusion	18	6 %
Home light	33	11 %
Herbal medication	24	8 %
Don't need treatment	4	1.33 %
Don't know	34	11.33 %

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

Fig. 3: What's the effective treatment of NNJ



	Frequency	Percent
What is the effective type of phototherapy?		
White	193	64.33 %
Green	16	5.33 %
Blue	84	28 %
What are the effects of sunlight on treatment of NNJ?		
Beneficial	146	48.67 %
Harmful	26	8.67 %
Neither beneficial nor harmful	46	15.33 %
Don't know	82	27.33 %

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

	Frequency	Percent
Does she think NNJ has complication?		
Yes	220	73.33 %
No	80	26.67 %
If yes, what are the complications?		
Development al delay	41	13.67 %
Seizure	75	25 %
Blindness ,deafness	10	3.33 %
Physical disability	67	22.33 %
Death	33	11 %
No answer	103	34.33 %

Table (5): Questionnaire complication of NNJ

	Frequency	Percent
How to prevent NNJ?		
Prevent infections	19	6.33 %
Prenatal screening and follow up	47	15.67 %
Health diet during pregnancy	68	22.67 %
Prior knowledge of NNJ	86	28.67 %
Don't know	98	32.67 %
What is the best way to educate and stimulate awareness of people about neonatal jaundice?		
Creating NNJ awareness camping pubic area	51	17 %
Social networking programs	159	53 %
Provide brochures to the mother during antenatal care visit	112	37.33 %

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

DISCUSSION

The questionnaire used in this research about knowledge, attitude, and practice of Iraq parents toward NNJ is, to the best of our knowledge, the first to be conducted in Iraq.

The delay in seeking medical advice for NNJ can lead to severe hyperbilirubinemia and this may contribute significantly to neonatal morbidity and mortality¹¹. 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 (300). 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 (300) participated, females were more than males (55.33%). Most of them live in the city (63.67%). Most of the age group were between 20-30 of years old (53.67%) and their level of education was mostly primary school level (35.67%). Regarding the occupation, (57.33%) were unemployed and the minority were officers (0.67%). The main definition of NNJ stated by participants was Yellow discoloration of sclera (52%) or skin (46.67%), as well as change color of urine and stool (10.67%). In (13.33%) there was no history of NNJ in their children. As regards knowledge of NNJ (72.67%) had sufficient knowledge and their source of knowledge was mostly from relatives and friends (37.67%), in 59.67% the knowledge was gained after their child had NNJ. Blood incompatibility (15.67%) and hematological diseases and hereditary diseases (8.33%) was the most etiological factors for NNJ. Most common warning signs for the necessity of treatment were refusal to feed and fever (61.67% and 26.67%) respectively. The effective treatment of NNJ as stated by parents was mostly continuous breast feeding (59.67%) and phototherapy at the hospital (47%), while (11%) chose home light. White light (64.33%) followed by Blue light (28%) were the most effective type of phototherapy as stated by parents, and 48.67% of participants believed that sunlight was a beneficial treatment for NNJ and 8.67% believe that sunlight was harmful. The most common complications of NNJ as stated by participants were seizure (25%) and physical disability (22.33%) and developmental delay was (13.67%) and death (11%). Parents' attitude toward their children who had NNJ was mostly treating them by increasing breast feeding (49%) and treated at the hospital (26%) and 24.33% of people exposed their children to sunlight. While about (10.33%) thought NNJ is not dangerous enough to be treated at the hospital. The best way to educate about NNJ was social programs (53%) followed by providing mothers with brochures during antenatal care visits (37.33%). 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 (26%) of them sought medical treatment at the hospital, while others sought different treatments; mostly breast feeding (49%) and exposure to sunlight (24.33%) and (3%) did nothing. We also found that their knowledge of its etiology was highest in the 20-30 age group and highest in the university education level, but it was lowest in the unemployed group. Group of university education level was the most group having knowledge about warning signs for the necessity of treatment of NNJ and its complications, but they were the least group to have knowledge about the effective treatment of NNJ. As regard occupations, the healthcare workers had the highest knowledge regarding effective treatment of NNJ and its complications, also those who were in city residential area had more knowledge about effective treatment of NNJ than village residents.

In this study a total of 300 mothers . Around 251 had history of their infants developing NNJ ,mothers who had one child with NNJ was 104(34.67%) ,mothers who had two childs was 111(37%) and above two was 36(12%).In this research, About 158 mothers had from 2-4 children with percentage 53% which is the highest percentage followed by 67 who had one child with 22.33% and 75 of them who had above 4 children 25% which is the lowest percentage. Regarding the income the highest percentage 46%, have income less than 500,000 followed by 45.33% with income between 500,000-1,000,000 while the lowest percentage 8.67%.**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[15], 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 [16]. .Mortality rates among young children are the single most important indicator of child health in low- and middleincome countries [17]

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[15]. The results showed that a mamajority(72.67%) of them knew about neonatal jaundice and showed minority of them don't have knowledge 27.33%.

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 [18].

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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