

Exclusive Breast Feeding Incidence in the First Six Months of Life and Its Associated Factors

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Abstract

Background: Healthy nutrition is especially important during the first 6 months of life being the period of exceptionally accelerated growth and high nutrient requirements. The global nutrition target number 5 for 2025 by World Health Organization is to elevate the rate of exclusive breastfeeding in the 1st six months up to 50 percent.

Aim of study: to determine the exclusive breastfeeding rate and associated risk factors for the first six months of life in Misan, South East of Iraq.

Subjects and Methods: A cross-sectional study with analytical elements. It was conducted in Al-Sader Teaching Hospital during the period from 1st of September 2016 to 1st of March 2017 among randomly selected 500 mothers having infants aged between 7-12 months.

Results: Exclusive breastfeeding rate was 45.6% and there was a significant association with some factors like residence, previous breastfeeding, maternal health status, education level, employment, the number of babies at delivery and birth order in which the P values were 0.009, 0.0008, 0.0005, 0.033, 0.038, 0.05 and 0.03 respectively.

Conclusion: Exclusive breastfeeding rate in Misan was low and it was less than the target of World Health Organization.

Key words: breastfeeding, infant, exclusive, Misan.

INTRODUCTION

Exclusive breastfeeding (EBF) can be defined as giving breast milk only in an infant during first six months of life without any liquid or solid diet are introduced, with some exception of drug, vitamins and oral rehydration solution.^[1, 2] Breast milk is considered as the first natural food for infants, it provides the babies all the energy and nutrients that they need for the first six months of their life, and it continues to provide up to 50% of an infant's nutritional needs during the second half of the first year, and up to 30% of the second year of life.^[3, 4] Breastfeeding (BF) also presents a range of benefits on infants' health, growth, immunity, and development.^[4] Healthy nutrition is especially important during the first 6 months, a period of exceptionally accelerated growth and high nutrient requirements

relative to body weight. In addition, BF is associated with a reduced risk of many diseases in babies and mothers.^[5]

The American Academy of Pediatrics (AAP) and major organization including World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recommend that babies should be given a breast milk only for the first six months and it should be continued for the second half of the first year or longer with the introduction of complementary diet, as mutually desired by mother and infant.^[6-8]

WHO and UNICEF recommendation for mothers to establish and sustain EBF for first 6 months are:^[3]

-) Immediate breastfeeding within the first hour of life;
-) Breastfeeding exclusively without any other food;

-) BF as baby needs (on demand day and night); and
-) Bottles feeding, teats or pacifiers should not be used.

The essential interventions to protect, promote and support BF was adopted by WHO through the Global Strategy for Infant and Young Child Feeding . Global nutrition targets for 2025 (target number 5) is to raise the rate of EBF in first six months up to at least fifty percent.^[1,9] Surprisingly with all these efforts and recommendations; the global rate of EBF was still stagnant since 1990, with only about one-third of infants younger than 6 months being EBF,^[10] and the same for the period from 2007-2014; in which the global rate was about 36% only,^[11,12] then it increased in 2015 reaching 43%.^[13]

But unfortunately, in the developing world, the number had only slightly increased from 33% in 1995 to 39% in 2010.^[11,13] The BF rate was low in Africa, where less than 36% of babies with age less than 6 months old were on EBF,^[11] while in United States (U.S) the BF rates continue to rise. Among infants born in 2013, more than 50% were breastfeeding at 6 months.^[14] In 2010 in U.S, the Department of Health and Human Services declared Healthy People 2020 (HP2020), the latest science- based, 10-year national objective plan for improving the nation's health. One of these objectives was to reach a target of 60.6% of EBF at 6 months age.^[14] The BF could prevent about 12% of children deaths younger than five years each year which suggested by a study of Black in low and middle-income countries at 2013.^[12] Babies who did not receive breast milk at all are fourteen times more likely to die than those who are on BF only.^[13]

The goal 4 of Millennium Development (MDG4) specifies a reduction of two-thirds of mortality rate in children under 5 years in 2015.^[15,16] So there was a global interest to increase the rate of optimal infant and young child feeding practices, especially EBF for the first 6 months of baby's life.^[17]

Meanwhile, a great effort has been done by some countries to achieve and exceed the WHO target of 50%.

Sri Lanka, Cambodia, and Malawi have a gradual increment in EBF rates. Between 1995 and 2007, the BF rate among infants during the first 6 months of life increased from 17% to 76% in Sri Lanka while in Cambodia about 11% of infants 0–6 months of age were exclusively breastfed in 2000 then increased to 74% by 2010. Finally, between 1992 and 2010, the average rate increased from 3% to 71% in Malawi.^[18]

Thus the present study was developed to estimate EBF rate during the first 6 months of life in Misan Province

and to study some associated factors and reasons that support the mothers to continue EBF.

PATIENTS AND METHODS

A cross-sectional study with analytical elements was conducted in Al-Sader Teaching Hospital in Misan province, South East of Iraq. It was carried out through the period from 1st of September 2016 to 1st of March 2017.

A total of 500 mothers having infants aged between 7-12months were randomly selected; whether attending Al-Sader Teaching Hospital as outpatient visitors (Pediatrics outpatient) or inpatient admissions (Pediatrics ward). By face to face interview and using standard questionnaire, the data was collected.

The questionnaire included 2 parts: One regarding the infant; name, age (date of birth), gender, gestational age (term or preterm), mode of delivery (vaginal delivery or caesarean section), the number of babies at delivery (single or twin or more), birth order of this infant in the family and infant's feeding type during the first six months of life; (exclusive breastfeeding, mixed feeding or exclusive formula). The EBF was explained and defined to the mothers.

Another aspect of information was about socio-demographic characteristics of the mother including: age (in years), residence area (urban or rural), history of previous BF or not, antenatal care attendance (attending or not), frequency of antenatal care visits (1-3visits and 4 visits), health status (healthy or not; any chronic illness, chronic medication and breast problems), level of education (illiterate, primary school, secondary school and college) and employment status (employed or not).

In addition, the reasons for being exclusively breastfed or not were recorded as mentioned by mothers' words and their satisfaction.

The study excluded any mother with an infant less than 6months or more than 1year old and any infant not accompanied by the mother in order to get more precise information as possible.

The review of the study protocol was done with obtaining approval and official permission from the Ministry of Higher Education, Misan College of Medicine, Misan directorate of health and Al-Sader Teaching Hospital to conduct the present study. Also, an informed written consent was obtained from mothers that the given information in this questionnaire was correct. By using SPSS software version 18.0, the analysis of data was carried out then it was presented in form of tables of numbers with percentages. Chi-square

test was used for testing the association between variables under study. Statistical significance was considered whenever the P-value was equal or less than 0.05.

RESULTS

The results of the 500 mothers according to the feeding type in the first 6 months of life revealed: 228 (45.6%) had EBF while 214 (42.8%) and 58 (11.6%) had mixed and exclusive formula feeding respectively as shown in **table 1**.

Table 2 shows that the majority of mothers were 20-30 years old (295 mothers) and less than half of those mothers were practicing EBF but statistically, this was of no significance (P value is 0.9). Urban mothers were more than rural mothers with more EBF among urban mothers which were highly significant (P value is 0.009).

Also, there was a high significant association in mothers who had the previous history of BF; in which about half (48.7%) of those who had the previous history of BF were practicing EBF while 36.7% of those who had no previous history of BF were practicing EBF. More than half of total mothers (303) had followed antenatal care during their pregnancy, but only 142 (46.9%) of those mothers had EBF which was not significant (P value is 0.4).

Most of mothers were healthy (476) and only (24) mothers were not. EBF was highly associated with the health status of the mother, in which there was 226 (47.5%) of the healthy group were having EBF and statistically, this was highly significant (P value is 0.0005). In addition, both levels of education and employment status of the mother were significantly associated with EBF in which P values were 0.033 and 0.038 respectively as shown in **table 2**.

Infant characteristics like gender, gestational age, and type of delivery were not associated with EBF in spite of different variation between these factors. In addition, statistically, they were of no significance (P values were 0.5, 0.8 and 0.06 respectively).

Single babies were forming 226 (46.5%) of the total single group while twin or more babies were forming 2 (14.3%) of the total twin group were practicing EBF which statistically was significant (P value is 0.05).

As birth order increase, there will be more possibility of EBF; about 45 (37.2%) of total first baby group, 52

(47.7%) of the total second baby group and 131 (48.5%) of the total third baby and above group were practicing EBF which statistically was significant (P value is 0.03) as shown in **table 3**.

There were four main reasons beyond EBF; more than half of EBF mothers were oriented about BF while cultural belief and family advice were forming 21.1% and 16.7% respectively. And the least cause was poverty (4.8%) as shown in **table 4**.

The reasons of mothers who practiced non EBF were as follows: most of the mothers reported that they had inadequate breast milk 132 (48.5%) of non-EBF mothers, while approximately the same percentages were reported for those mothers who were preferring formula milk and working mothers who formed 14.0% and 13.6% of non-EBF respectively.

On the other hand, there were less frequent causes beyond non- EBF mothers in relation to their infants; About 10 (3.7%) infants had congenital anomalies, while 8 (3%) and 5 (1.8%) infants were ill and twin respectively. The last reason was the medical advice by a doctor to use a medical formula instead of breast milk forming 2.6% as shown in **table 5**.

Table1. Types of feeding in the first six months of age.

Type of feeding	Number (No.)	Percent (%)
Exclusive breast feeding	228	45.6 %
Mixed feeding	214	42.8 %
Exclusive formula feeding	58	11.6 %
Total	500	100 %

Table2. Association of maternal socio-demographic characteristics with types of feeding.

Mother characteristics	EBF No. (%)	Mixed feeding No. (%)	Exclusive formula No. (%)	Total No. (%)	P. value
Age (year):					
20	32 (44.4%)	30 (41.7%)	10 (13.9%)	72 (100%)	0.9
20-30	135 (45.8%)	125 (42.4%)	35 (11.8%)	295 (100%)	
> 30	61 (45.8%)	59 (44.4%)	13 (9.8%)	133 (100%)	
Residence:					
Urban	144 (48.2%)	113 (37.8%)	42 (14.0%)	299 (100%)	0.009 *
Rural	84 (41.8%)	101 (50.2%)	16 (8.0%)	201 (100%)	
History of previous BF:					
Yes	181 (48.7%)	159 (42.7%)	32 (8.6%)	372 (100%)	0.0008 *
No	47 (36.7%)	55 (43.0%)	26 (20.3%)	128 (100%)	
Antenatal care attendance:					
Yes	142 (46.9%)	123 (40.6%)	38 (12.5%)	303 (100%)	0.4
No	86 (43.7%)	91 (46.2%)	20 (10.1%)	197 (100%)	
Frequency of antenatal care visits:					
1-3	90 (47.6%)	75 (39.7%)	24 (12.7%)	189 (100%)	0.9
4	52 (45.6%)	48 (42.1%)	14 (12.3%)	114 (100%)	
Health status:					
Healthy	226 (47.5%)	198 (41.6%)	52 (10.9%)	476 (100%)	0.0005 *
Not	2 (8.3%)	16 (66.7%)	6 (25.0%)	24 (100%)	
Education level:					
Illiterate	84 (45.4%)	84 (45.4%)	17 (9.2%)	185 (100%)	0.033 *
Primary	86 (47.2%)	68 (37.4%)	28 (15.4%)	182 (100%)	
Secondary	35 (56.4%)	22 (35.5%)	5 (8.1%)	62 (100%)	
College	23 (32.4%)	40 (56.3%)	8 (11.3%)	71 (100%)	
Employment:					
Employed	16 (29.6%)	31 (57.4%)	7 (13.0%)	54 (100%)	0.038 *
Not	212 (47.5%)	183 (41.0%)	51 (11.5%)	446 (100%)	

*Significant difference

Table3. Relationship between infant characteristics and each type of feeding.

infant characteristics	EBF No. (%)	Mixed feeding No. (%)	Exclusive formula No. (%)	Total No. (%)	P. value
Gender:					
Male	124 (43.7%)	125 (44.0%)	35 (12.3%)	284 (100%)	0.5
Female	104 (48.1%)	89 (41.2%)	23 (10.7%)	216 (100%)	
No. of babies at delivery:					
Single	226 (46.5%)	204 (42.0%)	56 (11.5%)	486 (100%)	0.05 *
Twin or more	2 (14.3%)	10 (71.4%)	2 (14.3%)	14 (100%)	
Gestational age:					
Term	217 (45.8%)	203 (42.8%)	54 (11.4%)	474 (100%)	0.8
Preterm	11 (42.3%)	11 (42.3%)	4 (15.4%)	26 (100%)	
Type of delivery:					
Vaginal delivery	194 (48.1%)	165 (40.9%)	44 (11.0%)	403 (100%)	0.06
Cesarean section	34 (35.1%)	49 (50.5%)	14 (14.4%)	97 (100%)	
Birth order :					
First	45 (37.2%)	53 (43.8%)	23 (19.0%)	121 (100%)	0.03 *
Second	52 (47.7%)	48 (44.0%)	9 (8.3%)	109 (100%)	
Third & above	131 (48.5%)	113 (41.9%)	26 (9.6%)	270 (100%)	

*Significant difference

Table4. Reasons beyond exclusive breast feeding.

Reason	Number (No.)	Percent (%)
Oriented about breast feeding	131	57.4%
Cultural belief and attitude	48	21.1%
Family advice	38	16.7%
Poverty	11	4.8%
Total	228	100%

Table 5. Reasons beyond non-exclusive breast feeding.

Reason	Number (No.)	Percent (%)
Mother		
Inadequate breast milk	132	48.5%
Mother prefer formula	38	14.0%
Work	37	13.6
Ill mother	24	8.8%
Caesarian section	11	4.0%
Infant		
Congenital anomalies	10	3.7%
Ill infant	8	3.0%
Twin	5	1.8%
Doctor		
Advice by doctor (change to medical formula)	7	2.6%
Total	272	100%

DISCUSSION

Breast milk supplies a baby all that he or she needs and costs only what it takes to feed the mother.

The sixth point in Ten Steps to Successful Breastfeeding in Baby Friendly Hospital Initiative is to:

“Give newborn infants no food or drink other than breast milk, unless medically indicated.^[19]

Previously; the EBF rate for the first six months of age in Iraq was 30.9% at 2004,^[20] then, unfortunately, it was decreasing to reach a level of 19.6% during the period from 2008 to 2012,^[21] while the current study revealed that 45.6% were exclusively breastfed which was much higher and approximately doubles the last prevalence rate at 2012 but still not the optimum one, in addition, it remains far from the WHO target of 50%.

Based on Demographic Health Survey statistics in Iran; the EBF rate at first 6 months of age was 44% in 2000

and decreased to 27% in 2004,^[22] while in Mashhad, North East of Iran, the rate was 56.4% in 2007.^[23] Then it reached 53% in 2015.^[24] This fluctuation in EBF trends was found in both Iraq and Iran but the rate was obviously less in Iraq especially in the last period.

Also, it was markedly less than the rate of Northwest Ethiopia (Debre Markos) ^[25] and Ecuador (Quito),^[26] in which the prevalence rates of EBF were 60.8% in 2013 and 62.9% in 2013 respectively.

In contrast, the current rate in Misan was higher than other countries like Saudi Arabia (Almadinah),^[27]

Turkey (Ankara) ^[28] and India,^[29] in which it was 31% in 2016, 38% in 2014 and 27% in 2014 respectively.

In studying the reasons beyond EBF among 228 mothers who had exclusively breastfed their infant for first six months; it was found that more than half (57.4%) of those mothers were oriented about BF benefits, practice,

duration, and exclusivity. In Misan, cultural belief and traditional attitude are playing an important role in society; this can explain the second and third common reasons beyond EBF.

Many reasons were given for a total of 272 mothers for not being exclusively breastfed which had a negative impact on EBF rate; the belief of having inadequate breast milk was considered as the most common cause for being non-EBF similar to Turkey^[28] and Iraq at 2002.^[30] Concern over inadequate milk production and the belief that breast milk alone is not enough for a growing infant are common among lactating mothers throughout the world.^[31] Unfortunately, some women in this study preferred the formula milk because they believed that adding formula milk or giving exclusive formula would make their babies gain more weight than if they feed breast milk alone.

Both BF and working outside the home were difficult and incompatible as they believed. BF has decreased worldwide in last years, as a result of development and maternal working outside the home. Some studies in India had also shown a decline in BF trends, specifically in urban areas.^[32] In addition, the present study showed that some mothers considered that being delivered by caesarean section was an excuse for not being EBF. About 11 (4%) of non-EBF mothers who delivered by caesarean section found that it was difficult to initiate and continue EBF.

Most of the reasons beyond non-EBF were related to lack of BF knowledge. A study in Ethiopia (Debre Markos) revealed that mothers with adequate information about BF were 2.57 times more likely to have EBF than those who didn't have adequate information on BF.^[25]

Several factors have been shown to be associated with EBF which vary from one country to other and even in the same country. In studying the socio-demographic characteristics of the mother; maternal age had no significant role in EBF. This was inconsistent with a study of Mashhad which showed that as the mother's age increases, the prevalence of EBF decreases significantly.^[23]

Also, there was no significant association between mothers who had followed antenatal care during pregnancy and EBF. This may be explained that the mothers did not receive enough education about BF during pregnancy (as mothers mentioned). Consequently, the frequency of antenatal care visits was found to be of no significance. These findings were contrary to Ethiopia (Debre Markos) which revealed a significant association of antenatal care with EBF.^[25]

On the other hand, there was a significant association between EBF with residence, employment and education status of mothers. It showed that urban mothers were more likely to have EBF than rural mothers while in a survey of Iraq 2011; it showed that the area of belonging (rural or urban) does not influence significantly the rate of EBF under the age of 6 months although the rate of EBF under 6 months is slightly less in urban areas than in rural areas.^[33]

Currently in Iraq, because of political and economic state, it was noticed that there was less opportunity for mothers to be employed so they would have more chance and time to stay at home to practice BF. In contrast, the rural mothers would be busier in working outside the home in agriculture.

The present study revealed that the unemployed mothers were more practicing EBF than the working mothers; similar to a study of Ethiopia (Debre Markos) which illustrated that non-working mothers were 1.98 times more likely to practice EBF than working mothers.^[25]

So the employed mothers need to know about breast milk expression and storage to overcome this issue.

While in Ecuador (Quito), the employment status had no significant association with practicing EBF in which the numbers of employed and unemployed mothers were nearly the same.^[26]

Regarding levels of education; it was found that the EBF rate would increase with the increment of the education level of the mothers apart from those mothers who had finished college study and this may be explained that most of those mothers were an employee.

Mothers who had a previous BF were found to have a significant effect on practicing EBF; this may be attributed to their knowledge and experience with BF and this would support the result regarding the birth order in which the more birth order would be more likely to be EBF. Mothers who delivered single baby were more prone for EBF than those who had twin or more and this may be due to their belief that there was no enough breast milk for babies as well as there would be more burden on mothers.

Infant's characteristics like gender and gestational age were not associated with EBF significantly. These findings were similar to results of Mashhad^[23] and Ecuador.^[26]

Again the type of delivery in our study had no effect on practicing EBF which disagree the results of both

Mashhad^[23] and Ecuador (Quito)^[26] which illustrated that the type of delivery was affecting EBF significantly in which the EBF was higher in a mother who delivered

normally than those who delivered by caesarean section. This can be explained partly by a low number of mothers who delivered by a caesarean section which only accounts 20% of total sample size.

EBF is found to have a positive impact on the health of mothers and their children as well as it will result in less expenditure on national health care provision.

Conclusion

Exclusive breastfeeding rate in Misan was low and it was less than the target of World Health Organization. In addition, achieving Millennium Development Goal 4 will need adequate and sustained increment in breastfeeding.

Recommendations:

-) Encouragement of the early initiation of breastfeeding.
-) Education about optimal breastfeeding practices among the society, especially parents.
-) Supporting the working mothers.
-) In addition, education about expression and preservation of breast milk for employed mothers.

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