

Factors Associated with Non-Exclusive Breastfeeding A-Cross Sectional Kap Study

Dr. Ilham R. Hameed^{#*}, Dr. Ahmed S. Alnuaimi[^] and Muna R.Hameed^ψ

[#]Al-Hakeem General Hospital / Department of Public Health, Iraq

[^]Department of community medicine / collage of medicine/ Baghdad university, Iraq

^ψAL-Razi Center /Corporation for Research and Industrial Development / Iraqi Ministry of Industry and Minerals

Received 12 July 2020, Accepted 05 Sept 2020, Available online 06 Sept 2020, Vol.8 (Sept/Oct 2020 issue)

Abstract

Objectives: The current study was aimed to estimate the prevalence of non-exclusive breast-feeding among Iraqi woman who ever breast fed and assess the relation between socioeconomic status and non-exclusive breast feeding and, also to evaluate the association between knowledge and attitude towards breastfeeding on the practice of non-exclusive breastfeeding.

Methods: A cross sectional study was carried out during the period three months (February to April 2014) in Baghdad city /AL-Karkh district, at AL-salam PHC center on mothers in the reproductive age were visiting the center, who had delivered their last child between 15- 2-2012 and 14-8-2013.A systematic random sample of 317 mother was selected, based on an average sampling frame of 18 women per day. The data were collected using a fully structured questionnaire form. The final format of the prepared questionnaire include information under 4 main domains, sociodemographic factors, practices of breast feeding, mothers knowledge and attitude towards breastfeeding.

Results: Non-exclusive breast feeding during the first 6 months of new-born life constituted 271 (85.5%) of the study sample (with a 95% confidence interval of 81.6%-89.4% in the reference population).The positive trend for nonexclusive breastfeeding with socioeconomic status was however not significant statistically. The observed negative trend for the probability of nonexclusive breastfeeding with age was however too small to be of statistical significance. The mean attitude score for mothers with exclusive breast feeding was significantly higher (76.2+12.2) than that for nonexclusive breastfeeding mothers. Mean knowledge score for mothers with nonexclusive breastfeeding mothers was (28.8+11.3)while that for exclusive breastfeeding was obviously higher (32.4+11.6), but the differences in mean failed short of statistical significance ($p=0.05$).

Conclusion: Prevalence of nonexclusive breastfeeding among mothers who ever breastfed was 85.5% .There was no relation between socioeconomic status and the practice of nonexclusive breastfeeding. Mothers with positive attitude towards breastfeeding are less likely to practice nonexclusive breastfeeding. Mothers with good knowledge about breastfeeding might be less likely to practice nonexclusive breastfeeding.

Keywords: Breastfeeding, Iraqi mother, Attitude, Knowledge, Practice.

Introduction

"Exclusive breastfeeding EBF": is known according to WHO as the situation a giving a breast milk only no other food or drink not even water. It does, however, permit the infant to take oral rehydration salts (ORS), drops and syrups (vitamins, minerals and medicines). The perfect food for the healthy growth and development of infants is the breast milk; through breastfeeding (BF) way, and also is considered as a complementary part of the reproductive process with important implications for the health of mothers (Alemayehu *et al.*, 2009).

Breastfeeding promotes the good health for both mothers and infants, and prevents many diseases (Bartick & Reinhold, 2010). Prolonged breastfeeding has also been related with enhanced mental health during childhood and adolescence (Oddy *et al.*, 2010). Whereas the increasing deaths that caused by diarrhea in infants in both developing and developed countries is associated with bottle feeding (Horton *et al.*, 1996).

Exclusive breastfeeding is the fundamental or normative model against which all other feeding manners that must be measured regarding to growth, best health, development, and all other short and long term effects (Gartner L *et al.*, 2005). In developing nations, the rate of an infant's exclusive breastfeeding (less than six months)

*Corresponding author's ORCID ID: 0000-0003-1504-501X

DOI: <https://doi.org/10.14741/ijmcr/v.8.5.4>

is not more than 37%, and there has been very little amelioration since the early 1990s. It is estimated nearly as 32 million global burden children who are not exclusively breastfeeding (UNICEF, 2010).

Instant initiation of breastfeeding protects the newborn child with the immunological, antibacterial and antiviral characteristic of the colostrum, and decreases the likelihood that the child will be given pre-lacteal feed such as water or tea (Arts *et al.*, 2011)

Breastfeeding intention is an important predictor of infant feeding method (Agrasada *et al.*, 2011). The breastfeeding initiation and duration rely on several determinants: "namely, sociodemographic, psychosocial, biomedical, health care-related factors, community attributes, public policy; mothers' knowledge, attitudes", and support were stronger determinants of breastfeeding duration (Amin *et al.*, 2011)

Neither the trials nor the observational studies suggest that infants who continue to be exclusively breastfed for 6 months appear deficits in weight or length gain (Kramer *et al.*, 2002) In industrialized countries, exclusive breastfeeding during the first 6 months shows decreasing of the gastrointestinal tract infections risks, that compared with exclusive breastfeeding through just the first (3 – 4) months. Depending on these and other reports, the WHO recommended 2001 that all children must be exclusively breastfed for 6 months rather 4 months (Duijts *et al.*, 2010) A dose response occurs for some medical advantages of breastfeeding, such as decreasing in diarrhea and otitis media (Lawrence, R. A., & Lawrence, R. M. 2011). A cohort analysis by duration of exclusive breastfeeding revealed that the long exclusive breastfeeding is the higher in the verbal and the full scale IQ scores (Martens, P. J. 2012). Exclusive breast-feeding practice is both psychologically satisfactory to the mother and her child. It reduces morbidity and mortality of children. With this practice, the reducing of the child's access to contaminated water, and thus decreasing the child exposure to waterborne diseases (Ogbe, J. O. 2008). Mothers who breastfeed exclusively are eligible to space childbirth and less likely to be able for menstruation at six months or earlier (Agrasada *et al.*, 2011). Mothers with positive HIV, the risk of maternal to child transmission with EBF was significantly lower than that related with mixed nutrition (Sera L. Young *et al.*, 2011). Many research studies confirmed a substantial association of exclusive breastfeeding with a reduced hazards of infant mortality (Abuqamar *et al.*, 2012).

On the other hand non-exclusive breastfeeding (NEBF) was existed to be one of the risk factors for under nutrition in children aged 6-18 months in village mountainous northern area in Vietnam. Additionally to the children who were not exclusively breastfed have lower anthropometric determents than those who were exclusively breastfed (Nakamori *et al.*, 2010). Therefore raising the rate of EBF is one of the most powerful interventions to protect child lives; the promotion of breastfeeding could block (13-15) percent of child deaths

in low income countries (Sera L. Young *et al.*, 2011). Globally, less than 40 percentage of infants are exclusively breastfed for the first six months of life and the preponderance receives some other food or fluid in the early months (Tawfik Amin *et al.*, 2014).

In Iraqi mothers the rate of EBF was 25% in 2006 year, but in a few years later namely in 2011, which decreased to 19.6% (WHO, 2012). These low rates might be caused by innumerable myths and misconceptions about breastfeeding, in addition to attitudes that so lower its importance that it just gets overlooked (Mulford, 2008) EBF is not suitable in many cases, that are the colostrum is harmful, formula is somehow superior, misunderstanding what is EBF (Kramer *et al.*, 2002). Mothers should temporarily stop breastfeeding if they had fever, rash of skin, or sore throat is another misconception reported (Ebrahim *et al.*, 2011).

The major reason for why a lot of moms do not choose the breastfeeding is because of the stigma that is attached to public breastfeeding. If society take on a different attitudes in respect of the breastfeeding in public, far more mothers would be more willing to begin breastfeeding (Polhamus *et al.*, 2011)

Employment of maternal has been consistently cited as a hurdle to breastfeeding (Hamade *et al.*, 2013), and it at a six months postpartum was associated with 87% lowering in the probability' of EBF at 6 months postpartum (Matias *et al.*, 2012).

The BFHI pursues to increase the numbers of babies who are exclusively breastfed worldwide, a target which the WHO estimates could contribute to avert over a million child deaths every year, and may be as well the many premature maternal deaths (WHO, 2014). Accreditation of BFHI was also related with the increasing in exclusive breastfeeding up to 6 months and any breastfeeding to 12 and 24 months (Senbanjo *et al.*, 2014)

Efforts to discourage water supplementation and encourage exclusive breastfeeding in this setting are necessary to be directed both at mothers and health providers (Almroth, Set *al.*, 2000).

Subjects and Methods

A cross sectional study was carried out during the period from 15th of February to 15th of April, 2014 in Baghdad city Al-Karkh district, Alsalam PHC centre. Mothers in the reproductive age visiting Alsalam PHC centre, who had delivered their last child between 15-2-2011 and 14-8-2013. A Systematic random sample of 317 mother was selected.

Based on an average sampling frame of 18 women per day. The sampling cycle was set to every third sampling unit.

The inclusion criteria for the women included:

1. Should be between 15-45years old.
2. With at least one living child aged 6-24 months.
3. Ever breast feed her baby.

The data were collected using a fully structured questionnaire form. The form was custom made and inspired by previously published literatures (ACF,2007)(Ingram,2004). The questionnaire form was filled by personal interview with each mother in a separate room to assure privacy. A pilot study was done on 20 mothers before the launching data collection. Some alterations and modifications in the questionnaire were done according to the results of the pilot study. The final format of the prepared questionnaire includes information under 4 main domains:

1. Information related to sociodemographic factors.
2. Information related to practices of breast feeding.
3. Information related to mothers BF knowledge.
4. Information related to mothers' attitude.

A composite socioeconomic index score (Hout,2010) calculated based on the value of the following variables: Count of private cars owned, Average monthly income, Type of residence (rented, owned, others) ,Crowding index quartiles, Occupation, Educational level (Maluccio,2005). Maximum score is 21,from 1 to 7 is considered low SES,from 8 to 14 is considered medium SES and finally from 15 to 21 is considered high SES. Data transferred to a computerized database structure. IBM SPSS version 21 used for statistical analyses. Frequency distribution for selected nominal ,and ordinal level variables have been done.

The prevalence of NEBF among those who ever breastfed calculated together with the 95% confidence interval. The rate of correct knowledge in different aspects of BF listed. In addition, the relative frequency for selected misbelieves listed. Finally the association between selected socioeconomic variables in addition to knowledge score and the probability of practicing EBF among mothers who ever breast fed their babies assessed and statistical significance assessed by Chi square (χ^2) test $p < 0.05$ was considered as a cut-off value for statistical significance .Cohen's d is used to assess the magnitude of the means difference. The value of cohen's d below 0.3 considered as weak, between 0.3 and 0.5 is moderate and above 0.5 is strong association.

Results

The results presented were based on the analysis of a sample of 317 mother with at least one baby aged 6 months to 2 years. Non-exclusive breast feeding (NEBF during the first 6 months of new-born life) constituted 271 (85.5%) of the total sample (with a 95% confidence interval of 81.6%-89.4% in the reference population).

As shown in Table 2, the highest proportion (47.9%) of mothers in the total sample were (25-34) years of age. Almost all (98.4%) of mothers in study sample were currently married. The highest proportion (91.5%) of mothers in the study sample were housewives. The educational level of the highest proportion (31.1 %) of mothers was primary, while (5%) were illiterate and (17%) were vocational (college).

Considering socioeconomic status (SES),the highest proportion (54.3%) of mothers had no car, while only 1.9% of mothers had as much as 3 private cars. Regarding the average monthly income, the highest proportion (44.1%) of mothers were having (500,000 - 1, 000, 000) Iraqi dinars (ID) monthly, while 33.7% and 1.6% of mothers were having less than 500, 000 ID and more than 2, 000, 000 ID monthly respectively. Meanwhile the highest proportion (61.7%) of mothers lived in owned house. Table 3 shows the mean attitude score for mothers with exclusive breast feeding (EBF) was significantly higher (76.2 ± 12.2) than that for NEBF mothers. The association between EBF and attitude score was evaluated as a moderately strong effect (Cohen's $d = 0.61$). Mean knowledge score for mothers with EBF was obviously higher (32.4 ± 11.6) than that for NEBF mothers (28.8 ± 11.3) , but the differences in mean failed short of statistical significance ($p = 0.05$). The effect of knowledge score on EBF was evaluated as a weak effect (Cohen's $d = 0.32$) ,the SES was graded into 3 categories: low, average and high SES. The relative frequency of NEBF mothers was obviously higher among mothers in high SES (89.3%) and lowest for mothers with low SES (78.8%). This positive trend for NEBF with SES was however not significant statistically. The age of the mothers was categorized into three groups;<25, 25-35 and >35y.The relative frequency of NEBF mothers was lowest among older age mothers (80.4% for those older than 35 years of age). The observed negative trend for the probability of NEBF with age was however too small to be of statistical significance (not shown). There was no important or statistically significant differences between mothers with EBF and those with NEBF in the relative frequency of reported benefits of breast feeding to baby. In the same context, there was no important or statistically significant differences between mothers with EBF and those with NEBF in the relative frequency of reported benefits of breast feeding to mothers (not shown).The availability of assistance (support) from family, relatives or neighbors in caring for the baby had no association with EBF (not shown).

A total of 72 mothers embraced the idea of exclusive breast feeding for any duration between 1 week and 6 months. These mothers were asked about the reason that made them not give their infants extra fluids with breast milk. Those mothers were further classified into two categories: those completing 6 months of EBF and those who failed to complete the full 6 months duration and therefore also fit the definition of NEBF. The relative frequency of mothers having advice from medical staff

against administration of fluids to the newborn was noticeably higher among EBF group (19.6%) than those with NEBF (7.7%). Such an advice from medical staff will reduce the risk of having NEBF by 0.34, i.e. absence of this valuable advice is associated with an increased risk of NEBF by 2.9 times. The association, however failed to reach the level of statistical significance, possibly because of small sample size. The remaining reasons like mother in Law advice, “being bad for baby health” and “other causes” had no important or statistically significant association with the risk of NEBF (not shown).

As shown in table 4, mothers were interviewed about some attitude items regarding BF. This table compare between EBF and NEBF mothers who show positive attitude items. The first 7 items namely (BF prevents pregnancy, interference of supplemental feeding with good milk supply, giving formula milk before the first breastfeed, reduction of neonatal jaundice with frequent BF, better growth pattern and health with bottle feeding than in BF, starting formula milk if baby doesn't gain

weight 2 weeks after delivery and feeding baby formula milk after each breastfeed if mother feels that breast milk is insufficient) had no important or statistically significant association with the risk of NEBF. The last item (BF in public place) constitutes of 6 sub items (6 different public places). All these sub items show a statistically significant association with the risk of NEBF except the last one i.e. mothers who disagree to breastfeed in a private clinic are 5.6 times more likely to be a NEBF mother ($p < 0.001$). Mothers who disagree to breastfeed in a private car are 4.2 times more likely to be a NEBF mother ($p = 0.004$), while mothers who disagree to breastfeed in public cars are 2.3 times more risky for NEBF ($p = 0.009$). Also mothers who disagree to breastfeed at work are 2.7 times more risky for NEBF ($p = 0.007$). However, mothers who disagree to breastfeed in a restaurant or social club are 4.5 times more likely to be a NEBF mothers ($p < 0.001$). We can conclude that BF in public as a whole is significantly associated with a lower risk of NEBF.

Table 1: Frequency Distribution of the Study Sample by Sociodemographic

Variables studied	N	%
I. Age group (years)		
<25	114	36.0
25-34	152	47.9
35-44	51	16.1
Total	317	100.0
2. Marital status		
Widowed/divorced/separated	5	1.6
Married	312	98.4
Total	317	100.0
3. Occupation		
Housewife	290	91.5
medical / teaching profession	12	3.8
Employed	15	4.7
Total	317	100.0
4. Educational level		
illiterate	16	5.0
read and write	23	7.3
primary	101	31.9
intermediate	81	25.6
secondary	42	13.2
vocational (college)	54	17.0
Total	317	100.0
5. Number of private cars		
None	170	54.3
1	118	37.7
2	19	6.1
3	6	1.9
Total	313	100.0
6. Average monthly income		
<500.000	106	33.7
500.000-1000000	139	44.1
1000000-1500.000	56	17.8
1500.000-2000000	9	2.9
>2000000	5	1.6
Total	315	100.0
7. Type of residence		
Others	27	8.6
Rented	93	29.7
Owned	193	61.7
Total	313	100.0

Table 2: The Mean Attitude and knowledge Score by Exclusive Breast Feeding

	Exclusive BF (for 6 months)	Non-exclusive BF	P	Cohen's d
Attitude score (/100)				
Range	(41.5 to 96.9)	(26.2 to 100)		
Mean	76.2	67.1	<0.001	-0.61
SD	12.2	15.2		
SE	1.8	0.93		
N	46	271		
Knowledge score (/100)				
Range	(10.5 to 57.9)	(10.5 to 73.7)		
Mean	32.4	28.8	0.05	-0.32
SD	11.6	11.3		
SE	1.71	0.69		
N	46	267		

Table 3: A Comparison in Relative Frequency of Reported Reasons for Exclusive BF Regardless of Duration Between EBF (EBF for 6 months) and NEBF (EBF for less than 6 months) mothers*

	Exclusive BF (for 6 months)		Exclusive BF (for < 6 months)		OR	Inverse OR	95% CI	P
	N	%	N	%				
* Reason for exclusive BF regardless of duration	(n=46)		(n=26)					
Being bad for baby health is the leading cause not to take those fluids	26	56.5	15	57.7	1.05	**	(0.4 - 2.77)	0.92 [NS]
Mother in law advise not to take those fluids	6	13.0	5	19.2	1.59	**	(0.43 - 5.82)	0.49 [NS]
Medical staff advise not to take those fluids	9	19.6	2	7.7	0.34	2.9	(0.07- 1.72)	0.19 [NS]
Other causes lead not to take other fluids	6	13.0	4	15.4	1.21	**	(0.31-4.76)	0.78 [NS]

*Note: Only mothers who exclusively breast fed their Infants for any period were asked about the reason that made them embraced the idea of not giving the baby any extra fluids except breast milk for any length of time.

Table 4: A Comparison in Relative Frequency of Reported Positive Attitude Items Between EBF and NEBF mothers

	Exclusive BF (for 6 months)		Non-Exclusive BF		OR	Inverse OR	95% CI	P
	N	%	N	%				
Positive attitude items	(total n = 46)		(total n=271)					
Breastfeeding prevents pregnancy	13	28.3	81	29.9	1.08	**	(0.54 - 2.16)	0.82 [NS]
Interference of supplemental feeding with good milk supply	22	47.8	153	56.5	1.41	**	(0.76 - 2.65)	0.28 [NS]
Receiving formula milk before the first breastfeed	1	2.2	11	4.1	1.90	**	(0.24 - 15.11)	0.54 [NS]
Reduction of neonatal jaundice with frequent breastfeeding	45	97.8	258	95.2	0.44	2.3	(0.06 - 3.46)	0.44 [NS]
Better growth pattern and health with bottle feeding than in breast feeding	22	*47.8	113	41.7	0.78	1.3	(0.42- 1.46)	0.44 [NS]
Starting formula milk if infant doesn't gain weight by 2 weeks of age	8	17.4	57	21.0	1.27	**	(0.56 - 2.86)	0.57 [NS]
Feeding baby a bottle-feed after each breastfeed if mother feels breast milk is insufficient	19	41.3	113	41.7	1.02	**	(0.54 - 1.92)	0.96 [NS]
Breastfeeding her baby in private clinic	41	89.1	161	59.4	0.18	5.6	(0.07 - 0.47)	<0.001
Breastfeeding in private car	41	89.1	180	66.4	0.24	4.2	(0.09 - 0.63)	0.004
Breastfeeding in public cars	29	63.0	114	42.1	0.43	2.3	(0.22-0.81)	0.009
Breastfeeding at work	35	76.1	147	54.2	0.37	2.7	(0.18-0.76)	0.007
Breastfeeding in a restaurant or social club	37	80.4	128	47.2	0.22	4.5	(0.1-0.47)	<0.001
Breastfeeding in a friend's or neighbour's house	40	87.0	210	77.5	0.52	1.9	(0.21 - 1.28)	0.15[NS]

Discussion

In the current study only 14.5% of mothers who tried breastfeeding for any period fulfilled the requirements for defining exclusively breastfeeding. This rate is

considered an overestimate for prevalence of exclusive breast feeding in mothers. On the other extreme the present study rate of 14.5% was much smaller than the 2006 figure of 25% for Iraq population. This negative trend for the rate of EBF in Iraq was further accentuated

in 2011. When the WHO reported rate for EBF reached 19.6% (WHO, 2012). Compared to international figures of EBF practice, the present study estimate is also lower than international estimates.

The negative time trend reported in Iraq and other neighboring countries like Iran 44% in 2002, 28% in 2006 may reflect changes in socioeconomic status. In spite of the WHO efforts, the Iraqi national figures in addition to international figures remain low. The EBF rates are still lagging behind the WHO set goal of 50% (WHO, 2014). Longitudinal data suggest that the prevalence of exclusive breastfeeding among infants younger than six months in developing countries increased from 33% in 1995 to 39% in 2010. Although considerable improvements have been made in some regions, the prevalence of exclusive breastfeeding remains far too low in many areas of the developing world (Cai et al., 2012).

It was shown that the non-exclusive breast feeding is more frequent among women in the higher socioeconomic group. Although this finding was not significant statistically, it coincides with a negative trend for breast-feeding practice in different countries of the Middle East. Especially in urban areas where mothers with raised socioeconomic status resort to bottle-feeding quite early (Al Hilfy, 2007). Agrasada et al, 2011 showed that mothers who breastfed exclusively did not differ from those who breastfed partially in education and income (Agrasada et al., 2011). While other studies conducted in developing countries revealed that maternal education was negatively associated with EBF (Matias et al., 2012). Hamade et al. 2013 reported a significant association between EBF and a lower monthly household income in Lebanon (Hamade et al., 2013). The absence of statistically significant association between SES and NEBF in the current study may reflect a stronger effect of tradition on the practice of BF than that of other socioeconomic factors in the area where our sample was drawn. Webb et al, (2009) showed that EBF was independent of maternal characteristics, maternal work status, academic skills, and household SES (Webb, 2013).

In the current study there was no significant association between EBF and family or any external support, in apparent disagreement with another KAP study result in Mozambique that showed a longer period of EBF in supported mothers, compared to mothers with less support (Arts et al., 2011). External support may prolong the duration of EBF, but does not guarantee the full 6 months required by definition. In a study in rural Vietnam, mothers who lived with extended family arrangements were more likely to exclusively breastfeed their babies compared to those who lived in nuclear families (Nguyen et al., 2011). This unexpected finding may need further social studies to validate the type and magnitude of external support that may help to sustain EBF practice.

The present study showed that a higher positive attitude score is associated with EBF. This finding is

supported by a study conducted in Netherlands by GijbersB, et al, 2007, which reported a significant association between positive attitude and EBF (Gijbers et al., 2008).

In the same context the present study also showed a higher knowledge score among those with EBF, but the association failed short of statistical significance (P value is exactly 0.05). The same Netherlands study argued that Knowledge score is positively associated with EBF.

Mothers who were advised not to give fluids to their infants by a medical staff were 2.9 times more likely to follow an EBF practice. Although this factor failed to be statistically significant but it agrees with Mgongo et al, 2013, who found that the odds of exclusively breastfed infants up to 6 months was 3 times higher among mothers who got advice on breastfeeding during ANC attendance and after delivery compared to mothers who did not get advice (Mgongo et al., 2013). Regarding benefits of BF for infants and mothers, results of the current study showed that more than 58.7% of mothers knew that BF protects babies from disease, which coincides with a study conducted in Kuwait (Ebrahim B, 2011) that reported a nearly similar percentage (60%) of the participants who knew that babies who are formula fed are more likely to have diarrhea, vomiting, constipation, common cold, or allergy in comparison to infants who are breastfed (Ebrahim et al., 2011). In the same context more than 36.2% of mothers knew that BF protects from breast cancer in the current study, while Ebrahim B, 2011 reported higher percentages (>85.1%). This might be due to different educational level of participants between the two studies or different health education programs (Ebrahim et al., 2011). Regarding benefits of BF to the child, more than 42.8% of mothers thought that BF is the right food for babies in the current study. Kuzma, 2013 showed nearly similar percentage (36%) of study participants who thought that BF is the best food for the child. Also more than 33.9% of mothers in the current study thought that BF makes children stronger with slightly higher percentage reported in the study by Kuzma. 2013 which revealed that 38% of mothers thought that BF makes child grow well. Meanwhile more than 58.7% of the mothers in the current study thought that BF protect babies from disease, while lower percentage (48%) reported in Kuzma, 2013 (Kuzma et al., 2013). Generally the differences observed between the two studies are not remarkable.

In the current study high percentages (41-89%) of mothers support BF in public places which showed a statistically significant positive association with EBF. Wojcicki et al, 2010 looked at differences in attitudes towards breastfeeding based on whether the mother was exclusively breastfeeding or mixed/formula feeding at 1-4 days postpartum and found that specific attitudes were more associated with mixed/formula feeding, including finding breastfeeding embarrassing and difficult in public (Wojcicki et al, 2010)

Limitations of the current study include potential for recall bias, a small sample size because of time constraints. The relatively small sample size decreased the study power to detect statistically significant associations between predictors and outcomes. The conclusions reached may not be applicable to the larger Iraqi population, especially given the likely differences in breastfeeding practices among urban and rural mother.

Conclusions

We concluded from this study the following points:

1. Prevalence of EBF among mothers who ever breastfed was 14.5%.
2. There was no relation between SES and the practice of EBF.
3. Mothers with positive attitude towards BF are more likely to practice EBF.
4. Attitude of mothers towards BF in public is an important factor affecting EBF.
5. There was an association between knowledge score and EBF but failed shortly to be statistically significant association. Mothers with good knowledge about BF might be more likely to practice EBF.
6. The advice of Medical staff greatly influence mothers attitude and knowledge towards EBF more than any family advice.

References

- Abuqamar, M., Coomans, D., & Louckx, F. (2012). Health behaviour and health awareness in infant mortality in the Gaza Strip. *European Journal of Public Health*, 22(4), 539–544. <https://doi.org/10.1093/eurpub/ckr105>
- Agrasada, G. V., Ewald, U., Kylberg, E., & Gustafsson, J. (2011). Exclusive breastfeeding of low birth weight infants for the first six months: Infant morbidity and maternal and infant anthropometry. *Asia Pacific Journal of Clinical Nutrition*, 20(1), 62–68. <https://doi.org/10.6133/apjcn.2011.20.1.10>
- Alemayehu, T., Haidar, J., & Habte, D. (2009). Determinants of exclusive breastfeeding practices in Ethiopia. *Ethiopian Journal of Health Development*, 23(1).
- Al Hilfy, T. K. Y., & Essa, A. (2007). Mothers knowledge and attitude regarding childhood survival. *Middle East Journal of family medicine*, 5(1), 9-26.
- Almroth, S., Mohale, M., & Latham, M. C. (2000). Unnecessary water supplementation for babies: grandmothers blame clinics. *Acta Paediatrica*, 89(12), 1408-1413.
- Amin, T., Hablas, H., & Al Qader, A. A. (2011). Determinants of initiation and exclusivity of breastfeeding in al Hassa, Saudi Arabia. *Breastfeeding Medicine*, 6(2), 59–68. <https://doi.org/10.1089/bfm.2010.0018>
- Arts, M., Geelhoed, D., De Schacht, C., Prosser, W., Alons, C., & Pedro, A. (2011). Knowledge, beliefs, and practices regarding exclusive breastfeeding of infants younger than 6 months in Mozambique: A qualitative study. *Journal of Human Lactation*, 27(1), 25–32. <https://doi.org/10.1177/0890334410390039>
- Bartick, M., & Reinhold, A. (2010). The burden of suboptimal breastfeeding in the United States: A pediatric cost analysis. *Pediatrics*, 125(5). <https://doi.org/10.1542/peds.2009-1616>
- Cai, X., Wardlaw, T., & Brown, D. W. (2012). Global trends in exclusive breastfeeding. *International Breastfeeding Journal*, 7, 2–6. <https://doi.org/10.1186/1746-4358-7-12>
- Duijts, L., Jaddoe, V. W. V., Hofman, A., & Moll, H. A. (2010). Prolonged and exclusive breastfeeding reduces the risk of infectious diseases in infancy. *Pediatrics*, 126(1). <https://doi.org/10.1542/peds.2008-3256>
- Ebrahim, B., Al-Enezi, H., Al-Turki, M., Al-Turki, A., Al-Rabah, F., Hammoud, M. S., & Al-Taiar, A. (2011). Knowledge, misconceptions, and future intentions towards breastfeeding among female university students in Kuwait. *Journal of Human Lactation*, 27(4), 358–366. <https://doi.org/10.1177/0890334411411163>
- Gartner, L. M., Morton, J., Lawrence, R. A., & American Academy of Pediatrics. (2005). Section on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics*, 115(2), 496-506.
- Gijsbers, B., Mesters, I., Knottnerus, J. A., & Van Schayck, C. P. (2008). Factors associated with the duration of exclusive breast-feeding in asthmatic families. *Health Education Research*, 23(1), 158–169. <https://doi.org/10.1093/her/cym013>
- Hamade, H., Chaaya, M., Saliba, M., Chaaban, R., & Osman, H. (2013). Determinants of exclusive breastfeeding in an urban population of primiparas in Lebanon: A cross-sectional study. *BMC Public Health*, 13(1). <https://doi.org/10.1186/1471-2458-13-702>
- Horton, S., Sanghvi, T., Phillips, M., Fiedler, J., Perez-Escamilla, R., Lutter, C., Rivera, A., & Segall-Correa, A. M. (1996). Breastfeeding promotion and priority setting in health. *Health Policy and Planning*, 11(2), 156–168. <https://doi.org/10.1093/heapol/11.2.156>
- Hout M, Smith T W, Marsden P V (2010) Percentage and Socioeconomic Scores for the 2010 Census codes, GSS Methodological Report No.124:1-18
- Kramer, M., & Kakuma, R. (2002). The optimum duration of exclusive breastfeeding; a systematic review. [Online] Last accessed 2 nd March 2007 at: http://www.who.int/child-adolescenthealth/New_Publications/NUTRITION.WHO_CAH_01_23.Pdf
- Kuzma, J., Paofa, D., Kaugla, N., Catherina, T., Samiak, S., & Kumei, E. (2013). Food taboos and traditional customs among pregnant women in Papua New Guinea: Missed opportunity for education in antenatal clinics. 19(November), 1. <http://search.informit.com.au/documentSummary;dn=846982897061954;res=IELIND>
- Lawrence, R. A., & Lawrence, R. M. (2011). *Breastfeeding: a guide for the medical profession*. Elsevier Health Sciences.
- Maluccio, J. A., Murphy, A., & Yount, K. M. (2005). Research note :a socioeconomic index for the INCAP Longitudinal study 1969-77. *Food and Nutrition Bulletin*, 26 (2_suppl 1), S120-S124
- Martens, P. J. (2012). What do Kramer's Baby-Friendly Hospital Initiative PROBIT studies tell us? A review of a decade of research. *Journal of Human Lactation*, 28(3), 335-342.
- Matias, S. L., Nommsen-Rivers, L. A., & Dewey, K. G. (2012). Determinants of exclusive breastfeeding in a cohort of primiparous periurban peruvian mothers. *Journal of Human Lactation*, 28(1), 45–54. <https://doi.org/10.1177/0890334411422703>
- Mgongo, M., Moshia, M. V., Uriyo, J. G., Msuya, S. E., & Stray-Pedersen, B. (2013). Prevalence and predictors of exclusive breastfeeding among women in Kilimanjaro region, Northern Tanzania: A population based cross-sectional study. *International Breastfeeding Journal*, 8(1), 1–8. <https://doi.org/10.1186/1746-4358-8-12>

- Mulford, C. (2008). Is breastfeeding really invisible, or did the health care system just choose not to notice it? *International Breastfeeding Journal*, 3, 2–4. <https://doi.org/10.1186/1746-4358-3-13>
- Nakamori, M., Ninh, N. X., Khan, N. C., Huong, C. T., Tuan, N. A., Mai, L. B., Hien, V. T. T., Nhung, B. T., Nakano, T., Yoshiike, N., Kusama, K., & Yamamoto, S. (2010). Nutritional status, feeding practice and incidence of infectious diseases among children aged 6 to 18 months in northern mountainous Vietnam. *Journal of Medical Investigation*, 57(1–2), 45–53. <https://doi.org/10.2152/jmi.57.45>
- Nguyen, P. H., Menon, P., Ruel, M., & Hajeerhoy, N. (2011). A situational review of infant and young child feeding practices and interventions in viet nam. *Asia Pacific Journal of Clinical Nutrition*, 20(3), 359–374. <https://doi.org/10.6133/apjcn.2011.20.3.02>
- Oddy, W. H., Kendall, G. E., Li, J., Jacoby, P., Robinson, M., de Klerk, N. H., Silburn, S. R., Zubrick, S. R., Landau, L. I., & Stanley, F. J. (2010). The Long-Term Effects of Breastfeeding on Child and Adolescent Mental Health: A Pregnancy Cohort Study Followed for 14 Years. *Journal of Pediatrics*, 156(4), 568–574. <https://doi.org/10.1016/j.jpeds.2009.10.020>
- Ogbe, J. O. (2008). Exclusive breast feeding and children immunization as demographic determinants of child mortality in Delta State. *Pakistan Journal of Nutrition*, 7(1), 35-39.
- Polhamus, B., Dalenius, K., Mackintosh, H., Smith, B., & Grummer- Strawn, L. (2011). Pediatric Nutrition Surveillance 2009 Report. *Nation*. http://www.cdc.gov/pednss/pdfs/PedNSS_2009.pdf
- Senbanjo, I. O., Oshikoya, K. A., Ogbera, O. A., Wright, K. O., & Anga, A. L. (2014). Breastfeeding policy and practices at the general paediatric outpatient clinic of a teaching hospital in Lagos, Nigeria. *International Breastfeeding Journal*, 9(1), 1–8. <https://doi.org/10.1186/1746-4358-9-10>
- Tawfik Amin, T., Gamal Abdulrahman, A., Al Muhaidib, N. S., & Al Hamdan, O. A. (2014). Breastfeeding attitudes and knowledge among future female physicians and teachers in Saudi Arabia. *Health Science Journal*, 8(1), 102–115.
- UNICEF. (2010). Improving Exclusive Breastfeeding Practices Communication for Development in Infant and Young Child Feeding Programmes UNICEF Web-based Orientation Series for Programme and Communication Specialists. June 2010, 41. <http://nutritioncluster.net/wp-content/uploads/sites/4/2013/12/C4D-in-EBF-manual-6-15-2010-final.pdf>
- Webb, A. L. (2013). Cohort of Rural Guatemalan Women. 25(3), 297–306. <https://doi.org/10.1177/0890334408330449>. Maternal
- World Health Organization. (2014). Global nutrition targets 2025: Policy brief series (No. WHO/NMH/NHD/14.2).
- World Health Organization.(2012). Up to what age can a baby stay well nourished by just being breastfed?
- Wojcicki, J. M., Gugig, R., Tran, C., Kathiravan, S., Holbrook, K., & Heyman, M. B. (2010). Early exclusive breastfeeding and maternal attitudes towards infant feeding in a population of new mothers in San Francisco, California. *Breastfeeding medicine*, 5(1), 9-15.
- Young, S. L., Mbuya, M. N., Chantry, C. J., Geubbels, E. P., Israel-Ballard, K., Cohan, D., & Latham, M. C. (2011). Current knowledge and future research on infant feeding in the context of HIV: basic, clinical, behavioral, and programmatic perspectives. *Advances in Nutrition*, 2(3), 225-243.