Patterns of Infant Feeding Practices in the First Six Months of Life in Fatema AL- Zahra Hospital in Baghdad

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ABSTRACT:

BACK GROUND:

Breastfeeding is of great benefits to the baby and mother in so many ways. Breastfeeding has been found to provide a measure of protection against the attacks of ear infections, upper respiratory infections, and gastrointestinal disorders. Breastfeeding has an emotional benefit by initiation of bonding between mother and baby .Knowledge of when and why women discontinue breastfeeding is of great important when make a plan aimed at increasing both the initiation and duration of breastfeeding.

OBJECTIVE :

This study was conducted to, 1. detect Patterns of breastfeeding practice during the first 6 months of life, 2.identify the age at when bottle feeding started, and 3.to verify the causes to start bottle feeding .

METHODS:

Parents of 1000 infants seen during a routine visit at the Breastfeeding consultation Clinic (BCC), in the outpatient department in Fatema Al Zahra hospital were interviewed by the researchers from 1st of July 2016 to 30th of June 2017 . The mothers were asked about , the mother's age ,job, and education, infant`s age, Sex, birth order, type of feeding, when to start formula, and why. Inclusion criteria were: women, between 16-40 years who came with their infants for vaccination, and had delivered during the last 12 months.

RESULTS:

It was observed that breast feeding was maintained at a high level (more than 64.6%) throughout infancy while exclusive breast feeding showed a rapid decline. The rate of exclusive breast feeding at 6th month was 28.3%. The birth order of the infant, and mother`s age, job, and education were important factors determining exclusive breast feeding rate.

The most common causes for adding bottle feeding were, milk insufficiency in 25.2 % of cases, Mother`s pregnancy in 19.9 %, and Infant`s crying after feeding in 14.2%.

The advice of starting bottle feeding were recommended by family in 18.9% of cases , by Pediatrician in 29.1 %, by Gynecologist in 3.2 % of cases , and in 48.6 % of cases the mothers start bottle feeding by her opinion.

CONCLUION:

Breast feeding as such was maintained at a high level for the first 12 months of life while the practice of exclusive breast feeding(EBF) was much lower . Mother's age, job, and education have an impacts on exclusive breastfeeding rate. Medical personnel and family have great role in continuation of EBF and breastfeeding.

The most common causes for adding bottle feeding, were, milk insufficiency , Mother`s pregnancy and infant`s crying after feeding.

KEY WORDS : breast feeding, exclusive breast feeding.

INTRODUCTION:

The World Health Organization and United Nations Children's Fund (WHO/UNICEF) recommend early initiation of breastfeeding within the first hour of birth and exclusive breastfeeding in the first six months followed by the introduction of safe, age-appropriate and nutritionally adequate complementary foods along with continued breastfeeding until the child is 2 years and beyond [1,2].

Globally, approximately 38% of infants are exclusively breastfed until around the age of four months, indicating that early cessation of

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exclusive breastfeeding (EBF) is prevalent in many countries [3].

Several studies acknowledge that breastfeeding is an ideal food for healthy growth and development of infants, protects infant against common childhood infectious diseases, and has short and long term benefits for children and mothers. [4-11]

The main reasons why mothers do not initiate or continue EBF in the early postnatal period, is important to focus on this period because it is considered a critical phase to establish and support appropriate breastfeeding, and when targeted initiatives would yield better outcomes [12-13].

Knowledge of when and why women discontinue breastfeeding is of great important when make a plan aimed at increasing both the initiation and duration of breastfeeding.[14-15].

METHOD:

Parents of 1000 infants seen during a routine visit at the Breastfeeding consultation Clinic (BCC),in the outpatient department in Fatema Al Zahra hospital were interviewed by the researchers from 1st of July 2016 to 30th of June 2017 .

The BCC is designed for routine follow up examination, counseling of healthy infants and children delivered at Fatema Al Zahra hospital and to provide routine immunization program. The parents were assured that participation in the study is voluntary and the non-participation will not affect their care at the hospital.

Inclusion criteria were: women, between 16-40 years who came with their infants (aged between 6 and 12 months) for vaccination, and had delivered during the last 12 months. The study tool was a pre-tested self-administered 12 items questionnaire , (Table 1) designed, supervised, and conducted by the researchers . Sampling was based on the number of eligible mothers visiting the Breastfeeding consultation Clinic (BCC) ,in the outpatient department. The researcher visited the BCC a fixed number of times at different times and days and recruited all eligible mothers. Mothers meeting the inclusion criteria with infants less than 1 year of age were interviewed in each day. None of the mothers refused to be interviewed. Each mother signed an informed consent form before they started face to face interview.

On completion of the questionnaire mothers were instructed on infant feeding and detected feeding problems were solved.

Statistical analysis was performed using statistical package for social sciences 10 statistical package .Comparison between variables was carried out using the appropriate tests, and statistical significance was assigned at $P<0.05$.

Breast feeding referred to infant receiving breast milk while, Exclusive breast feeding referred to infant receiving only breast milk (allowing the infant to receive small amounts of water, vitamins, minerals, & medicines) (EBF). Bottle fed infant referred to infant receiving cow's milk based formula (BF). Mixed feeding referred to infant receiving breastfeeding and bottle feeding (MF). Infant , referred to child 1-12 months old.

Table 1 :Sample questions representative of the 12 item questionnaire.

Questionnaire area	Sample questions
Demographics and social information related to the mother	1. Age
	2. Education
	3. Parity
	4. Occupation
Infant related questions	1.age
	2.sex
	3.birth order
Feeding related questions	1.type of feeding
	2. Age of introduction of solid
	3. Duration of exclusive breastfeeding
	4. Cause for introducing formula.
	5. the advice to start formula was:
	Your opinion
	Pediatrician
	Gynecologist
	Family

RESULTS:

The initiation rates of breastfeeding are high 91.7%, when mothers start to feed infant in the 1st hour after delivery in Fatema Al Zahra hospital which is Baby friendly hospital (BFH).

It was observed that breast feeding was maintained at a high level (more than 64.6%) throughout infancy while exclusive breast feeding showed a rapid decline. The EBF rate at 1st month of age was 63.8%, and at 4th month was 39.6%, and at 6th month was 28.3%.

Thousand mothers participated in the study; 425(42.5%) of them were below 20 years of age, 359(35.9%) of them were 20-30 years old, and 216(21.6%) of them were above 30 years old.

Mothers who were below 20 years of age were more prone to stop breastfeeding at 6th month of infant`s life about 159 of their infants were bottle fed (BF). P value was 0.01.

While infants of mothers in the subgroup (20-30 years) and (>30 years) were mostly on mixed feeding at 6th month .

There were 145 mothers who were employee, 59 mothers were students, and 796 mothers were house wife. Regarding infants of employed mothers 108(74.4%) of them were on mixed feeding at 6th month of life, P value 0.001. And 66.1% of infants of student mothers were mixed fed at 6th month of life, P value 0.01. The house wife`s infants, 253(31.7%) of them were exclusively fed at 6th month of age. The EBF rate was higher in infants of mothers who were housewife (253(31.7%)), P value 0.01, than the infants of mothers who were employee (21(14.4%)) or students (9(15.2%)).

Infants of mothers who finished primary, 315(49.68%), and secondary schools, 70(47.6%) , were more prone to have MF at 6th month of age, p value 0.001, while infants of mothers who can read and write were more prone to have EBF at 6th month of age, 71(37.5%) , p value 0.01. The bottle feeding was the most common type of feeding in infants whose mothers were graduated from college (11(36.6%).Table: 2:

Table 2: Infants breastfeeding patterns according to mother`s characteristic at sixth month of infant`s age.

Background/characteristic	Type of feeding at 6th month of infant`s age			
	EBF, no and %	BF, no and %	MF, no and %	Total
Mother`s age				
<20 years	144(33.8)	159(37.4)	122(28.7)	425(42.5)
20-30 years	66(18.9)	42(11.6)	251(69.9)	359(35.9)
>30 years	73(33.7)	45(20.8)	98(45.3)	216(21.6)
				1000(100)
Mother`s occupation				
House wife	253(31.7)	219(27.6)	324(40.7)	796(100%)
Employee	21(14.4)	16(11)	108(74.4)	145(100%)
Student	9(15.2)	11(18.6)	39(66.1)	59(100%)
				1000
Mothers education				
Read and write	71(37.5)	42(22.2)	76(40.2)	١٨٩(100%)
Primary school	158(24.92)	161(25.39)	315(49.68)	634(100%)
Secondary school	45(30.6)	32(21.7)	70(47.6)	147(100%)
College or University	9(30)	11(36.6)	10(33,3)	30(100%)
				1000

However, infant sex did not emerge as important factor in the continuation of EBF,(P value 0.06) at 6th month of age the EBF rate in male infants was (137(29.3)), and the EBF rate in female infants was (146(27.3%)) . While the mixed feeding was more prevalent in female infants 162(30.3%), than the male infants (84(17.9%)), at the 6th month of life.

Regarding infant`s birth order, the 2nd infant is more prone to be EBF at 6th month of age, 146(48.5%), P value 0.01. While the mixed feeding was the predominant type of feeding in 1st, 3rd, 4th infants at 6th month of age, 229(47.41%) , 49((53.26%), 95(76.6%), respectively .

The age of the infant was also an important factor determining exclusive breast feeding, at 1st month of age 63.8% of infants were exclusively breast-fed and at 4th month 39.6% of

infants were exclusively breast-fed, and at 6th month was 28.3%. p value was <0.05. Table.3.

Table 3: Infants breastfeeding patterns according to infant Background/characteristic at 6th month of infant`s age.

Background/characteristic	Type of feeding at 6th month of infant`s age			
	EBF, no and %	BF, no and %	MF, no and %	Total
Infant`s sex				
Male	137(29.3)	246(52.6)	84(17.9)	467(100%)
Female	146(27.3)	٢٢٥(42.2)	162(30.3)	533(100%)
				1000
Birth order of infant				
1st	96(19.87)	158(32.71)	229(47.41)	483(100%)
2nd	146(48.5)	57(18.93)	98(32.55)	301(100%)
3rd	17(18.47)	26(28.26)	49((53.26)	92(100%)
4th & more	24(19.35)	5(4)	95(76.6)	124(100%)
total	283(28.3%)	246(24.6%)	471(47.1%)	1000(100%)
Age of infant in months				
1month	638(63.8%)	83(8.3%)	279(27.9%)	1000
4 month	396(39.6%)	136(13.6%)	468(46.8%)	1000
6 month	283(28.3%)	246(24.6%)	471(47.1%)	1000
12 month	-	354(35.4%)	646(64.6%)	1000

The 6th month of age was the most common age to start solid foods 547(54.7%). While about, 74(7.4%) of infants had been started on solid foods at 4th month of age. Table,4.

Table 4: No. of infants on additional food according to age of infants.

Age of infant in moths	No. of infants on additional food
1month	-
4 month	74(7.4%)
6 month	547(54.7%)
12 month	1000(100%)

The most common causes for adding bottle feeding, were, milk insufficiency 25.2 % , Mother`s pregnancy 19.9 %, and Infant`s crying after feeding 14.2%.(table 5).

Table 5: Causes for adding bottle feeding.

Cause	Number	Percentage %
Infant`s crying after feeding	102	14.2
Prolonged Neonatal jaundice	53	7.3
Mother`s pregnancy	143	19.9
infant`s low weight	97	13.5
infant`s diarrhea and vomiting	64	8.9
milk insufficiency	181	25.2
nipple crack and inversion	21	2.9
Mother house work or job	56	7.8
Total	717	100 %

The advice of starting bottle feeding were recommended by family in 18.9% of cases , by Pediatrician in 29.1 %, and by Gynecologist in 3.2 % of cases , in 48.6 % of cases the mothers start bottle feeding by her opinion . Table, 6.

Table 6 : Who advice the mother to start bottle feeding.

Advice of starting bottle feeding	No	%
By her opinion	349	48.6
Family	136	18.9
Pediatrician	209	29.1
Gynecologist	23	3.2
Total	717	100

The Pediatrician advice to start bottle feeding as treatment of infant`s diarrhea and vomiting in 64 infants, Prolonged Neonatal jaundice in 53 of cases, infant`s low weight in 92 of cases. The gynecologist advice to start bottle feeding because of mother`s pregnancy in 23 cases.

The family advice to start bottle feeding due to infant`s crying after feeding in 87 of cases, and milk insufficiency in 49 cases.

Mothers started bottle feeding by her opinion because of infant`s crying after feeding in15 cases, Mother house work or job in 56 cases, nipple crack and inversion in21 cases, milk insufficiency in 132 cases, infant`s low weight in 5 cases, Mother`s pregnancy in 120 cases.

DISCUSSION:

We found that the initiation rate of breastfeeding at first hour of life was high 91.7% , but the exclusive breastfeeding rates were low at 6th month of life and EBF duration was short, only 28.3% of infants at 6th month of age were exclusively breastfed .

This was coinciding with the results of Iraqi ministry of health & UNICIEF, Multiple indicators cluster survey at 2006(MICS 2006), [16] , when they found that the EBF at 6th month of age was 25.1% , but more than the results of MICS 2011, [17] , when they found that the EBF at 6th month of age was 19.6 %. , our result was less than the result of Iraqi Nutrition Research Institute survey (18), about mother`s knowledge, attitude and practice of breastfeeding in Iraq, 2013, when they found that the EBF rate was (31%).

Observed suboptimal coverage of exclusive breastfeeding, with 28.3% of infants younger than six months of age estimated to be exclusively breastfed. This is far below the widely accepted “universal coverage” target of 90% coverage, and suggests the need for an urgent effort to build up effective programs in promoting exclusive breastfeeding [19].

There is a wide range of variation in the practice of exclusive breastfeeding among developing countries, with the rates documented being, in Brazil (58%), [20] , In Ethiopia, 49% of infants were exclusively breastfed for the first six months, . [21].

Our figure is close to those reported rates other studies, The percentage of breastfeeding initiation on the first day of delivery in local published data in Saudi Arabia found that the rate of initiation of breastfeeding study was 94.4% [22] . Despite the high rate of breastfeeding initiation, the rate of exclusive breastfeeding for the first six months of infants’ life was found to be only 13.7%. [22].

In addition, women who were younger than 30 years old had a greater rate of breastfeeding cessation than women in older age groups, this was

consistent with[12,13], but inconsistent with results of others were they found that mother`s age group had no relation with continuation of breastfeeding , [23-24].

This was because younger mothers have little or no experience in breastfeeding, most women supplemented with formula despite intending to exclusively breastfeed, they perceived their infant`s cry following feeding as their milk was insufficient for their infants.

Higher mother`s education level were associated with low rate of EBF, our result was inconsistent with other studies [12-15].

The benefits of breastfeeding were well-recognized, but the importance of exclusivity was missed. Formula-use was not preferred but considered as an assistants or a help where breastfeeding was not possible or not sufficient for infant satiety.

Employed mothers were less likely to practice exclusive breastfeeding when mothers return to work before the sixth month in order to have full salary, in spite of maternity leave up to one year , our results were consistent with other studies[12,13], implying the need for promoting workplace breastfeeding practices and creating an enabling environment for exclusive breastfeeding.

The most common causes of adding bottle feeding for 717 cases were, milk insufficiency 25.2 % , Mother`s pregnancy 19.9 %, and infant`s crying after feeding 14.2%.

Insufficient breast milk' was reported by other studies [12-15] .We think that The predominance of such a reason can be explained by less breast stimulation, and thus, less secretion of milk due to reduced suckling of the breast when introducing bottle feeding.

The study showed that, Pediatrician (29.1%) and Gynecologist (3.2%), were the advisers' of stopping breastfeeding and starting bottle feeding, this means that they have great impact on initiation and continuation rate of breastfeeding.

About 143 pregnant mothers had stop breastfeeding, 120 stop breasts feeding because they think it is harmful for infants and fetuses, which is a misconception and need to be clarified for the mothers and gynecologist. Although Breastfeeding is generally safe during pregnancy, there are some cases to stop breastfeeding like uterine pain, bleeding, twins pregnancy[25,26].

Breastfeeding during pregnancy (BDP): A systematic review, Data suggest that breastfeeding during pregnancy does not affect the way pregnancies end or even birth weights. However, several questions remain unanswered. Specifically, it is unclear how BDP affects maternal nutritional status in developed countries, the growth and health of breastfed siblings, the composition of breast milk, or the growth of the newborn after delivery. Further studies of BDP are needed with larger samples, adequate methodology and proper control of the main confounders. [27].

The Pediatrician advice to start bottle feeding as treatment of infant`s low weight in 92 of cases, which is also a misconception and need to be clarified for the mothers and pediatrician because they think that breastfeeding can cause infant low weight .

Infants who are breastfed for the first year of life seem to grow more rapidly in the first three or four months and then more slowly for the rest of their first year. On average, breastfed babies weigh less at age 1 than formula-fed babies. However, by the time they're 2, the gap closes and breastfed and formula-fed babies weigh about the same.[28,29].

Experts aren't sure why this is, but they do know that it's completely normal and nothing to be concerned about. The higher protein content of artificial baby milk compared to the lower protein content in breast milk is responsible for the increased growth rate and adiposity during the influential period of infancy of formula-fed infants. Breastfeeding, on the other hand, has a protective effect on child overweight and obesity by inducing lower plasma insulin levels, thereby decreasing fat storage and preventing excessive early adiposity development. [30-32].

Growth charts from the U.S. Centers for Disease Control and Prevention (CDC) track children's length and weight gain. These charts are based on children who are fed formula only or a combination of formula and breast milk.[33].

Children younger than 2 are measured using charts from the World Health Organization (WHO), which are based on healthy growth patterns for breastfed children and endorsed by the CDC and the American Academy of

Pediatrics(AAP). The WHO charts confirm that the patterns of growth among breastfed babies are normal and healthy. But when using the charts on formula-fed babies, the babies gain weight slowly at first and then too quickly [34-36].

Use of the WHO curves for the first 2 years allows for more accurate monitoring of weight and height for age and, in comparison with use of the CDC reference curves, results in more accurate (lower) rates of under nutrition and short stature and (higher) rates of overweight[37-38].

CONCLUSION :

Breast feeding as such was maintained at a high level for the first 12 months of life while the practice of exclusive breast feeding was much lower.

Medical personnel and family have great role in continuation of EBF.

Mother's age, job, and education have impacts on exclusive breastfeeding rate.

The most common causes for adding bottle feeding, were, milk insufficiency, mother`s pregnancy, and infant`s crying after feeding.

Recommendations:

1.In the BFH, we have to keep touch with 10 steps of the baby friendly hospitals. This requires that medical and nursing routines and practices adjust to the principle that breastfeeding should begin within the first hour after birth (even for Cesarean deliveries) and that infants must be continuously accessible to the mother by rooming-in arrangements that facilitate around-the-clock, on-demand feeding for the healthy infant.

2. In the continued medical education program, we emphasis that the Formal staff training should not only focus on updating knowledge and techniques for breastfeeding support but also should acknowledge the need to change attitudes and eradicate unsubstantiated beliefs about the supposed equivalency of breastfeeding and commercial infant formula feeding. Emphasis should be placed on the numerous benefits of exclusive breastfeeding.

3. Health worker in the primary health centers should give an important attention on exclusive breastfeeding in dealing with mothers and pregnant to make them aware of importance of exclusive breastfeeding .

4. The Pediatrician and Gynecologist should use the WHO curves which are “standards” and are the normative model for growth and development irrespective of infant ethnicity or geography reflecting the optimal growth of the breastfed infant.

5. Health worker in the Breastfeeding support program, should give an attention to people in the society in order to let all people know the benefit of breastfeeding in order to support mothers to continue breastfeeding.

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