

■ Original article

Knowledge of mothers about post-discharge newborn care

Mohsen Adib-Hajbaghery^{1*}, Zahra Khosrojerdi²

(Received: 26 Jan 2017; Accepted: 22 Apr 2017)

Abstract

Background and Purpose: Mothers' knowledge of newborn care can significantly affect the neonatal morbidity and mortality. This study was conducted on parturient mothers to assess their knowledge about post-discharge newborn care.

Methods: This cross-sectional study was conducted on 200 mothers who gave birth in Shahid Beheshti Hospital of Kashan, Iran, in 2015. A questionnaire was used, which consisted of 27 multiple-choice questions regarding mother's knowledge of basic neonatal care, breast feeding and proper nutrition, neonatal jaundice monitoring and care, and umbilical cord care. A score of one was given to each correct answer. Descriptive statistics, Kolmogorov-Smirnov test, t-test, analysis of variance, and analysis of covariance were used to analyze the data.

Results: The mean maternal age was 27.74 ± 5.63 years. The mean knowledge score of the mothers was 16.96 ± 3.47 (range: 4 to 23). A direct correlation was found between mothers' age and their knowledge scores ($r=0.19$, $P=0.02$). The mean overall score of employed mothers was higher than housewives (18.39 ± 3.27 vs. 16.77 ± 3.46 , $P=0.036$). In covariance analysis, the mothers' education level ($P<0.001$), age ($P=0.027$), and place of residence ($P<0.049$) could predict their knowledge of neonatal care. On the other hand, parity, the route of delivery, and the spouses' job had no significant effect on the mothers' overall knowledge.

Conclusion: Mothers' knowledge of newborn care was not at optimal level, which might put the newborns at risk. A comprehensive maternal educational program should be established to train all mothers on newborn care both before and after the parturition.

Keywords: Knowledge, Mothers, Newborn care, Post-discharge

Introduction

The neonatal period is one of the most sensitive life stages, in which the neonate is highly vulnerable; An extensive part of human nervous system develops in this period. Therefore, health problems at this age can lead to irreversible damages to the newborn (1). In many cases, neonatal problems present after hospital discharge, and mother is the first person who can identify these issues. Therefore, it is essential for mothers to have sufficient knowledge in order to

identify the common neonatal problems (2).

In other words, a majority of infant morbidities and mortalities occur due to unawareness of parents, especially the mothers' insufficient knowledge or misunderstanding of maternal and neonatal care during this period (3).

About four millions neonatal deaths are reported annually worldwide, 98% of which occurs in the developing countries. Almost 75% of newborn

^{1,*} Corresponding author: Trauma Nursing Research Center, Faculty of Nursing and Midwifery, Kashan University of Medical Sciences, Kashan, Iran. Email: adib1344@yahoo.com

² Department of Medical Surgical Nursing, Faculty of Nursing and Midwifery, Kashan University of Medical Sciences, Kashan, Iran

mortalities happens in the first week postpartum, and mostly at home while only the mothers are present (4, 5). Although neonatal morbidity and mortality are multi-factorial, the maternal knowledge and training are among the most important factors.

In a recent study on predisposing risk factors of infant mortality, mothers' low education, unhygienic practices, and poor knowledge about food safety issues were responsible for food contamination and the resultant diarrheal episodes in infants (6). In another study, mothers' education level was significantly associated with neonatal mortality, so that mothers with secondary or higher education were 27 times less likely to face with their neonate death compared to those with lower education (7).

Due to the critical importance of neonatal and postnatal period, in 1998 the World Health Organization recommended the postnatal care (PNC) to be integrated in the country health care systems. PNC is the care program given to mother and her newborn immediately after birth and continues until the sixth week of life.

PNC consists of twelve recommendations regarding mothers' counseling and training (4, 8), all of which focus on urgent problems for mothers or infants, normal and abnormal signs in mother and newborn, newborn evaluation and care, breastfeeding, preventing infection, special care for preterm babies, and also ensuring quick access to emergency care if needed (4).

Today, most of the births occur in hospitals, where a number of preventive and early diagnosis of neonatal problems (9, 10), as well as maternal training programs are setup (5, 11). However, it seems that knowledge of mothers on the neonatal care and especially the uniparous mothers is relatively low (12, 13). Many of mothers receive information about neonatal care from their families and close relatives (13).

Although a study in Sri Lanka has shown that mothers have a high level of knowledge about breastfeeding, colostrums, its benefits and also about the symptoms of life threatening diseases of the neonates (14). The literature review in Iran and other countries (5, 12, 13, 15) have demonstrated that mothers have poor knowledge about manifestations

of newborn disorders (5, 12, 15, 16), neonatal jaundice (15), and the essential treatments (13).

Neonatal morbidity and mortality have dramatic challenges, both for the health care system and families. Therefore, it is crucial to evaluate the mothers' knowledge of infant care and the affecting factors. Studies are necessary to evaluate the effectiveness of the current maternal training programs, and would help the authorities to overcome the weaknesses of these programs and to plan effective actions for enhancing neonatal health. Therefore, this study was conducted on mothers who had a recent delivery to assess their knowledge about post-discharge neonatal care.

Materials and Methods

Design and Participants

This cross-sectional study was conducted from 21st January till 31st of June 2015 on 200 mothers who gave birth in Shahid Beheshti hospital of Kashan, Iran. The sample size was calculated according to a previous study in which only twelve percent of mothers had good knowledge about neonatal care (17). Then, based on the following formula, for a confidence level of 95%, acceptable margin of error at 0.05, and a prevalence of 0.12, the sample size of 162 was calculated. However, we recruited 200 subjects to obtain more reliable results and cover the dropout.

Mothers with inclusion criteria were recruited consecutively until the required sample size was achieved. The inclusion criteria consisted of delivery of an alive child within the last two days; agreement to participate in the study, stability of the mother's vital and psychological conditions, and readiness to response to the questionnaire.

$$n = \frac{z^2 pq}{d^2} = \frac{(1.96)^2 * 0.12 * 0.88}{(0.05)^2} = 162$$

Data Collection

The data collection instrument consisted of two parts as follow: the first part included questions about the mother's age, parity, place of residence, literacy level, mother's and spouse's

occupation, route of delivery, and the place of prenatal care; the second part consisted of 27 multiple-choice questions about basic neonatal care (10 questions), breast feeding and proper nutrition (11 questions), neonatal jaundice care (2 questions), and umbilical cord care (4 questions). A score of 1 was given for each correct answer, therefore the overall score ranged between zero and 27.

The questionnaire was developed by the researchers through the literature review, and its content validity was confirmed by the experts and faculty members in our faculty of nursing and midwifery. For reliability assessment, the questionnaire was piloted on 10 mothers and the half-split reliability coefficient was calculated as 0.86.

Because some of the mothers were illiterate or semi-literate, the researchers decided to complete the entire questionnaires through structured interviews. Therefore, when a mother agreed to take part in the study, in a private setting of the study hospital, an individualized interview was scheduled with her before discharge. The second researcher read all the questions and their choices for the mothers and recorded their responses on the questionnaire. Each interview lasted about twenty minutes.

Data Analysis

Data analysis was done using SPSS software version 13. The descriptive statistics such as frequency, percentage, mean and standard deviation were calculated. Moreover, t-test was used for making comparison between the mean knowledge scores of the two subgroups of mothers. Analysis of variance was also used to examine the difference between the mean knowledge scores in terms of mothers' education level and place of prenatal care. Furthermore, analysis of covariance was used to determine the predictors of maternal knowledge of newborn caring.

Ethical Considerations

This study was approved by the Ethics Committee of Kashan School of Nursing and

Midwifery (number: p/29/10/2416). The aim of current study was explained to all participants. All the questionnaires were kept anonymous and all the participants were assured of the confidentiality of the data. All participants signed a consent before answering the questionnaire. After each interview, the questions were repeated again and correct choices were explained to the participants.

Results

In this study, 200 mothers with a mean age of 27.74 ± 5.63 years (ranging from 17 to 49) were enrolled. Most of the mothers were housewives, high school graduates, and living in urban areas (Table 1). The mean score of overall knowledge of the mothers was 16.96 ± 3.47 (ranging from 4 to 23). Moreover, the mean knowledge scores were 6.15 ± 1.59 , 2.21 ± 0.89 , 1.72 ± 0.51 , and 6.87 ± 1.86 for the domains of proper nutrition, umbilical cord care, neonatal jaundice, and basic neonatal care, respectively.

Table 1. The demographic characteristics of the mothers, Shahid Beheshti Hospital of Kashan, Iran, 2015

Variable	N (%)	
Place of residence	Urban areas	153 (76.5)
	Rural areas	47 (23.5)
Parity	1	93 (46.5)
	2 or more	107 (53.5)
Literacy level	Illiterate	5 (2.5)
	Primary school	22 (11)
	Secondary school	36 (18)
	High school	79 (39.5)
Mother's job	Higher education	58 (29)
	Housewife	177 (88.5)
Spouse's job	Clerical	23 (11.5)
	Laborer	155 (77.5)
Route of delivery	Clerical	45 (22.5)
	Laborer	155 (77.5)
Place of receiving prenatal care	Normal delivery	90 (45)
	Cesarean	110 (55)
Place of receiving prenatal care	Health care center	46 (23)
	Private center	36 (18)
	Both centers	118 (59)

Table 2. The mean knowledge scores of mothers according to their personal characteristics

Variables		Domains				
		Overall score	Basic neonatal care	Neonatal jaundice	Umbilical cord care	Breast feeding
Place of residence	Urban areas	17.39 ±3.05	7.03±1.77	1.74±0.49	2.23±0.75	6.38±1.50
	Rural areas	15.48±4.35	6.31±2.06	1.65±0.56	2.14±1.23	5.36±1.66
	<i>P-value</i>	0.001	0.022	0.338	0.548	0.001
Parity	1	16.51 ± 3.82	6.69 ± 2.09	1.65 ± 0.59	2.05 ± 0.87	6.10 ± 1.68
	2 or more	17.35 ± 3.11	7.02 ± 1.63	1.78 ± 0.41	2.35 ± 0.88	6.18 ± 1.51
	<i>P-value</i>	0.089	0.214	0.074	0.017	0.726
Education Level	Illiterate or Primary school	15.07 ±3.85	5.77 ±1.96	1.55 ±0.69	1.81 ± 1.07	5.92 ± 1.81
	Secondary school	15.77 ±3.65	6.30 ±1.89	1.69 ±0.52	2.16 ± 1.00	5.61± 1.35
	High school	17.30 ±3.06	7.06 ±1.73	1.72 ±0.50	2.32 ± 0.76	6.18 ± 1.54
	Collegiate	18.12 ±3.20	7.48 ±1.68	1.82 ±0.38	2.27 ± 0.85	6.53 ± 1.61
	<i>P-value*</i>	0.001	0.001	0.141	0.067	0.043
Mother's Job	Housewife	16.77 ±3.46	6.77 ±1.87	1.71 ±0.52	2.20 ± 0.91	6.08 ± 1.55
	Clerical	18.39 ±3.27	7.60 ±1.64	1.82 ±0.38	2.30 ± 0.70	6.65 ± 1.79
	<i>P-value</i>	0.036	0.045	0.314	0.610	0.108
Spouse's job	Clerical	17.90 ±2.70	7.27 ±1.61	1.84 ±0.36	2.36 ± 0.78	6.43 ± 1.37
	Laborer	16.69 ±3.62	6.76 ±1.91	1.69 ±0.54	2.17 ± 0.91	6.07 ± 1.64
	<i>P-value</i>	0.041	0.109	0.088	0.211	0.185
Route of delivery	Normal delivery	16.90 ±3.59	6.80 ±2.00	1.75 ±0.50	2.20 ± 0.97	6.14 ± 1.50
	Cesarean	17.09 ±3.45	6.97 ±1.76	1.70 ±0.51	2.23 ± 0.82	6.19 ± 1.68
	<i>P-value</i>	0.700	0.528	0.468	0.812	0.836
Place of receiving prenatal care	Health care center	16.21 ±3.71	6.30 ±1.96	1.69 ±0.51	2.19 ±0.98	6.02 ± 1.67
	Private center	17.77 ±2.80	6.88 ±1.37	1.80 ± 0.40	2.25 ±0.73	6.27 ±1.38
	Bothe centers	17.00 ±3.53	6.92 ±1.86	1.71 ±0.54	2.21 ±0.90	6.16 ±1.62
	<i>P-value</i>	0.128	0.682	0.572	0.962	0.767

* *P-value* less than 0.05 was considered statistically significant

A significant direct but weak correlation was found between the mothers' age and their knowledge scores ($r=0.19$, $P=0.02$). Additionally, the total knowledge score as well as the scores of basic neonatal care, and breast feeding and proper nutrition were significantly higher in mothers with higher education levels and also in those who lived in urban areas compared to those from rural areas ($P<0.05$) (Table 2).

Furthermore, the mean overall score of employed mothers was higher than housewives. The employed mothers also possessed higher mean scores in the domain of basic neonatal care ($P<0.05$). The parity showed no significant effect on the mothers' knowledge unless in the

domain of umbilical cord care. Total scores and the scores of different aspects of infant care were not significantly different between mothers with vaginal delivery and caesarean section. The spouses' job and the route of delivery did not significantly affect the mothers' knowledge of neonatal care (Table 2).

In covariance analysis, only literacy level, age, and place of residence could predict the mothers' knowledge of newborn care (Table 3). As presented in table 4, the questions related to the items including nipple ulcer and its treatment, storage of breast milk, infants' normal respiratory rate, and time of first outpatient follow-up gained the least correct answers, while the questions

Table 3. Results of analysis of covariance for the variables affecting the mothers' knowledge of neonatal care (dependent variable: total score)

Source	Type III Sum of Squares	df*	Mean Square	F**	P-value	Adjusted R Squared
Model	57885.356	6	9647.559	898.247	.000	
Place of residence	42.026	1	42.026	3.913	.049	0.964
Age	53.255	1	53.255	4.958	.027	
Literacy level	1759.464	4	439.866	40.954	.000	
Error	2083.644	194	10.740			
Total	59969.000	200				

* Degree of freedom, ** Fischer exact test score

Table 4. The distribution of the mothers' accurate responses to the questions on neonatal care

Domain/Questions	n (%)
Questions related to breastfeeding	
The best healthy way to feed the baby	183 (91.5)
What is the best diet for a milking mother?	159 (79.5)
Mean of night breastfeeding duration	115 (57.5)
How many hours we can keep the breast milk at the room temperature?	67 (33.5)
How many hours we can keep the breast milk in refrigerator ?	61 (30.5)
What is the main cause of nipples ulcer?	7 (3.5)
What is the best way to prevent and treat nipples ulcer?	26 (13)
In what kind of containers we can collect and store the breast milk?	126 (63)
What is the best way to prevent post-feeding vomiting?	189 (94.5)
What is the best food for an infant with diarrhea?	160 (80)
What is the best way for milking mother's breast milk?	137 (68.5)
Questions about umbilical cord care	
What is the best material for cleaning the cord?	119 (59.5)
How long does it usually take for the umbilical cord to fall down?	17 (8.5)
What is a dangerous sign while caring for the umbilical cord?	146 (73)
What is the best method of umbilical cord care?	161 (80.5)
Questions related to neonatal jaundice	
What is the best treatment for neonatal jaundice?	179 (89.5)
What is the best diet for newborns with jaundice?	166 (83)
General questions about basic neonatal cares	
What is the best time for post-discharge referring to the clinic or the physician's office?	94 (47)
What is the best time for bathing the newborn?	136 (68)
What is the best way to lay the baby?	180 (90)
When is the proper time to start supplementary nutrition?	190 (95)
When is the best time for thyroid screening tests?	162 (81)
What is the number of natural breathing?	51 (25.5)
When is the best time for circumcision?	163 (81.5)
Which symptom is dangerous during neonatal breathing?	163 (81.5)
What is the suitable coating for a newborn?	128 (64)
How many times a day does a normal infant Urinate?	108 (54)

about the items including the best methods of feeding infants, preventing infant's post-feeding regurgitation, laying the baby, and the best time to start supplementary feeding, received the most correct answers.

Discussion

The mothers in this study gained a mean knowledge score of 16.96 out of 27. In other words, they obtained about 63% of the total score regarding newborn care. Although this score is above average, given the high sensitivity and vulnerable nature of newborns, this level of mothers' knowledge about newborn care does not seem desirable.

A study in Urmia, Iran also examined the maternal knowledge on newborn care and reported that only 37% of mothers had appropriate knowledge (18). The evidences showed that mothers' literacy level (12) and their knowledge of baby care have a dramatic effect on neonatal morbidity and mortality (6, 7). The levels of mothers' knowledge about neonatal care are different and could be attributed to the differences in the samples of various studies or the used instruments. However, the findings show the necessity for developing plans to establish a system of maternity training in all hospitals for all mothers about baby care pre- and post-natal.

In this study, a weak, but significant direct correlation was found between the age of mothers and their knowledge scores regarding newborn care. Nonetheless, parity did not affect the mothers' knowledge except for umbilical cord care. Although, some studies have shown that mothers with more children have better knowledge about newborn care (12, 15), but the parity does not always seem to affect mothers' knowledge of appropriate baby care. However, the higher knowledge of older mothers might to some extent be attributed to their previous experience or knowledge gained through various sources such as relatives and media. Some of the earlier studies have also reported that mothers' awareness regarding newborn care is improved by getting older (17, 19-21).

In the present study, the mothers with higher levels of literacy, mothers who lived in urban areas, and those who were employed in clerical jobs had higher mean scores than their counterparts. Likewise, some of the previous studies (14, 17) reported that the literate mothers and those who lived in urban areas have more knowledge about newborn care. These findings suggest that maternal education has a significant positive impact on their knowledge in various items including newborn care. Better awareness of urban and employed mothers not only is attributed to their education level, and might also be due to their better access to educational facilities such as Internet and the literature.

The level of literacy is usually higher in the cities. Moreover, people with higher education usually have higher opportunity for being employed. Furthermore, differences in levels of maternal knowledge might also be relevant to the quality of maternal training programs in different areas; however, this issue needs to be studied independently.

In the present study, we performed covariance analysis to predict the most important variables affecting mothers' knowledge of newborn care, and also to eliminate the possible biases of the compound effects. The results of this analysis showed that only three variables of mother's education level, mother's age and place of residence could significantly and independent of each other predict 96% of the maternal knowledge of newborn care. Among these three variables, mothers' education level had the most important role as it accounted for the largest part of the effect of model.

The route of delivery and the spouses' job did not significantly affect the mothers' knowledge in the current study. Moreover, parity did not affect the mothers' knowledge except for umbilical cord care. However, some of the studies have shown that mothers with more children have better knowledge about newborn care (12, 15). Although in the present study we did not assess the literacy of the spouses, the ineffectiveness of the spouses' job on the mothers' knowledge might result from the fact

that Iranian spouses are less engaged in the process of newborn care. The ineffectiveness of delivery route and the weak effect of parity on the mothers' knowledge of newborn care might also be due to lack of an effective maternal education system in Iranian hospitals. Therefore, mothers often take care of their second child almost the same as the first one.

Regarding the separate domains of mothers' knowledge of newborn care, the present study showed that the mothers possessed 86% of the score in the domain of neonatal jaundice (i.e. a mean score of 1.72 out of 2). However, they gained about 55.91% and 55.25% of the total scores in the domains of proper nutrition and umbilical care, respectively (i.e. a mean of 6.15 out of 11 and 6.87 out of 10, respectively). In other words, the mothers had the best and the worst knowledge in the domains of neonatal jaundice and umbilical cord care, respectively.

Moreover, in the current study, most mothers were aware of the best methods for newborn feeding, preventing post-feeding regurgitation, baby laying, the suitable time for supplementary nutrition, neonatal jaundice, and umbilical cord care. On the other hand, most of them were not aware of the cause of nipple ulcer and its treatment. They also did not know the breast milk storage methods, infants' normal respiratory rate, and the time for the first follow-up.

A study in Sri Lanka investigated the factors associated with maternal knowledge of newborn care among hospital-delivered mothers and reported that although more than 90% of mothers were aware of the benefits of breastfeeding, only 21% knew proper umbilical cord care (14). This is while; the studies conducted in Iran have reported conflicting results about mothers' knowledge of infant care. For instance, a study showed that mothers were aware of the appropriate infant feeding during jaundice (17).

It should be noted that another study on general infant care showed that mothers mostly applied the recommendations received from their relatives and friends (20). However, two studies in Nigeria (2) and Turkey (13) have reported that most mothers

were not aware of the appropriate neonatal jaundice care and management.

Sutcuoglu et al. and Aydin et al. have also reported that many mothers take care of their babies without consulting a physician, and based on incorrect beliefs and recommendations received from relatives and friends that are built on the beliefs they have received from the past (13, 15).

Some sort of knowledge might be relevant to the amount of risk of that issue. For instance, the mothers' appropriate knowledge of neonatal jaundice might result from the risky nature of this problem, and usually the health care team have warned mothers about it. Moreover, the country national program for promoting breastfeeding (2, 22) might be a factor, which affects on the mothers' knowledge of breastfeeding. However, it seems that this program needs to be modified to include a more comprehensive maternal training on the newborn care.

Conclusion

The mothers' knowledge of newborn care in this study was not at optimal level and this might put the newborns at risk. Moreover, the three variables of mother's literacy level, mother's age and her place of residence could significantly predict the maternal knowledge of newborn care. Given the results, a comprehensive maternal education program should be established to train all mothers about infant care pre- and post-natal. Moreover, it is crucial to monitor the quality of running training programs. Furthermore, it is important to pay special attention to those mothers with low literacy level and those who reside in rural areas. In addition, inclusion of appropriate educational content regarding infant care in high school curriculum, particularly for girls, might improve the knowledge and practice of future mothers. Finally, it is recommended to investigate the effects of these programs in prospective studies.

Conflicts of interest

The authors declare no conflicts of interests.

Authors' contributions

M. Adib-Hajbaghery contributed with study concept and design, supervising the study, data analysis, and critical revision of the manuscript. Z. Khosrojerdi aided with data gathering, preparation of the first draft of the manuscript, as well as study design and conception. All the authors read and approved the final copy of the manuscript.

Acknowledgements

The author gratefully acknowledges the cooperation of Shahid Beheshti hospital of Kashan and all the mothers who participated in this study.

References

1. Kermani RM, Zoljalali SH, Azari A, Kouhpayezadeh J. The role of training workshops of newborn cares in promotion of mothers' knowledge. *Iran J Pediatr* 2007; 17(Suppl 1):41-6.
2. Egube BA, Ofili AN, Isara AR, Onakewhor JU. Neonatal jaundice and its management: knowledge, attitude, and practice among expectant mothers attending antenatal clinic at University of Benin Teaching Hospital, Benin City, Nigeria. *Nigerian J Clin Practice* 2013; 16(2):188-94.
3. Weiner EA, Billamay S, Partridge JC, Martinez AM. Antenatal education for expectant mothers results in sustained improvement in knowledge of newborn care. *J Perinatol* 2011; 31(2):92-7.
4. Ababa A. Federal democratic republic of Ethiopia ministry of health. Ethiopia: Postnatal Care; Blended Learning Module for the Health Extension Programme; 2015.
5. Hoque MM, Khan MF, Begum JA, Chowdhury MA, Persson LA. Newborn care practices by the mother/care givers' and their knowledge about signs of sickness of neonates. *Bangladesh J Child Health* 2012; 35(3):90-6.
6. Samuel OO. Infant mortality in Nigeria: assessing knowledge of predisposing risk factors among mothers and bacteriological profile of the weaning foods. *Am J Food Nutr* 2013; 1(3):22-6.
7. Izugbara C. Single motherhood and neonatal and infant mortality in Sierra Leone, Burkina Faso and Burundi. *New York: Public Health*; 2016. P. 122-30.
8. World Health Organization. WHO recommendations on postnatal care of the mother and newborn. Geneva: World Health Organization; 2014.
9. Jalali SZ, Fakhraie SH, Afjaei SA, Kazemian M. The incidence of obvious congenital abnormalities among the neonates born in Rasht hospitals in 2011. *J Kermanshah Univ Med Sci* 2015; 19(2):109-17 (Persian).
10. Maryam Z, Moniralsadat HT, Zohreh K, Banafsheh MZ, Amir S. The knowledge and attitudes towards breastfeeding of Iranian mothers during the first year after delivery in 2013. *Macedonian J Med Sci* 2014; 7(4):635-9.
11. World Health Organization. Breastfeeding promotion and support in a baby-friendly hospital, a 20-hour course for maternity staff. Geneva: World Health Organization; 2009.
12. Esmaeeli H. Knowledge assessment of neonatal care among postnatal mothers. *Iran J Neonatol* 2013; 4(1):28-31.
13. Aydin D, Karaca Ciftci E, Karatas H. Identification of the traditional methods of newborn mothers regarding jaundice in Turkey. *J Clin Nurs* 2014; 23(3-4):524-30.
14. Senarath U, Fernando DN, Vimpani G, Rodrigo I. Factors associated with maternal knowledge of newborn care among hospital-delivered mothers in Sri Lanka. *Trans R Soc Trop Med Hyg* 2007; 101(8):823-30.
15. Sutcuoglu S, Dursun S, Halicioğlu O, Ozturk C, Akman S, Yaprak I, et al. Evaluation of maternal knowledge level about neonatal jaundice. *J Maternal Fetal Neonatal Med* 2012; 25(8):1387-9.
16. Aziz NA, Lee K. Malaysian primipara's knowledge and practice on newborn care during the postnatal period. *Int J Public Health Clin Sci* 2014; 1(2):132-43.
17. Sharafi R. Knowledge assessment of the mothers of admitted neonates in the hospitals of Rasht, about neonatal cares. *Urmia Med J* 2009; 20(1):21-5 (Persian).
18. Gholizadehghaleh Aziz SH, Neysari R, Mohaddesi H. Evaluation of Mothers' knowledge of child care in early postnatal period in educational and private hospitals in west Azarbaijan-Urmia. *Nurs Midwifery J* 2011; 6(22):5-10 (Persian).
19. Padiyath MA, Bhat V, Ekambaram M. Knowledge attitude and practice of neonatal care among postnatal mothers. *Curr Pediatr* 2010; 14(2):147-52.
20. Khorshidifard M, Pishva N, Bonyadi F. Assessment of knowledge, attitude and behavior of mothers on neonatal jaundice in Kazeroon city in 2013. *Nurs J Vulnerable* 2015; 2(3):59-68 (Persian).
21. Esfandtari R, Baghiani Moghadam MH, Khakshour A,

Faroughi F, Zarif B, Saeidi M. Study of maternal knowledge and attitude toward exclusive breast milk feeding (BMF) in the first 6 months of Infant in Yazd-Iran. *Int J Pediatr* 2014; 2(3-1):175-81.

22. Gaffari V, Vahidshani K, Taleshi BA. Knowledge and attitude about neonatal ICTR among mothers in Sari. *J Mazandaran Univ Med Sci* 2006; 16(52):92-9.