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KNOWLEDGE, ATTITUDE AND PRACTICE OF BREASTFEEDING AMONG WOMEN IN MOSUL – IRAQ

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ABSRACT

"The vast majority of mothers can and should breastfeed, just as the vast majority of infants can and should be breastfed." In order to evaluate the socio-demographic factors that may be considered risky in maternal knowledge, attitude and practice about breastfeeding which can affect health of infant, a descriptive cross-sectional study conducted by direct interviewing of 197 mothers who have children less than one year of age and visiting healthcare centers for immunization purposes. The age of mothers ranged between 17 – 42 years; the mean maternal age was 26.5 ± 5.6 years. Whereas, the age of infants ranged between five days to one year and the mean age of infants was 4.14 ± 3.13 months, 63.5% of total infants were females. The study showed that percentage of exclusive breastfeeding among study women was 49.2%, and 60.9% of mothers had good knowledge about breast feeding, and it has been found that several factors were significantly affecting maternal knowledge about breastfeeding mainly; high level education, being a housewife, high parity, presence and frequency of antenatal care visits, information received about breastfeeding during these visits and type of infants feeding with statistically significance. While factors affecting breastfeeding practice were; low parity and having antenatal care visits with statistically significant association. The study conducted that 31.0% of mothers gave their babies the first fed immediately after delivery and 28.9% within one hour after delivery, the study also found that the time of first breastfeed has been affected by maternal age and being a housewife mother with statistically significance. 70.9% of mothers who exclusively breastfeed have been satisfied with type of infants' feeding and 77.3% of them feed their babies on demand.

INTRODUCTION

Breastfeeding is the feeding of an infant or young child with breast milk directly from female human breasts (i.e., via lactation) rather than from a baby bottle or other container. Babies have a sucking reflex that enables them to suck and swallow milk.[1]

"Early initiation" of breast feeding referred to breastfeeding that started on the first day of life. "Late initiation" indicated breastfeeding that began after the first day of life. "Exclusive breastfeeding" was defined as feeding of only breast milk and nothing else, not even water, with the exception of vitamin supplements and prescribed medicines. "Predominant breastfeeding" was defined as feeding of breast milk along with other non-milk fluids. Infants who were offered breast milk and animal milk, infant formula, or solids were considered to be "partially breastfed." These definitions are consistent with the current World Health Organization definitions for breastfeeding patterns.[2]

Breastfeeding practices and attitudes are influenced by maternal characteristics, which can be divided into demographic, biophysical, social, cultural and psychological factors, in association with the feeding practices: breastfeeding initiation, breastfeeding duration.[3,4,5]

The associations between breastfeeding beliefs as well as behaviors and the degree of maternal acculturation have been identified; women with lower levels of

acculturation have higher rates of breastfeeding initiation and duration.[5,6,7]

There is a significant relation among mothers with high socioeconomic status and breastfeeding practices since they tended to terminate breastfeeding earlier. Additionally, previous experience with breastfeeding is another potentially important factor involved in successful breastfeeding outcomes.[4,8]

Feeding a baby "on demand" (sometimes referred to as "on cue"), means feeding when the baby shows signs of hunger.[9] It is assumed that the baby knows how much milk it needs and it is therefore advised that the baby should dictate the number, frequency, and length of each feed. The supply of milk from the breast is determined by the number and length of these feeds or the amount of milk expressed.[10]

There are many ways to hold the feeding baby. It depends on the mother and child's comfort and the feeding preference of the baby. Some babies prefer one breast to the other, but the mother should offer both breasts at every nursing with her newborn.[11]

The education of the mothers is considered to have a great impact on infants' nutritional status. Mothers with higher level of education are more likely to comply with complementary food recommendations. In addition, older mothers are more likely to introduce complementary foods at the appropriate age.[12,13]

Study setting and study period

The study was conducted at four main primary healthcare centers distributed across Mosul city – Iraq, which are big health centers serving relatively big catchment areas and two of these centers are lie at the right side of Mosul city and the other two healthcare centers are at the left side of Mosul city.

The period of study data collection, was five months (including the pilot study) extending from 1st of December 2011 to 30th of April 2012.

Study subjects

Mothers with children less than one year of age who attend these healthcare centers for immunization purposes during the period of data collection has been included and each mother has been asked separately and those who accept to participate in the study have been interviewed directly by the investigator and for each mother a separate questionnaire form has been filled in. It has been decided to include only the mothers with children less than one year of age because most of the vaccines are given at this age group, so most attendances were at this age which made ease collecting the required sample size.

Statistical methods and tests

Statistical analysis have been done using SPSS V.17.0 statistical package for windows. Frequencies of occurrence and percentages have been calculated. Chi-square (χ^2) test for contingency tables has been used to find statistical significance at p value of ≤ 0.05.

RESULTS

Regarding maternal knowledge about breastfeeding study results revealed that 68.0% of mothers consider exclusive breastfeeding is giving the infant only breast milk. The highest frequency (76.6%) reported that the benefits of breast feeding are to baby only. The table also revealed that 49.2% reported that the duration of breastfeeding is between 12 - 24 months, 38.1% of the study sample reported that the baby should be breastfed for less than 12 months in comparison to only 1.0% of mothers who reported that the duration is for more than 24 months, while 11.7% of mothers do not know the duration of breastfeeding (table 1).

Table (1): Frequency distribution of study women according to their knowledge about meaning, benefits and duration of exclusive breastfeeding.

Maternal knowledge parameter		Total N=197	
		No.	%
Meaning of exclusive breastfeeding	Giving breast milk only	134	68.0
	Giving breast milk with water	23	11.7
	Giving breast milk with any type of fluids	24	12.2
	Don't know	16	8.1
Benefits of breastfeeding	Beneficial to baby only	151	76.6
	Economic benefit	21	10.7
	Contraceptive value	10	5.0
	Breast cancer protection	18	9.1
	Others*	63	32.0
Duration of breastfeeding (in months)	< 12	75	38.1
	12 – 24	97	49.2
	> 24	2	1.0
	Don't know	23	11.7

*Other benefits of breastfeeding as weight loss, psychological benefits, protection from diabetes and heart diseases …..etc.

Table 2 shows that there was significant statistical association between maternal education and their knowledge about breastfeeding with p value of 0.027. Good knowledge was high among mothers having Para four and above, 27.4% of mothers, and the statistical association was highly significant with p value of 0.013. The table shows significant statistical association between maternal employment and their knowledge about breastfeeding with p value of 0.024.

Table (2): Frequency distribution of study women knowledge about breastfeeding according to their socio-demographic characteristics.

Socio-demographic parameter		Overall maternal knowledge				Total N=197		P-value
		Good		Poor				
		No.	%	No.	%	No.	%	
Age (years)	≤ 20	20	10.2	21	10.7	41	20.8	0.147
	21 – 29	62	31.5	31	15.7	93	47.2	
	≥ 30	38	19.3	25	12.7	63	32.0	
Maternal education	Higher education	48	24.4	19	9.6	67	34.0	0.027
	Non-higher education	72	36.5	58	29.5	130	66.0	
Maternal occupation	Housewife	77	39.1	61	31.0	138	70.1	0.024
	Employed	43	21.8	16	8.1	59	29.9	
Maternal parity	1	36	18.3	25	12.7	61	31.0	0.013
	2 – 3	30	15.2	32	16.2	62	31.5	
	4+	54	27.4	20	10.2	74	37.6	
Residence	Urban	108	54.8	73	37.1	181	91.9	0.228
	Rural	12	6.1	4	2.0	16	8.1	

Table 3 shows that very high statistically significant association was found between antenatal care visits and maternal knowledge about breastfeeding with p value of 0.000. The table also shows that 46.7% of mothers with good knowledge had more than three antenatal care visits with statistically significant association, p value of 0.004. Also 42.5% of women with good knowledge have been informed during antenatal care visits with statistically significant association with p value of 0.047.

Table (3): Frequency distribution of study women overall level of knowledge about breastfeeding according to antenatal care.

Maternal factor		Overall maternal knowledge				Total N=197		P-value
		Good		Poor				
		No.	%	No.	%	No.	%	
Antenatal care visits	Present	88	44.7	32	16.2	120	60.9	0.000
	Absent	32	16.2	45	22.8	77	39.1	
No. of Antenatal care visits*	≤ 3	32	26.7	21	17.5	53	44.2	0.004
	> 3	56	46.7	11	9.2	67	55.8	
Antenatal care visits include breastfeeding advice*	Yes	51	42.5	12	10.0	63	52.5	0.047
	No	37	30.8	20	16.7	57	47.5	

*Total N = 120 women who had antenatal care visits

Regarding the attitude and satisfaction of women with type of their infants feeding study results appeared to be high satisfaction, 70.9%, among exclusively breastfeeding mothers, followed by mothers who feed their babies mixed feeding, 63.4%, while the proportion of mothers who were using formula feeding and satisfied from their way to feed their babies represented 56.0% (table 4).

Table (4): Frequency distribution of study women regarding their satisfaction with type of infants feeding.

Satisfaction parameter	Type of infant feeding					
	Exclusive breastfeeding N=97		Formula feeding N=47		Mixed feeding N=53	
	No.	%	No.	%	No.	%
Infant feeding not interfere with other daily activities.	93	95.9	27	57.4	49	92.5
Infant feeding result in extremely close feeling to baby.	90	92.8	27	57.4	46	86.8

Baby's growth is satisfiable.	87	89.7	32	68.1	44	83.0
Infant feeding provide lovely maternal feeling.	73	75.3	33	70.2	30	56.6
Feeding sooth your upset or crying baby.	93	95.9	33	70.2	46	86.8
Feeding present a special time for baby.	83	85.6	43	91.5	47	88.7
Agreement about current type of feeding.	94	96.9	22	46.8	42	79.2
Formula feeding is more convenient than breast feeding	46	47.4	8	17.0	12	22.6
Breast milk is less expensive than infant formula	84	86.6	47	100.0	50	94.3
Mothers who formula-feed miss one of the great joys of motherhood	61	62.9	13	27.7	21	39.6
Formula feeding is a better choice if the mother works or studies outside home	57	58.8	32	68.1	34	64.2
Breast feeding is an old fashion manner	2	2.1	19	40.4	2	3.8
Formula feeding is a symbol of wealth and modern life	31	32.0	6	12.8	14	26.4
Average satisfied mothers with infant feeding	**69**	**70.9**	**26**	**56.0**	**34**	**63.4**

Regarding maternal practice about breastfeeding, Table 5 shows very high significant association between maternal age and the onset of 1st breastfeed after birth, the present study revealed that out of all included mothers 11.7% gave 1st breastfeeding after six hours after birth their age was ≤ 20 years, whereas 14.2% gave 1st breastfeeding within the 1st hour their age was ≥ 30 years, while 19.8% of mothers tend to follow the correct practice by giving 1st breastfeeding immediately were among age group 21 – 29 years old with p value of 0.000. While 21.8% of mothers who were housewives gave the first feed immediately with high significant association with p value of 0.002.

Table (5): Frequency distribution of mothers according to their practice regarding onset of 1st breastfeed and maternal characteristics.

Characteristics	Onset of 1st breastfeed after birth								Total N=197		P value
	Immediately		First hour		2-6 hours		>6 hours				
Age (in years)	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	
≤ 20	8	4.1	8	4.1	2	1.0	23	11.7	41	20.8	0.000
21 – 29	39	19.8	21	10.6	12	6.1	21	10.6	93	47.2	
≥ 30	14	7.1	28	14.2	15	7.6	6	3.0	63	32.0	
Education											
Higher education	18	9.1	21	10.6	11	5.6	17	8.6	67	34.0	0.813
Non-higher education	43	21.8	36	18.3	18	9.1	33	16.8	130	66.0	
Occupation											
Housewife	43	21.8	45	22.8	25	12.7	25	12.7	138	70.1	0.002
Employed	18	9.1	12	6.1	4	2.0	25	12.7	59	29.9	

Table 6 demonstrates that there's no association between maternal occupation and type of infants feeding, although 36.5% of total mothers who exclusively breastfeed their babies were housewives. Also the table shows that exclusive breastfeeding was more prevalent among mothers of low parity with very high statistically significant association with p value of 0.000.

Table (6): Frequency distribution of the mothers according to maternal practice regarding type of feeding and maternal characteristics.

Characteristics	Type of feeding						Total N=197		P value
	Exclusive breastfeeding		Formula feeding		Mixed feeding				
Age (in years)	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	
≤ 20	24	12.2	9	4.5	8	4.1	41	20.8	0.484
21 – 29	40	20.3	25	12.7	28	14.2	93	47.2	
≥ 30	33	16.7	13	6.6	17	8.6	63	32.0	
Education									
Higher education	37	18.8	13	6.6	17	8.6	67	34.0	0.434
Non-higher education	60	30.5	34	17.3	36	18.3	130	66.0	
Occupation									
Housewife	72	36.5	27	13.7	39	19.8	138	70.1	0.096
Employed	25	12.7	20	10.2	14	7.1	59	29.9	
Maternal parity									

1	41	20.8	2	1.0	18	9.1	61	31.0	0.000
2 – 3	27	13.7	26	13.2	9	4.6	62	31.5	
4+	29	14.7	19	9.6	26	13.2	74	37.6	

Table 7 shows that among mothers who were exclusively breastfeeding their babies, 77.3% of them were feeding infants on demand, day and night. Regarding the position of mother during feeding, the highest frequency, 73.2%, was among those who feed at sitting position, while regarding the position of baby during feeding, 77.3% was on mother's limb. 73.2% of mothers finish feeding on one breast before switching to the other.

Table (7): Frequency distribution of mothers regarding time and positioning during breastfeeding practices among mothers who exclusively breastfeed.

Statement		**Total N=97**	
		No.	**%**
Frequency of breastfeeding	On demand, day & night	75	77.3
	Every 2-3 hours	20	20.6
	At day only but not at night	2	2.1
Maternal position during breastfeeding	Lying down	5	5.2
	Sitting position	71	73.2
	Both positions	21	21.6
Position of baby during breastfeeding	On mother's limb	75	77.3
	On baby's bed	7	7.2
	Both positions	15	15.5
Finish feeding on one breast before switching to the other	Yes	71	73.2
	No	26	26.8

DISCUSSION

The present study showed that majority of mothers considered exclusive breastfeeding is giving the infant only breast milk, while the proportion of mothers who did not knew the meaning of exclusive breast feeding which represented 8.1%. Regarding their knowledge about the benefits of breast feeding, which were also the causes of preferring breastfeeding for the babies, this study demonstrated that most of mothers reported the benefits of breast feeding to baby only, followed by economic benefits, protection from breast cancer and 5.0% reported the benefits as contraceptive, whereas 32.0% were knew all the benefits of breastfeeding. A study conducted in Mosul city by Ebrahim[14] in 1994, revealed that majority, 81.3%, of mothers reported benefits of breastfeeding to the babies and 12.9% of them reported economic benefits.

Al-Naemi[15] in Mosul, 1996, reported the proportion of mothers who were aware of the benefits of exclusive breastfeeding for babies was about 41.0% and 37.6% recognized the contraceptive effect and only 2.1% mentioned the economic values. This, however, should be cautiously interpreted as these studies were computed at different times where trend of modernization and level of education changed with time.

The study also revealed that 49.2% of mothers reported that the duration of breastfeeding is 12 - 24 months, 38.1% of mothers reported that the baby should be breastfed for less than 12 months in comparison to 1.0% of mothers who reported that the duration is for more than 24 months, while 11.7% of mothers do not know the duration of breastfeeding. A study conducted in Mosul at 2003 by Abd,[16] revealed that 72.5% of total mothers reported the duration of breastfeeding for more than 12 months.

The present study showed that the highest frequency, 31.5%, of total study women with good knowledge were at 21 - 29 years age. This is similar to result found by Ebrahim[14] in 1994, which reported 29.8% of mothers with good knowledge were at this age group.

However, the present study showed that there was no significant association between maternal age and their knowledge about breastfeeding with $p>0.05$, this result is incompatible with that obtained by Al-Naemi[15] in 1996, which reported a significant association between maternal age and their knowledge about breastfeeding.

The association between maternal education and knowledge about breastfeeding was highly significant among mothers who had higher level of education with p value of 0.027. Al-Naemi[15] in 1996, found that significantly mothers may have high education attainment which may have positive impact on breastfeeding, since those mothers may have enough knowledge about breastfeeding which are significantly proved in this study, were mothers with higher educational level more prone to breastfeed their babies than others.

Also the study revealed that there was a difference in the frequencies between knowledge among employed and housewife mothers and there's significant statistical

association between maternal employment and their knowledge about breastfeeding with p value of 0.024, similar finding had been reported by Ebrahim in 1994.[14]

This result is consistent with another study by Fadhil[17] in 1983, conducted in Basarah governorate in which results appeared with very high statistically significance.

A significant association was found between the maternal parity and their knowledge, the highest frequency of mothers with bad knowledge, 16.2%, was among those who were Para 2-3, while the highest frequency of good knowledge, 27.4%, was in those having Para four and above and the statistical association was highly significant with p value of 0.013, this result seem as it follows a trend as increasing parity maternal knowledge about breastfeeding increases, this was compatible with findings of Habib in 2001.[18]

A very high statistically significant association was found between ANC visits and maternal knowledge about breastfeeding with p value of 0.000, number of ANC visits has been found to play an important role in maternal knowledge, 46.7% of mothers with good knowledge had more than three ANC visits, which was the highest proportion. The highest frequency of mothers with good knowledge, 42.5% have been informed about breastfeeding with statistically significant association p value of 0.047 in comparison with those not informed during ANC visits. Fadhil[17] in 1983, reported 41.5% of mothers had ANC visits but did not found significance between visits and maternal knowledge.

Maternal satisfaction and attitudes favorable to breastfeeding found in this study, including a preference for breastfeeding, the belief that 'the mother can easily fit feeding the baby in with her other activities' and 'Feeding sooth your upset or crying baby' where 95.9% of exclusive breast feeders agree with these statements and for the statement 'You are happy with the way you fed your baby' 96.9% of them agree with it. 'formula-feeders miss one of the great joys of motherhood' has also been reported among mothers in Mosul, these attitudes might be attributed to the maternal culture. The study showed that total average satisfied mothers with type of infant feeding appeared to be high among exclusively breastfeeding mothers, 70.9%, followed by mothers who were mixed feeders, 63.4%, while the proportion of mothers who were feeding their infants with formula and satisfied from their way to feed their babies represented 56.0%. These results were consistent with findings reported by Qianling Zhou[19] in 2010, done in Ireland which reported even stronger preferences, 91.0% for breast feeding exists.

Regarding the impact of maternal practice about breastfeeding, the study found very high significant association between maternal age and the onset of 1st breastfeed after birth, the present study revealed that, out of all included mothers, those who tend to follow the correct practice by giving 1st breastfeeding immediately were among age group 21 – 29 years old with p value of 0.000. While 21.8% of mothers who were housewives gave the first feed immediately with high significant association with p value of 0.002, Ebrahim in 1994[14] and Al-Naemi in 1996[15] found that mothers who tend to follow the correct practice were significantly older mothers (≥ 30 years) than other groups with p value of 0.01, this could be due to the fact that the younger mothers the lower parity, lower familial demands and more interested about benefits of breast feeding to their babies than older mothers who are more busier due to increase familial demands.

No significant association between mother's education and time of giving the 1st feed to the infant which was similar to that found by Al-Naemi.[15]

Regarding maternal occupation, 21.8% of mothers who were housewives give the 1st feed immediately and 22.8% within the 1st hour which were higher than that for employed mothers, 9.1% and 6.1% respectively with statistically high significance with p value of 0.002, which could be explained by that the housewives mothers were more interested with breastfeeding and its benefits to infants although most of employed mothers related this pattern to the type of delivery where caesarian section was more prevalent among them which lead to delay breast feeding initiation, this was inconsistent with the result found by Al-Naemi[15] which reported that there was no significant association between maternal occupation and time of infant's 1st feed.

The study demonstrates that there was no association between maternal age and type of intents feeding, similar findings reported by Al-Naemi in Mosul.[15] Also in Lebanon in 1979, the investigator reported that there was no association between mother's age and feeding practice.[20]

This study demonstrated that 36.5% of mothers who exclusively breastfeed their babies were housewives, which was more than that reported among employed mothers, 12.7%, although Iraqi law encourages breastfeeding through providing employed mothers with an adequate maternity leaves with pay to encourage them nursing their babies.[21] Similar result has been seen in a study which revealed that Mexican-American infants born to housewives mothers were more likely to be exclusively breastfed than infants of employed mothers.[22]

There was no significant association between maternal occupation and type of feeding, a similar statistical result to that was found by Al-Naemi in Mosul.[15] In Baghdad, Habib[18] found that housewives mothers were significantly more practicing exclusive breastfeeding than employed mothers, 64.0% and 24.5% respectively.

The present study demonstrate that there was no association between education of the mothers with type of infants feeding, a finding not consistent with that found by Ebrahim in 1994,[14] Al-Naemi in 1996[15] and that demonstrated by the survey of MOH in 1994.[23]

Also the study showed that breastfeeding was more prevalent among mothers with low parity, it was 20.8% among mothers with Para one, and 13.7% for Para 2–3 and there was very high statistically significant association with p value of 0.000, this is generally logical that mothers of high parity with more number of family members which affect the complete involution of various systems of the mothers and increase physical demands on them and this may have a negative impact on breastfeeding practice and frequency. The same result identified by both studies conducted in Mosul by Ebrahim in 1994 and Al-Naemi in 1996.[14,15]

Demand breastfeeding is preferable to schedule feeding, because frequent suckling during both day and night ensure adequate breast milk output for a longer duration, the present study showed that among mothers who were exclusively breastfeeding their babies, 77.3%, of them get feeding infants on demand, day and night, while 20.6% of mothers feed their babies every 2-3 hours in comparison with 2.1% who breastfeed their babies at day only. These results were lower than that shown by Ebrahim in 1994 who reported feeding on demand to be 94.0%[14] and Al-Naemi in 1996, who reported 93.2% of women breastfeed on demand.[15]

CONCLUSIONS

1. The result of this study revealed that proportion of mothers who exclusively breastfeed was 49.2% and 60.9% of mothers had good knowledge.
2. Factors significantly affecting maternal knowledge about breast feeding were: Maternal education, housewife, high parity, ANC visits, information about breast feeding during ANC visits and experienced mode of infants' feeding.
3. Factors positively affecting breast feeding practice were low parity and having frequent ANC visits.
4. Majority of studied women found start feeding their infants immediately or within one hour after delivery, maternal age and housewife mother found carry a statistically significant association with this practice.
5. The present study showed that majority of mothers feed their babies on demand.

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