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Neonatal Hyperbilirubinemia: Mothers' Traditional Measures in Pediatric Hospitals

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ABSTRACT

Objectives: The study intended to assess traditional measures among mothers of neonates with jaundice.

Methodology: "A descriptive - study design" loaded out to accomplish the goals, of the study; on a sample consisting of (155) mothers interviewed at the Neonatal Care Unit at Babylon pediatric hospitals, from 22 January to the 6 March 2020..

Results: Findings revealed that there is high significant relationship between (level of maternal practices) with their demographic data at p value ⊠0.05,according to classification of Likert test.

Conclusion: There is a high significant relationship between mother's and practices of mothers with their demographic data.

Recommendations: All babies should be checked for bilirubin level before discharge from hospital , as well as during the first clinic visit within first week after birth in order to protect baby from any chronic or retarded situations.

Keywords: Mothers Traditional Measures, Neonatal Hyperbilirubinemia.

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INTRODUCTION

Hyperbilirubinemia is an abnormally high level of serum bilirubin, characterized by yellowing of a newborn infant's skin and other tissues. This occurs in around 50 per cent to 60 per cent of newborn full-term babies and 80 per cent of newborn preterm babies. It is a widespread worldwide condition and accounts for 75% of hospital readmissions during the first week of life [(1) (2)].

Neonatal Jaundic (NNJ) typically occurs within the first week of life as most mothers are likely to have left the hospital, since many mothers are dicharched from the hospital 24–48 h after the birth, this in its turn might lead to a late presentation of children with NNJ. In addition, in the first few days of life, breast-fed infants may receive relatively suboptimal supply of milk which may lead to insufficient fluid and nutritional intake, thereby raising the incidence of NNJ. [(3) (1)]

Clinically, the major cause of neonatal morbidity and mortality is neonatal hyperbilirubinemia (NH) and is the most common cause of delayed hospital discharge or readmission in the world's first week of existence. However, countries with low and middle incomes disproportionately bear the burden of severe NH, especially countries with a high prevalence of glucose-6-phosphate dehydrogenase (G6PD)-deficiency [(4)].

Seeking care in for some infants with jaundice can be delyed due some factors such as traditional non-medical beliefs about causes and treatment, mistaken medical advice and inadequate travel procedures. This research examines the prevalence of care practices in the community and cultural values that could lead to a delayed presentation of serious hyperbilirubinemia and the frequency of use of phototherapy [(5)].

METHODOLOGY

- **Design of the Study**

"A descriptive - study design". was used to assess traditional measures among mothers for neonatal with hyperbilirubinemia in pediatric hospitals of Babylon province.

- **Sample of the Study**

"Conveinience sampling". loaded out to accomplish the goals, of the study consisting of (155) mothers at neonatal care units at pediatric hospitals in Babil province, from 22 January to the 6 March 2020. "A purposive non-probabilistic" consisted of 155 mothers who selected from total population, which represented as (60%) who reviewed to the "Babil Educational Hospital for Maternity and Children, AL-Noor Hospital for Children, Ibn saif Hospital for Pediatrics ", after obtaining administrative agreements before data collection.

- **Instrument of the Study**

This tool used through data collection, which is measured and rated on three levels rating scale from 1 to 3 respectively; 1 indicates always, 2 indicates sometimes, and 3 indicates never. It involved of two parts,the first containing the demographic characteristics,whereas the second including the maternal traditional practices level among them concerning neonatal hyperbilirubinemia based on the mean of items scores. Mean of scores was calculated as follow:

- **Data Analysis**

. Analyzed data were acheived electronically through using the so-called statistic package social science (SPSS -version 25).

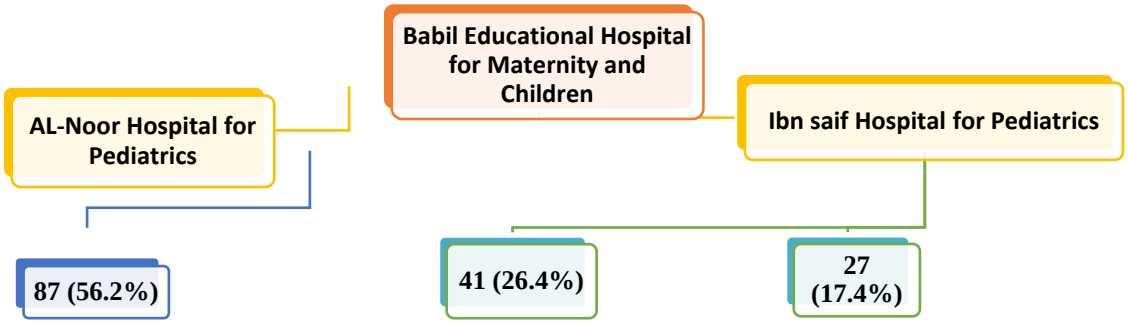

Figure 1: Selection of the Study Setting in AL-Hillah City

RESULTS

Table 3-1a: Distributions of the Neonates according to their Socio-demographic Chracteristics (n: 155)

Items	Variables	F	%
Gender of the child	Male	99	63.9
	Female	56	36.1
	Total	155	100
Age of Neonate	1-7 days	51	32.9
	8-14 days	55	35.5
	21-15 days	16	10.3
	22-28 days	33	21.3
	Total	155	100
Mean = 2.20		S.D =1.119	
Gestational age	Preterm	48	31
	Full term	97	62.5
	Post term	10	6.5
	Total	155	100
Bilirubin level on admission	6-16 mg\dl	135	87.1
	17-27 mg\dl	20	12.9
	Total	155	100
Mean = 1.13		S.D =.336	
Mode of management	Intensive phototherapy	74	47.7
	light phototherapy	77	49.7
	Blood exchange	4	2.6
	Total	155	100
The sequence of the neonate in the family	1-4	120	77.4
	5-8	35	22.6
	Total	155	100
Mean = 1.23		S.D =.419	
Baby weight at birth	Less than 2500 grams	37	23.9
	From 2500 -3000 grams	88	56.8
	More than 3000 grams	30	19.4
	Total	155	100
Mean = 1. 95		S.D =.658	
Feeding type	Breast feeding	26	16.8
	Artificial feeding	70	45.2
	Mixed feeding	59	38.1
	Total	155	100
Current baby weight	Less than 2500 grams	41	26.5
	From 2500 -3000 grams	48	31.0
	More than 3000 grams	66	42.6
	Total	155	100
Mean = 2.16		S.D =.818	

F= frequency -percentage/ st

The table (3-1a) above shows that heigher level of the babies (1.36) are within the gender groups (male), while the ages of the neonates are within mean of (2.20). In regards to gestational age,the mean is (1.75), whereas (1.13) of them have bilirubin level on admission within (6-16 mg\dl). Also, it shows that mean (1.55) who managed by light phototherapy. The neonatal order in the family are (1-4) which represented as (1.23), with birth weight 2500 -3000 grams as revealed in (1. 95) Concerning feeding type, it shown that (1. 21) were artificial feeding.while current baby weight were (2.16) more than 3000 grams.

Table 3-1b: Distributions of the mothers according to their Socio-demographic Chracteristics (n: 155).

Items	Variables	F	%
Educational level	Not read & write	25	16.1
	Primary	92	59.4
	High school graduate	20	12.9
	diploma &above	18	11.6
	Total	155	100
Occupation	Employed	10	6.5
	Not Employed	145	93.5
	Total	155	100
Residency	Rural	85	54.8
	Urban	70	45.2
	Total	155	100
Type of delivery	Normal vaginal delivery	94	60.6
	Caesarean births	61	39.4
	Total	155	100
Person carring of child	The mother	97	62.6
	Grandma	46	29.7
	Relatives	12	7.7
	Total	155	100
Mother blood group and Rh	A, B, AB +	72	46.5
	O +	70	45.2
	A, B, AB -	7	4.5
	O -	6	3.9
	Total	155	100
Father blood group and Rh	A, B, AB +	72	46.5
	O +	77	49.7
	A, B, AB -	3	1.9
	O -	3	1.9
	Total	155	100
Neonate blood group and Rh	A, B, AB +	64	41.3
	O +	75	48.4
	A, B, AB -	9	5.8
	O -	7	4.5
	Total	155	100
Health problems complained during pregnancy	Yes	98	63.2
	No	57	36.8
	Total	155	100
Have difficulty breastfeeding	Yes	44	28.4
	No	111	71.6
	Total	155	100
Have you heard about neonatal hyperbilirubinemia	Yes	67	43.2
	No	88	56.8
	Total	155	100
What is the source of your information about the high rate of neonatal jaundice?	Family and relatives	124	80.0
	Primary health center	25	16.1
	social media and Internet	4	2.6
	Other sources	2	1.3
	Total	155	100

F= frequency -percentage

Table (3-1b) Demonstrates that the highest percent of educational level were from primary which represented as (59.4%), with (93.5%) were not employed, and (54.8 %) were rural residency. As well, it illustrate that nearby half of the respondents' blood group and Rh (46.5%) were within (A, B, AB +), while father blood group and Rh (49.7%) within (O+), while; neonate blood group and Rh (48.4%) within (O+). Other findings revealed that (63.2%) of the mothers complained from different health problems during pregnancy, and (71.6%) of them experiencing breastfeeding without difficulties, which related to family and relatives as a source of information, which represent as (80.0%) as an information about the high rate of neonatal jaundice.

Table 3-2: Association between maternal practices level with demographic data of mother

maternal practices / variable	Overall assessment level				Chi-Square tests			
Educational level	**Good**	**Moderate**	**Poor**	**Total**	**Value**	**Df**	**P.value**	**Sig.**
Not read & write	3	10	12	25	8.743	6	.000	H.S
Primary	13	57	22	92				
High school graduate	1	14	5	20				
diploma &above	2	13	3	18				
Total	19	94	42	155				
Occupation	Good	Moderate	Poor	Total	Value	Df	P.value	Sig.
Employed	2	5	3	10	.756	2	.685	N.S
Not Employed	17	89	39	145				
Total	19	94	42	155				
Residency	Good	Moderate	Poor	Total	Value	Df	P.value	Sig.
Rural	14	41	30	85	12.172	2	.018	Sig.
Urban	5	53	12	70				
Total	19	94	42	155				
Type of delivery	Good	Moderate	Poor	Total	Value	df	P.value	Sig.
Normal vaginal delivery	10	57	27	94	.744	2	.689	N.S
Caesarean births	9	37	15	61				
Total	19	94	42	155				
Person carring of the child	Good	Moderate	Poor	Total	Value	df	P.value	Sig.
The mother	10	60	27	97	3.905	4	.419	N.S
Grandma	6	26	14	46				
Relatives	3	8	1	12				
Total	19	94	42	155				
Mother blood group and Rh	Good	Moderate	Poor	Total	Value	df	P.value	Sig.
A,B,AB +	9	44	19	72	5.125	6	.528	N.S
O +	7	42	20	69				
A,B,AB -	1	6	1	8				
O -	2	2	2	6				
Total	19	94	42	155				
Father blood group and Rh	Good	Moderate	Poor	Total	Value	df	P.value	Sig.
A,B,AB +	8	41	19	68	2.920	6	.819	N.S
O +	7	49	21	77				
A,B,AB -	3	2	1	6				
O -	1	2	1	4				
Total	19	94	42	155				
Neonate blood group and Rh	Good	Moderate	Poor	Total	Value	df	P.value	Sig.
A,B,AB +	9	38	16	63	7.118	6	.310	N.S
O +	7	44	23	74				
A,B,AB -	1	7	2	10				
O -	2	5	1	8				
Total	19	94	42	155				

Health problems complained during pregnancy	Good	Moderate	Poor	Total	Value	df	P.value	Sig.
Yes	5	43	9	57	8.401	2	.048	Sig.
No	14	51	33	98				
Total	19	94	42	155				
Have difficulty breastfeeding	Good	Moderate	Poor	Total	Value	df	P.value	Sig.
Yes	8	29	7	44	4.878	2	.008	H.S
No	11	65	35	111				
Total	19	94	42	155				
Have you heard about neonatal hyperbilirubinemia	Good	Moderate	Poor	Total	Value	df	P.value	Sig.
Yes	12	43	12	67	6.994	2	.589	N.S
No	7	51	30	88				
Total	19	94	42	155				
What is the source of your information about the high rate of neonatal jaundice?	Good	Moderate	Poor	Total	Value	df	P.value	Sig.
Family and relatives	12	72	36	120	3.321	6	.930	N.S
Primary health center	3	18	4	25				
social media and Internet	2	3	1	6				
Other sources	2	1	1	4				
Total	19	94	42	155				

The table overhead shows that there is high significant relationship between (level of maternal practices) with their demographic data (educational level and have difficulty breastfeeding) at p value ≤ 0.05. Although a significant relationship between level of their practices with a certain demographic data like (residency and health problems complained during pregnancy) at p value ≤ 0.05.

DISCUSSION

1). Demographic Characteristics of the Studied Neonate

The existing study specified that male is the uppermost than female among neonate with mean (2.20) within the age groups (8-14 days), a study directed by (Hussein & Aziz, 2016) through their descriptive, which performed on mothers having neonate with jaundice, reported that most of the sample is more than sixty percent were male; and within the age groups(2-7 days) [6]. Furthermore, the study that matched with (Adebami et al., 2015) at Ilesa, Southwestern Nigeria, who intended to assess the knowledge of mothers on jaundice in their babies, found less than fifty percent of babies aged (8-14) days[7].

The present study's findings majority as more than fifty percent of these sample were (Full term), and this results were paralleled with the (Alkén et al., 2019) a nationwide population-based cohort study used prospectively collected data on the highest serum bilirubin level for all infants born alive at 35 weeks gestation or longer in Sweden they found that approximately more than half of neonate was from (37-38 weeks) [8].

Concerning the mean of current study revealed that (1.13), of the bilirubin level on admission from (6-16mg/dl), under the mod of management, which shows less than fifty percent were on light phototherapy, that's agree with a study done by(Allahony et al., 2016) a cross-sectional study was carried out on 265 mothers in Kafr El-batanoon village to evaluate the knowledge, attitude, and practice of the mothers toward neonatal jaundice (NNJ), they showed the highest percentage were light phototherapy[9].

Regarding the mean (1.23) were the sequence of the neonate in the family was (1-4), this result come along with the study of (Goodman et al., 2015) a cross-sectional study in Mosan-Okunola, the finding of their study reveals, (81.0 %) were Parity is from (1-4) [10]

Concerning to baby weight which indicated through the mean (1. 95) who were weighing (2500 -3000 grams), which is consistent with study conducted by (Atkinson et al, 2003) a retrospective cross-sectional analysis the purpose of this study was to examine adherence to the guideline in a large managed care organization, where it was reported that high percent (56 %) were birth weight was from(2.5–3 kg %) [11].

Relating to the artificial feeding findings indicate that less than fifty percent of the neonats babies have within artificial feeding, this result go in line with the study of (Moawad et al, 2016) under the title "Perceptions, practices, and traditional beliefs related to neonatal jaundice among Egyptian mothers" they found (38.3%) exclusively formula-fed; newborns who do not consume enough breastfeeding,

as happens when the mother does not produce enough milk, the number of times those births are defecation is lower, so the amount of bilirubin subtracted decrease it, it was scientifically proven that important that once jaundice appear, the mother is continuously breastfeeding her baby [at least every two hours], which helps to get rid of excess bilirubin by increasing the bowel movement and prevents the reabsorption of bilirubin again,so that the level of bilirubin in breastfed neonate fewer from neonate depend on artificial feeding, especially in the first five days of life[1].

Moreover finding of the existing study display that current baby weight more than 3000 grams with mean (2.16) of the sample, that agrees with a cross-sectional study conducted by (Seyedi et al., 2019) these study included 1066 healthy neonates to examine various maternal, childbirth, and neonatal factors affecting the neonatal skin bilirubin level and severe jaundice, who found the majority (71.3%) of baby weight was 3000-3990 g[12].

2). Socio-Demographic Characteristics of the studied Mothers

The finding of the current study showed more than half of the studied mothers had educational level within primary education, this result can be true in Iraq where most females may only have the opportunity to reach primary education particularly in the countryside, also level of education was a contributing factor that helps the mothers to read and understand complication prevention for his or her child with jaundice; this result go in line with a cross-sectional observational study support the result of the current study which conducted by (Ng & Chong 2014) to assess maternal knowledge and practice on various aspects of neonatal jaundice including recognition, causes, complications, treatment, prevention in Malaysia" they found that (3.41%)were is primary school [13].

The findings of present study declared that the majority of mothers were unemployed, that matched with a study conducted by (Alfouwais et al., 2018) which aimed to assess parents' knowledge, attitude and practice towards NNJ in different regions in Saudi Arabia, they found high percent of the participants (31.7 %) not employed. The majority of mothers are not working and that may due to Iraqi housewives sometimes prefer to stay at home for caring of their families, or may due to most of mothers in the current study do not finished their education[14].

Relating to the residensy more than half of the participants living in rural. While, in regards to person carring of child more than sixty percent were the neonates carring by their mothers, increase the percentage of newborns with congenital jaundice with mothers who live in the rural because of the strong ties between families and relatives, whereas, customs and traditions inherited in a way for treating congenital jaundice, and failure to take care of themselves or eat healthy food during pregnancy. This result go in line with (Aggarwal et al, 2017) under the title "Neonatal Jaundice : Knowledge, attitude beliefs, and practices of postnatal mothers in a tertiary care hospital in Uttarakhand, India" that is showed 102(29.14) live in rural[15]

In regarding to method of delivery more than sixty percent were (Normal vaginal delivery), they almost, complain from problem during pregnancy period, this agreed with a study entitled (Jaundice in the Healthy Newborn Infant: A New Approach to an Old Problem) in which serum bilirubin concentrations were measured prospectively from samples obtained from more than 35,000 infants, found that (53.1%) were method of delivery was vaginal delivery (Jeffrey et al., 2018) [16].

Result of study display more than seventy percent that there is no difficulty breastfeeding, according to mother blood group and Rh, the result of study show the majority of the studied mothers have within (A, B, AB +) blood gruop, While, the result of fathers blood group and Rh, was less than half percent were (O +), and shows that (48.4%) of the neonate they have blood group (O +), the study that conducted by (Kalakheti et al, 2009) with target to find out the incidence of hyperbilirubinemia in babies born to 'O' positive mothers, to estimate the risk of ABO incompatibility in babies born to 'O' positive mothers, among 200 babies had neonatal hyperbilirubinemia the incidence of neonatal hyperbilirubinemia was 11.7% in babies with 'O+' blood group and 28.8% among babies with other blood group[17].

More-over,result of the existing study, also shows more than half of the sample involved, was not heard about neonatal hyperbilirubinemia, The result shows more than eighty percent that the source of mothers' information about the high rate of neonatal jaundice is getting from family and relatives. Most mothers, whether they are in the rural or the urban, do not have sufficient knowledge of neonatal jaundice, because mothers who live in the rural, most of them do not have the desire or motivation to complete the study, and also their environment imposes them on that. While, mothers who live in the urban, they have little knowledge about this disease because of the lack of researchs and the lack of educational lectures about jaundice, and if they have knowledge, the source is from relatives and family and these not reliable information.

3). Association between Maternal Practices Level with Demographic Data of Mother

Result of current study shows high significant relationship between (level of maternal practices) with their demographic data at p value ≤ 0.05. Although, regarding (residency and health problems complained during pregnancy) at p value ≤ 0.05. This result were paralleled with a cross-sectional, interview-based study led by (Moawad et al.,2016) which aimed to assess perceptions, practices, and traditional beliefs among Egyptian mothers toward NNJ that may contribute to delayed presentation and inappropriate management of hyperbilirubinemia reported a substantial number of mothers sustain traditional practices with negative outcomes, many respondents still considered home remedies and exposure to sunlight as initial treatment options. This could be related to caregiver's education among rural areas, where there were not educated or have only basic education. The educational level plays a major role in practice healthy habits in regard to congenital jaundice [1].

CONCLUSIONS

1. The highest percentages of studying neonate are within the male sex, mostly aged (8-14 days).
2. Full term babies were considered as fifty percent of the sample, whereas, more than seventy percent of the study samples were the (1-4) sequence in the family and less than fifty percent of them were on artificial feeding.
3. The Almost studied mothers with a primary level of education and unemployed, who were living in rural settings.
4. There is a high significant relationship between mother's traditional practices with their demographic data.

CONFLICT OF INTEREST

None

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