

Knowledge and Practices Regarding Early Colostrum Feeding Among Mothers in Erbil Governorate: a Comparative Study

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Research

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Abstract

Background and objectives: Colostrum is the first breastfeed which is a product by the mother. It contains high amounts and concentrations of nutrients and antibodies.

Methods: A comparative, cross-sectional study was conducted in different areas in Erbil Governorate. During the period started on 2nd Jan. to the end of May, 2019. Non-probability of 400 mothers who delivered their baby by normal vaginal delivery in the hospitals were recruited. A special tool was constructed by researchers, a direct face-to-face interview was adapted. Data were collected and interpreted to the computer. A special SPSS software version 23 was used for analyzing the data, frequency, chi-square, and two-tailed t-test statistical analysis was applied for the study.

Results: Incorrect knowledge among Erbil city and Koy-Sanjaq city was observed, with better information among Shaqlawa mothers. Poor practices of colostrum feeding among all mothers, and found a statistically significant association between mother's knowledge, and relate to an association between mothers' practices. Statistically significant differences were found between Erbil city and Koy-Sanjaq city; between Shaqlawa city and Koy-Sanjaq city concerning mothers' practices respectively, with non-statistically differences between Erbil and Shaqlawa mothers, also non-statistically significant differences between mothers' practices in Erbil and Shaqlawa city. There are statistically differences between mothers in Erbil, Koy-Sanjaq, and between Erbil and Shaqlawa with no statistical difference between Koy-Sanjaq and Shaqlawa mothers regarding knowledge.

Conclusions: The mothers in Shaqlawa city had better knowledge and all three districts were having poor practices regarding colostrum feeding.

Introduction

More than a quarter of mothers don't know the health benefits of colostrum and offered pre-lacteal feeding to babies. The first milk called colostrum is produced by the mammary glands of mammals in late pregnancy, which is very rich in proteins, carbohydrates, vitamin A, and sodium chloride, but contains lower amounts of lipids and potassium than normal milk [1, 2]. This first milk (colostrum) is the first milk that is very important for newborns in protecting infections. Since the first milk is rich in immune globin, it has a greater role in disease resistance. Numbers of articles referred that the bacterial, viral, and fungal and protozoa is mainly causing infection among newborn babies, this can be controlled by feeding colostrum. According to different studies, children who did not feed colostrum more likely to develop many infections, stunting, underweight, and wasting [3]. Despite the World Health Organization (WHO) recommends that every newborn baby to feed breast milk within the first hour, early initiation of breastfeeding is poorly practiced by mothers who give birth especially, in developing countries [4]. The limited population knows the importance of colostrum. Unfortunately, many people believe that colostrum is a harmful substance that should be discarded. There are many barriers perverting the first feeding of colostrum to newborn babies, such as maternal barriers, mothers' lack of knowledge about the

importance of early initiation of breastfeeding and the benefits of colostrum feeding. Some mothers dislike the color of colostrum [5]. In Erbil, the infant mortality rate was 42 deaths per 1,000 live births. Women in Iraq have different practices in the timing of initial breast milk according to geographical areas, particularly when initiate the breastfeeding within the first hour. However, studies in Erbil city found that the women in Erbil were the least likely to start breastfeeding within the first hour [6]. But in a study was conducted in India confirmed that most of the mothers unaware of the time of initiation of breast milk and colostrum feeding [7]. Majority of women undergoing normal delivery and cesarean section, gave correct responses about the time of initiation of breastfeeding. Though the mothers knew that breastfeeding should be initiated within one hour after delivery, only a few mothers were actually practiced [8]. Delayed initiation of first breast milk is a common practice and most of them were not aware that the colostrum is a source of anti-infective properties, vitamin A and protein the author stated that the faulty feeding practices were more prevalent in rural areas as compared to urban areas due to different factors such as lower-level education, lack of knowledge, religious beliefs, customs, elder's and relative's advice [9]. Studies observed that the maternal age at first childbirth has increased in most developed countries in the past 20 years, which may need more information and practices [10].

World Health Organization (WHO) has confirmed through a systematic review that the colostrum, a nutrient-rich fluid produced by female mammals immediately after giving birth, is loaded with immune, growth, and tissue repair factors. Colostrum is a complex biological fluid; this product helps in the development of immunity in the newborn, through significant quantities of complement components that act as natural anti-microbial agents which be an active and stimulate the maturation of an infant's immune system. The colostrum which consists of both bovine colostrum, and other natural material for immune, can be used to treat gastrointestinal tract diseases. [11]. The prevalence of early breastfeeding is low globally in many of the developing and developed countries around the world [12]. Though the breastfeeding practices are well known to mother the necessity of colostrum feeding is still poorly understood especially by mothers in rural areas due to various factors [13].

Exclusive Breast Feeding (EBF) for the first six months of life is now considered a global public health goal that is linked to the reduction of infant morbidity and mortality, especially in the developing world [14]. The WHO recommends EBF for the first six months of life with advising to provide adequate and safe complementary foods with breast milk for up to two years and beyond. EBF remains uncommon in most provinces, even in countries with high rates of breastfeeding initiation. EBF rates in infants less than six months of age varied from as low, in central and eastern European countries to middle rate in South Asia [15]. Education of mothers about breastfeeding will increase the like-hood of a successful breastfeeding experience. Breast-feeding is not instinctive, it is learned. It is a natural process; each breastfeeding mother should have a breastfeeding evaluation to determine any knowledge deficit and acknowledge it. For breastfeeding, teaching topics include comfortable position, appropriate techniques, feeding frequency, the letdown reflex, care of the breast, and length of feeding [16].

Methods

Study design and aims:

A comparative, cross-sectional study was designed to assess the level of mothers' knowledge and practices, and find out the differences between mothers' knowledge and practices regarding early colostrum feeding among mothers in three different areas in Erbil Governorate of Iraqi Kurdistan region.

Tim and setting of the study:

This study was carried out during the period was started in 2nd Jan. to the end of May. 2019, in three different areas of Erbil governorate (Erbil city (inside) Shawlwa city and Koy Sanjaq city.

The following simple formula would be used for calculating the adequate sample size in prevalence study; $n = Z^2 P(1-P) / d^2$ Where n is the sample size, Z is the statistic corresponding to level of confidence, P is expected prevalence, and d is precision (corresponding to effect size) [17].

Sample size and Data collection

A special simple formula used for calculating and estimate the adequate sample size as follow ; $n = Z^2 P(1-P) / d^2$. Where n. is the sample size, Z. is the statistic corresponding to level of confidence, P. is expected prevalence, and d is precision (corresponding to effect size). The process have been made in three different area (Erbil city (inside) Shawlwa city and Koy Sanjaq city. Non-probability of 177 mothers in the Maternity Teaching Hospital in Erbil City, with 126 mothers from Shaqlawa and 97 mothers from Koy-Sanjaq Hospital who attended for the same purposes, the total was 400 mothers. Erbil is the capital of the Kurdistan region, Shaqlawa is a district which it is lies 50 km from the north of Erbil city, and Koy-Sanjaq is a third selected district, which it is lies west of Erbil about 75 km.

Ethical consideration:

The official permission was obtained from the Erbil Directorate of Health and the chosen Hospitals for conducting the study. The mothers were asked respectfully to participate in the study. Oral informed consent was obtained from the participants, the researchers confirmed anonymity and confidentiality were considered.

The instrument:

The researchers constructed a special questionnaire, after an extensive review of related literature, and previous studies. The questionnaire categorized into three parts: the first part; was to obtain the sociodemographic characteristics of mothers such as age, level of education, residency areas. The second part was to assess the mother's knowledge, and it was consisting of 12 related questions, the items were scaled into two answers, 1 for an incorrect answer and 2 for the correct answer, while the third was parted to observe their practices regarding early colostrum feeding after delivery, and it was consisting of 10 related questions, 1 score for not achieved and 2 scores for achieved. For that reason, a female researcher remains with the mother after delivery to observe either she practices breastfeeding or

not, depends on her observation the part of practice has been filed out. A panel of experts which was consists of related experts were validated the tool, all expert's comments regarding the items of the questionnaire were taken into consideration.

Characteristics of the samples

Eligible normal vaginal delivered mothers in the hospitals (Hawler teaching Hospital- Erbil, Shaqlawa general Hospital, and Koy-Sanjaq general Hospital) and who were interested to participate in the study were respectfully asked to participate in the study, while tired mothers, cesarean section, episiotomy were excluded. Ten mothers were recruited to the study as a pilot study.

Data analysis:

The internal reliability of the tool was computed, and the alpha Cronbach correlation was 0.86, which was statistically adequate. The collected data have been analyzed by using the Statistical Package for Social Science (SPSS, Version 23). Descriptive frequency, Chi-square, was used for determining the association between variables, while an independent t-test was used for identifying the statistically significant differences between the three areas.

Results

The study found that most (52.54% and 63.91%) of mothers in Erbil city and Koy-Sanjaq city had incorrect answers respectively, while 60.32% of mothers in Shaqlawa city answered the information correctly regarding colostrum feeding. In another hand, 59.52% in Shaqlawa city, 74.01% in Erbil city, and 62.89% in Koy-Sanjaq city were not achieved colostrum feeding after delivery (Table 1).

Table 1
Assessment of the level of knowledge and practices of mothers in Erbil city, Koy-Sanjaq, and Shaqlawa districts, regarding colostrum feeding. (No. 400)

	Shaqlawa (126)	Erbil city (177)	Koy-Sanjaq (97)
	NO. (%)	NO. (%)	NO. (%)
Knowledge			
incorrect answer	50 (39.68)	93 (52.54)	62 (63.91)
Correct answer	76 (60.32)	84 (47.46)	35 (36.09)
Practices			
Not achieved	75 (59.52)	131(74.01)	61 (62.89)
Achieved	51(40.48)	46 (25.99)	36 (37.11)

The study found a statistically significant association between residency areas, socioeconomic status (SES), mother's age, and level of information at p-value 0.002, 0.000, 0.031, and 0.000 respectively (Table 2)

Table 2
Association between mother's knowledge and their biographical information (No. 400)

Knowledge Biographical information	No information	Poor information	Good information	
	NO. (%)	NO. (%)	NO. (%)	χ² (Sig.)
Residency areas				16.759 (0.002)
Shaqlawa districts	43 (10.75)	69 (17.25)	14 (3.5)	
Erbil city	80 (20)	78(19.5)	19 (4.75)	
Koy-Sanjaq districts	55 (13.75)	27 (6.75)	15 (3.75)	
Socio-economic status (SES)				37.331 (0.000)
low SES	28 (7)	21 (5.25)	0 (0.0)	
Mild SES	123 (30.75)	103 (25.75)	21 (5.25)	
High SES	27 (6.75)	50 (12.5)	27 (6.75)	
Mother's age				19.830 (0.031)
15-21	18 (4.50)	35 (8.75)	10 (2.5)	
22-28	40 (10)	46 (11.5)	13 (3.25)	
29-35	69 (17.25)	57 (14.25)	22 (5.5)	
36-42	42 (10.5)	29 (7.25)	3 (0.75)	
43 and above	9 (2.25)	7 (1.75)	0 (0.0)	
Level of education				34.681 (0.000)
Illiterate	26 (6.50)	15 (3)	0 (0.0)	
Basic School	75 (18.75)	96 (24)	36 (9)	
Secondary School	37 (9.25)	39 (9.75)	12 (3)	
High school	40 (1)	24 (6)	0 (0.0)	

Highly statistically significant association between some of the demographical characteristics such as SES, mothers age, and level of education and mothers' practices at p-value 0.000 respectively, while the

non-significant association was found between mothers' residency areas and mothers' practice (p-value 0.061). (Table 3).

Table 3
Association between mother's practices regarding colostrum feeding (No. 400).

Practices	Not achieved		Not perfect		Achieved		χ^2 (Sig.)*
	N0.	%	N0.	%	N0.	%	
Biographical information							
Socio-economic status							43.563 (0.000)
low SES	38	9.50	7	1.75	4	1.00	
Mild SES	130	32.5	63	15.75	54	13.50	
High SES	24	6.00	34	8.5	46	11.50	
Mother's age							32.205 (0.000)
15–21	11	2.75	26	6.50	26	6.50	
22–28	47	11.75	27	6.75	25	6.25	
29–35	74	18.50	30	7.50	44	11.00	
36–42	48	12.00	18	4.50	8	2.00	
43 and above	12	3.00	3	0.75	1	0.25	
Level of education							33.325 (0.000)
Illiterate	30	7.50	11	2.75	0	0.00	
Basic School	112	28.00	91	22.75	4	1.00	
Secondary School	47	11.75	39	9.75	2	0.50	
High school graduate	58	14.5	6	1.50	0	0.00	
* chi square							

The study found a significant difference between mothers practices in Erbil city and Koy-Sanjaq city; Koy-Sanjaq and Shaqlawa city mothers at p-value 0.001, 0.044 respectively, with non-significant differences in practices between Erbil city and Shaqlawa city mothers p-value 0.264, and identified the significant differences between Erbil city- Koy-Sanjaq ; Erbil and Shaqlawa regarding mothers knowledge concerning colostrum feeding at p-value 0.021 and 0.010 respectively, with non-significant differences in knowledge between mothers in Koy-Sanjaq city and Shaqlawa city at p-value 0.513 (Table 4).

Table 4
Compare between knowledge and practice of participants between Erbil and Shaqlawa.

	Erbil city vs. Koy-Sanjaq			Erbil city Vs. Shaqlawa			Koy-Sanjaq vs. Shaqlawa		
	*t	df	Sig.	t	df	Sig.	t	df	Sig.
Practices	3.478	301	0.001	1.119	221	0.264	-2.025	272	0.044
	3.438	257.89	0.001	1.125	210.49	0.262	-2.009	193.05	0.046
Means	Mean; 26.96 vs. 24.71			Mean; 26.96 vs. 24.40			Mean; 24.71 VS. 24.40		
Knowledge	2.312	301	0.021	2.598	221	0.010	.656	272	0.513
	2.338	279.52	0.020	2.559	193.49	0.011	.646	189.26	0.519
Means	Mean; 34.50 vs. 30.59			Mean; 34.50 vs. 28.00			Mean; 30.59 vs 28.00		
*2 tailed independent t- test.									

Discussion

To assess the knowledge and practices of mothers in different three areas, the study found that mothers in Shaqlawa city were more knowledgeable compared with other two areas Koy-Sanjaq city and Erbil city respectively, while all mothers in Erbil city, Koy-Sanjaq city, and Shaqlawa city were not initiated colostrum feeding after their normal vaginal delivery and even before discharge from the hospital. On 24th January 2008 Shaqlawa hospital staffs have received a special training course which was under the title Baby-Friendly hospital program by the Iraqi Ministry of Health and UNICEF as a preliminary step to promote, protect and support successful breastfeeding, this may be a positive factor behind Shaqlawa mother's knowledge and practices [18].

We have few percentages of women who have knowledge of colostrum compared to few other studies in this region in a study done in Nepal, out of the 384 mothers, two-third of mothers had some knowledge, while one-third of mothers hadn't knowledge regarding the health benefits of colostrum. Most mothers offered colostrum feeding while one-third discarded colostrum believing that colostrum was non-milk, non-nutritious, and causing diarrhea [15]. Around two-thirds of mothers, were obtained regular Knowledge about early breastfeeding. The majority of the subjects knew that colostrum should be initiated to the newborns this finding was greater than that of a study conducted by Verma in 2017 who supported the results of the current study, and stated that less than half of mothers had given colostrum to their newborns, one third had not given any pre-lacteal feeds [16].

The study reflects that there were statistically significant associations between mother's biographical information such as residency areas, SES, mothers age, and their level of education and mother's knowledge regarding colostrum feeding. In another hand, the study emphasized a significant association between mother's practices and age, SES, and level of education. Unfortunately, mothers had low

information and not achieved colostrum feeding after labor, however, gotten discharge permission from the physician, unfortunately with non no discharge guideline by the health care worker. A quasi-experimental study was conducted in Erbil city during 2018, found a significant association between mother level of education, age and their practice regarding initiate first breastfeeding, and supported that babies who have directly skin-to-skin contact have had stable body temperature, and support the placenta delivery process of the mother [19]. Results showed that mothers with at least secondary education were more likely to be breastfed within one hour, after birth in comparison to mothers with no education and mothers with primary education [13, 14]. These findings were similar to a study done by Vinutha, the results indicated that rural mothers practiced early initiation of breastfeeding, Exclusive Breast Feeding (EBF) for the first six months, and longer duration of breastfeeding when compared with suburban mothers. The rate of not feeding colostrum was high in the urban area when compared to rural mothers [20, 21]. Another study found a statistically significant association existed between age, education, and socio-economic status of respondents with their knowledge of primipara mothers the study found a significant difference between mothers' practices in Erbil city and Koy-Sanjaq city; The current study reveals a significant difference between practice among mothers in Erbil city and Koy-Sanjaq, also significant difference was found between Koy Sanja and Shaqlawa city concerning achieved colostrum feeding, while there were significant differences was found between mothers in Erbil city and Shaqlawa city, Shaqlawa and Koy-Sanjaq city mothers with non-difference between Shaqlawa city and Koy-Sanjaq city mothers regarding knowledge about colostrum feeding. The proportion of women reporting early initiation of breastfeeding and EBF increased significantly between 2002 to 2017 [20]. Mothers in Erbil were the least likely to initiate the breastfeeding within the first hours [6]. This result is supported by a study done by Acharya, the results of the logistic regression analysis using pooled data showed higher odds of early initiation of breastfeeding among children from mothers with primary education, and secondary or higher education, compared to the children from mothers with no education [14]. The current results are agreed by a study was done in Indonesia and significant differences were found among mothers who were from higher wealth quantiles; worked in professional sectors; and lived in Java and Bali. Women who were in work had lower initiate EBF prevalence, compared to housewives or self-employed women. Women in Java and Bali had a higher increase in early initiation of breastfeeding and EBF compared to women in Sumatra [20]. The prevalence of EBF was very low in both rural and urban areas, almost exclusive breastfeeding, one-third were mixed feeding and half were between formula and breastfeeding, in both rural and urban areas. Breastfeeding initiation (\leq two days after birth) was positively associated with exclusive and almost exclusive breastfeeding, whereas birth length under 50 cm, mother's education > 12 years, and mother's lack of knowledge about the importance of colostrum were negatively associated with almost EBF [14]. A study was conducted in Erbil city – Kurdistan region of Iraq, found that the skin-to-skin contact initiate breastfeeding and confirmed stabilization of body temperature [19]. Urban mothers had higher knowledge regarding breastfeeding compared with suburban mothers. However, rural mothers had a more favorable attitude towards breastfeeding when compared with urban mothers [20, 21].

Conclusions And Recommendations

The study found that the mothers in Shaqlawa city were more knowledgeable compared with Erbil city and Koy-Sanjaq city, but all areas were but less practice regarding knowledge and practice of colostrum feeding. Showed lower practices initiating colostrum feeding. The study recommended a health educational program regarding benefits and initiate colostrum feeding for the mothers in Erbil Governorate during delivery.

Abbreviations

WHO: World Health Organization

SES: socio-economical status

EBF: Exclusive Breast Feeding

χ^2 : chi square

t.test: 2 tailed independent t- test.

Declarations

Ethics approval and consent to participate

The research was carried out with the permission of the scientific committee and ethical committee of the College of Nursing / Hawler Medical University/ Erbil/ Kurdistan region of Iraq. (certificate number) No. 11 in 30/6/2019).

Consent for publication

Not applicable.

Availability of data and materials

The original data could be obtained from the corresponding author upon reasonable request.

Competing interests

Not applicable.

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Authors' contributions

1. Madiha M. Abass has did collected data, collection of the referencing, and interpreting the data.

2. Shukir S. Hasan has conceptualized and designed the study, analyzed the data, and drafted the initial manuscript.

Both authors read and approved the final manuscript for submission.

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