

Neonate Screening Test among Childbearing Mother Knowledge and Attitude

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ABSTRACT

Many biochemical tests are done through Newborn screening (NBS) in the first few hours or days of postpartum life. The main objective of these is the early identification of metabolic, genetic, or endocrine conditions in affected neonates. Prompt intervention can reduce morbidity, mortality, and associated disabilities that may appear later in life in undiagnosed and untreated cases so early detection is critical because. In comprehensive NBS programs biochemical testing concenter a key component of it, which includes examination and education, follow-up, diagnosis, treatment, management, and evaluation.

Aims of the study: This study was conducted to evaluate of Mothers' attitudes and knowledge for newborn screening in Thi-Qar.

Material and methods: The current study is a cross-sectional study in the city of Nasiriyah. Samples were collected from Muhammad Al-Mousawi Hospital and Bint Al-Huda Hospital in Nasiriyah city, about 100 samples during the period between 2 and 3 of 2022. The samples were collected randomly and their number was (100), distributed over the age group of mothers (18 - > 35 years).

Result: The result show that the agree answers were (4%), while the neutral answers were (77.8%) and the disagree answers were (18.2%). And, the true answers were (51.5%), while the false answers were (48.5%)

Conclusions: Antenatal examinations may increase knowledge and awareness of newborn screening but do not appear to influence the situation. It can be an effective way where health care providers can inform the mother about the process and purpose of this life-saving procedure. Better integration of government policy and information dissemination by health care providers should be a priority to improve mothers' understanding of newborn screening.

Keywords: Screening Test, Childbearing, Knowledge, Attitude

INTRODUCTION

Newborn screening is a public health service, which completes asymptomatic (newborn) testing so they can be identified and treated before problems occur, newborn screening is offered to all newborns and done soon after birth, the best age for testing is seventy-two hours to five days after birth, those not screened until two months of age aim for testing to distinguish a specific uncommon genetic, congenital, and metabolic disorder, but it is dangerous and may threaten life¹.

In Iraq, the program was implemented in April 2013, covering two governorates; Baghdad and Karbala, as Bidaya governorates, all newborns are offered screening for phenylketonuria (PKU), galactosemia, and congenital hypothyroidism (CHT)¹.

In many countries, phenylketonuria (PKU) was the first disorder for which NBS programs were initiated².

If mothers are aware and have knowledge of the purpose, process, and benefits of screening, they may act in response to the need for another test after positive (abnormal) results or an inadequate sample³.

Knowledge about newborn screening may also help reduce psychological and social harm; For example, informing mothers prior

to testing that a first positive result is a possibility and does not indicate a confirmatory diagnosis, would likely reduce the risk of psychosocial harm associated with obtaining false-positive results from NBS⁴.

Though many factors influence mothers' opinions of newborn screening, it was created to encourage them to take its test. Positive attitudes are not necessarily dependent on adequate knowledge of screening, as there are substantial facts indicating that mothers generally have incomplete knowledge of the conditions being tested, the particular effects of the conditions, and accessible treatments⁵.

METHODOLOGY OF THE STUDY

The current study is a cross-sectional study in the city of Nasiriyah. Samples were collected from Muhammad Al-Mousawi Hospital and Bint Al-Huda Hospital in Nasiriyah city, about 100 samples during the period between 2 and 3 of 2022. Information regarding the age of the samples and details were obtained from the Hospitals Administration after obtaining approval. The samples were collected randomly and their number was (100), distributed over the age group of mothers (18 - > 35 years).

Focusing on the importance of testing and assessing high school students' self-concept.

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The questionnaire consists of two parts:

Part 1: Demographic Data Consist Item Age, gender, grade, type of family, number of family members, father's testimony, mother's certificate, father's profession, mother's profession and monthly income. Date Collection Demographics were determined and developed by conducting face-to-face interviews with each student in the study using a questionnaire format. The data collection process took place from December 19, 2018 to January 9, 2019. Each answer takes approximately 15-25 minutes to complete the questionnaire format

STUDY RESULTS

The distributions of the study sample by their socio-demographic characteristics:

Regarding socio-demographic characteristics table (5) indicated that the maternal age, estimated (26.3%) of their ages are (18-23) years, (26.3%) at the age (of 24-30) years, and (24.2%) at the age (31-35) years, the less age was frequent in this study was (>35 years) was (23.2%). This finding is supported by many studies like a cross-sectional descriptive study carried out in Baghdad, which indicated that a lot of mothers at age (24-30) years⁶.

As well as⁷ found that (40.1%) of mothers at age (25-30). While, Soliman et al., (2020)⁸ found that one-third of mothers at age (30-35) years. The result of the present study and other Iraqi and Arab studies was related to our culture in early age marriage and having children at an early age⁹.

Mother's education as shown in table (5) revealed that approximately thirty of the respondents, with school-level education, which disagrees with Rasheed et al., (2017)⁹ found that (35) others had university level of education. Alsuwat et al., (2018)¹⁰ found that about half of mothers had academic education¹¹.

The researcher's point of view is that the educational level of the mother is a very important issue in order to provide for the basic needs of the child particularly focusing on their diet and protective measures at home against many health problems which reflect the reduction in morbidity and mortality.

According to children number, 35.4% of mothers have 5-6 children.

The distribution of the mother's knowledge: Mother's knowledge about the test the table (6) revealed that mothers have a high level of knowledge about the test in all items the mean score (is 1.47). question 1 in table (6), (The test is a simple procedure for the discovery of genetic and congenital disease) was (54.5%) answered with True and (45.5%) answered with False. question 2 in table (6), (The test is important to ensure the infants' good health condition) was (45.5%) answered with True and (54.5%) answered with False. the question 3 in the table (6) , (The test helps in detecting metabolic disorders of an infant to avoid further deterioration of the child's health status) was (49.5%) answer with True and (50.5%) answered with False , the question 4 in the table (6) , (When diagnosed early, there is a chance of an excellent prognosis and the newborn may be spared from lifelong impairment and can enjoy a normal life) was (43.4%) answer with True and (56.6%) answered with False, the question 5 in the table (6) , (The test aids in the early detection of common genetic and congenital diseases, such as PKU, G6PD and CHT) was (57.6%) answer with True and (42.4%) answered with False, the question 6 in the table (6), (The test can identify more than 25 genetic and congenital diseases) was (58.6%) answer with True and (41.4%) answered with False the question 7 in the table (6) , (The blood spot would help future research related to public health problems) was (46.5%) answer with True and (53.5%) answered with False the question 8 in the table (6) , (The program is operated by the Ministry of Health) was (56.6%) answer with True and (43.4%) answered with False the question 9 in the table (6) , (he test is performed by pricking the newborn's heel) was (63.6%) answer with True and (36.4%) answered with False the question 10 in the table (6)

Table 1: The demographic characteristics of the samples

Variables	Statistics	F	%
Age (Mean=2.44)	18-23	26	26.3%
	24-30	26	26.3%
	31-35	24	24.2%
	>30	23	23.2%
Gender	1-2	25	25.3%
	3-4	28	28.3%
	5-6	35	35.4%
	>6	11	11.1%
Father Job	No Education(<1years)	19	19.2%
	School Level (1-12years)	30	30.3%
	Mid-College Diploma (14years)	26	26.3%
	University Bachelor Degrees'	21	21.2%
	Master's Degree or Higher	3	3.0%
Mather Job	Glucose 6 phosphate dehydrogenase (G6PD)	18	18.2%
	Phenylketonuria (PKU)	24	24.2%
	Congenital hypothyroidism (CHT)	18	18.2%
	Congenital hypothyroidism (CHT)	39	39.4%
Housing Environment	No Health Issues	44	44.4%
	Carrier of Congenital or Heredity Disease	13	13.1%
	Have Congenital or Heredity Disease	23	23.2%
	Dead Because of Congenital or Heredity Disease	19	19.2%

Table 2: Descriptive Statistics for Knowledge N=99, T=True, F=False

Questions		N	%	Mean	Deviation	Assessment
The test is a simple procedure for the discovery of genetic and congenital disease	T	54	54.5	1.45	0.50046	True
	F	45	45.5			
The test is important to ensure the infants' good health. condition	T	45	45.5	1.54	0.50046	False
	F	54	54.5			
The test helps in detecting metabolic disorders of an infant to avoid further deterioration of the child's health status	T	49	49.5	1.50	0.50252	True
	F	50	50.5			
When diagnosed early, there is a chance of an excellent prognosis and the newborn may be spared from lifelong impairment and can enjoy a normal life	T	43	43.4	1.56	0.49819	False
	F	56	56.6			
The test aids in the early detection of common genetic and congenital diseases, such as PKU, G6PD and CHT	T	57	57.6	1.42	0.49674	True
	F	42	42.4			
The test can identify more than 25 genetic and congenital diseases	T	58	58.6	1.41	0.49508	True
	F	41	41.4			
The blood spot would help future research related to public health problems	T	46	46.5	1.53	0.50129	False
	F	53	53.5			
The program is operated by the Ministry of Health	T	56	56.6	1.43	0.49819	True
	F	43	43.4			
The test is performed by pricking the newborn's heel	T	63	63.6	1.36	0.48349	True
	F	36	36.4			
The best time to do the test for a newborn is between three to seven days	T	59	59.6	1.53	0.50129	False
	F	40	40.4			
The heel-pricking is performed by a nurse, midwife, or doctor	T	55	55.6	1.40	0.49320	True
	F	44	44.4			
The blood samples will be sent to the Newborn Screening Laboratory canter and the result will be released in 7–14 working days	T	46	46.5	1.44	0.49943	True
	F	53	53.5			
If the results of the heel-prick test are abnormal, it means that the newborn has the risk of developing a genetic or congenital disorder	T	39	39.4	1.53	0.50129	False
	F	60	60.6			
Weighting mean				1.4794		True
St. Deviation				0.14530		

Table 3: Descriptive statistics for attitudes N=99, T=True, F=False

Questions		N	%	Mean	Deviation	Assessment
Useful if it prevents a disease	Agree	37	37.4	1.9091	0.80927	Neutral
	Neutral	34	34.3			
	Disagree	28	28.3			
Useful if it reduces the severity of a disease	Agree	21	21.2	2.3030	0.80121	Neutral
	Neutral	27	27.3			
	Disagree	51	51.5			
Useful even if it cannot improve the disease as it may help me decide about mothering children in the future	Agree	16	16.2	2.2626	0.72261	Neutral
	Neutral	41	41.4			
	Disagree	42	42.4			
Is beneficial to the newborn	Agree	35	35.4	1.9697	0.82628	Neutral
	Neutral	32	32.3			
	Disagree	32	32.3			
Is harmful to the newborn	Agree	25	25.3	2.2020	0.82040	Neutral
	Neutral	29	29.3			
	Disagree	45	45.5			
Is essential for the well-being of the newborn	Agree	24	24.2	2.0909	0.75716	Neutral
	Neutral	42	42.4			
	Disagree	33	33.3			
Is morally justified	Agree	26	26.3	2.1313	0.80365	Neutral
	Neutral	34	34.3			
	Disagree	39	39.4			
Is against my religious belief	Agree	22	22.2	2.1616	0.76541	Neutral
	Neutral	39	39.4			
	Disagree	38	38.4			
Would make me feel guilty if the newborn is found to have a genetic disease	Agree	19	19.2	2.3737	0.79006	Disagree
	Neutral	24	24.2			
	Disagree	56	56.6			
Weighting mean				2.1560		Neutral
St. Deviation				0.29946		

Table 4: The descriptive statistics for overall knowledge and attitudes

Table Overall Knowledge		
Statistics	N	%
True	51	51.5
False	48	48.5
Total	99	100.0

Table 5: Demographic characteristics with overall knowledge

Variables	Statistics	Chi square	P. value	Sig.
Age (Mean=2.44)	18-23	61.238 ^a	0.028	Significant
	24-30			
	31-35			
	>30			
Gender	1-2	45.674 ^a	0.322	Insignificant
	3-4			
	5-6			
	>6			
Father Job	No Education(<1years)	55.821 ^a	0.482	Insignificant
	School Level (1-12years)			
	Mid-College Diploma (14years)			
	University Bachelor Degrees'			
Mather Job	Master's Degree or Higher	38.645 ^a	0.619	Insignificant
	Glucose 6 phosphate dehydrogenase (G6PD)			
	Phenylketonuria (PKU)			
	Congenital hypothyroidism (CHT)			
Housing Environment	Congenital hypothyroidism (CHT)	35.271 ^a	0.759	Insignificant
	No Health Issues			
	Carrier of Congenital or Heredity Disease			
	Have Congenital or Heredity Disease			
	Dead Because of Congenital or Heredity Disease			

Table 6: Demographic characteristics with overall attitudes

Table Overall Attitudes		
Statistics	N	%
Agree	4	4.0
Neutral	77	77.8
Disagree	18	18.2
Total	99	100.0

Table 7: Demographic characteristics with overall knowledge

Variables	Statistics	Chi square	P. value	Sig.
Age (Mean=2.44)	18-23	33.767a	0.290	Insignificant
	24-30			
	31-35			
	>30			
Gender	1-2	33.129a	0.317	Insignificant
	3-4			
	5-6			
	>6			
Father Job	No Education(<1years)	32.853a	0.781	Insignificant
	School Level (1-12years)			
	Mid-College Diploma (14years)			
	University Bachelor Degrees'			
Mather Job	Master's Degree or Higher	15.695a	0.985	Insignificant
	Glucose 6 phosphate dehydrogenase (G6PD)			
	Phenylketonuria (PKU)			
	Congenital hypothyroidism (CHT)			
Housing Environment	Congenital hypothyroidism (CHT)	28.095a	0.565	Insignificant
	No Health Issues			
	Carrier of Congenital or Heredity Disease			
	Have Congenital or Heredity Disease			
	Dead Because of Congenital or Heredity Disease			

This chapter show reasonably determined clarification and systematic discussion provided with reassuring confirmation available in the literature and articles.

, (The best time to do the test for a newborn is between three to seven days) was (59.6%) answer with True and (40,4%) answered with False the question 11 in the table (6) , (The heel-pricking is performed by a nurse, midwife, or doctor) was (55.6%) answer with True and (44.4%) answered with False the question 12 in the table (6) , (The blood samples will be sent to the Newborn Screening Laboratory center and the result will be released in 7–14 working days) was (46.5%) answer with True and (53.5%) answered with False the question 13 in the table (6) , (If the results of the heel-prick test are abnormal, it means that the newborn has the risk of developing a genetic or congenital disorder) was (39.4%) answer with True and (60.6%) answered with false.

The distributions of the mother’s attitudes: The mother's attitudes about the test in the table (7) revealed that mothers have a high level of knowledge about the test in all items the mean score (2.15). question 1 in the table (7), (Useful if it prevents a disease) was (37.4%) answered with Agree and (34.3%) answered with neutral, while (28.3%) answered with Disagree. question 2 in table (7), (Useful if it reduces the severity of disease) was (21.2%) answered with Agree and (27.3%) answered with neutral, while (51.5%) answered with disagreeing. the question 3 in table (7), (Useful even if it cannot improve the disease as it may help me decide about mothering children in the future) (16.2%) answered with Agree and (41.4%) answered with neutral, while (42.4%) answered with disagreeing. question 4 in table (7), (Is beneficial to the newborn) was (35.4%) answered with Agree and (32.3%) answered with Neutral, while (32.3%) answered with disagreeing. question 5 in table (7), (Is harmful to the newborn) was (25.3%) answered with Agree and (29.3%) answered with neutral, while (45.5%) answered with disagreeing. question 6 in table (7), (Is essential for the well-being of the newborn) was (24.4%) answered with Agree and (42.4%) answered with neutral, while (33.3%) answered with disagreeing. question 7

in table (7), (Is morally justified) was (26.3%) answered with Agree and (34.3%) answered with neutral, while (39.4%) answered with disagreeing. question 8 in table (7), (Is against my religious belief) was (22.2%) answered with Agree and (39.4%) answered with neutral, while (38.4%) answered with disagreeing. question 9 in table (7), (Would make me feel guilty if the newborn is found to have a genetic disease) was (19.2%) answered agreeing and (24.2%) answered neutral, while (56.6%) answered disagree.

The distributions of the overall knowledge: According to table (8), the true answers were (51.5%), while the false answers were (48.5%)

The distributions of the overall attitudes According to the table (9) the agree answers were (4%), while the neutral answers were (77.8%) and the disagree answers were (18.2%) .

DISCUSSION

Antenatal examinations may increase knowledge and awareness of newborn screening but do not appear to influence the situation. It can be an effective way where health care providers can inform the mother about the process and purpose of this life-saving procedure. Better integration of government policy and information dissemination by health care providers should be a priority to improve mothers' understanding of newborn screening. For future studies, larger sample size is recommended, given the weak statistical power of the analyses. The survey can also be conducted in different hospitals to see the impact of location and type of hospital on the results. PGH deals with complex cases; Thus, mothers on PGH are more likely to consult for prenatal screening and therefore be better acquainted with newborn screening. The retention time of mothers acquainted with NBS may also be a factor in general understanding and may also be assessed.

RECOMMENDATIONS

**Recognize and take advantage of the positive aspects of personality.
Recognize your personal strengths to be able to excel.
Attention to appearance.**

Building new friends, mixing into social life, and engaging in various interesting discussions, all of these steps strengthen self-confidence and reinforce new ideas.

Exercise different activities and hobbies that improve a person's skills, improve his health, eliminate negative energy in the body, and enhance self-confidence.

Every new experience is always to kill the fear within the person, and to enhance the ability to make a decision.

Authorship Contribution: Mei-Ling Huang: Conceptualization, Methodology, Writing- Original draft preparation, Investigation, Supervision, Writing-Reviewing and Editing, Funding acquisition. Ting-Yu Lin: Software, Formal Analysis, Data curation

Potential Conflict of Interest: None

Competing Interest: None

Acceptance Date: 16 July 2022

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