Evaluation of Lactation Management Education Program among Nursing Mothers Attending a Primary Health Care Unit in Suez Governorate, Egypt.

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Abstract

Mothers' poor knowledge and negative attitude towards breastfeeding influence practices and constitute barriers to successful breast feeding. **Objectives:** To implement a breastfeeding education intervention in a primary health care unit, and to assess the effect of the intervention on knowledge, attitude and practice of nursing mothers. **Methods:** A health education intervention study was carried out on nursing mothers recruited from attendees of compulsory immunization sessions in one of health care centers of Suez governorate. Sample size estimated to be 250, selected by systematic random sample. Completing a structured interview questionnaire was done to assess mothers` knowledge and attitude while practice was assessed using a breastfeeding observational checklist. **Results**: Study was performed on 211 mother-infant pairs. 21.8% of the mothers were exclusively breast feeding. 82% of study participants had previous breastfeeding experience. There was a significant improvement in mothers` knowledge about advantages of breastfeeding. (mean score: post 13.8 ±0.9 vs pre.9.5 ±2.8 $p<0.001$). There was significant improvement of post-intervention mothers' attitude ($p<0.001$). A significant improvement in mothers` breastfeeding practice (post 5.6 ± 0.8, vs pre-mean ± SD 3.9 ± 1.71 $p=0.001$). According to the mothers` wrong believes and barriers to exclusive breastfeeding, the majority (>80%) of them reported pain as a major barrier, followed by fear of distorted breast shape, poor prenatal and postpartum support, and insufficient milk production. **Conclusion:** Breastfeeding intervention was efficient to achieve improvement in mothers' knowledge, attitudes, and practice among attendants of the primary health care unit in Suez governorate.

Keywords: *Breastfeeding, Knowledge, Attitudes, practices, nursing Mothers, lactation management.*

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Introduction

Protection, promotion, and support of breastfeeding are critical public health needs.[1] The Lactation Management Education (LME) is the promotion of breastfeeding as a key contributor to optimal infant, maternal nutrition and health.[2] The WHO recommends that for the first six months of life, infants should be exclusively breastfed to achieve optimal growth, development, and health.[3] In Egypt, the prevalence of exclusive breastfeeding in first 6 month of life was 39.7 %, furthermore, exclusive breastfeeding isn't universal in very early infancy, among infants under two months of age, 71% was receiving only breast milk. However, the proportion exclusively breastfed drops

off rapidly among older infants. By age 4-5 months, only around 1 in 8 children were being exclusively breastfed.[4] Frequently reported problems with breastfeeding include; sore nipples, engorged breasts, mastitis, leaking milk, pain, and failure to latch on by the infant.[5] Furthermore, there is another reason due to lack of knowledge about the benefit of breastfeeding, and misconceptions like breastfeeding is insufficient, returned to the work.[6] Difficulties related to mother as HIV infection sever illness of mother, epilepsy, breast abscess, hepatitis B.[7] Women were struggling with the initiation and continuation of breastfeeding. The main reasons reported for stopping were: perceived insufficiency of milk supply 40 %, the baby no longer wanting to nurse 24 %, painfulness 15 %, time needed to breastfeed 14 % or to pump 7 %, need to go back to work 10 % and feeling awkward breastfeeding outside the home 9 %.[8] Family physicians are in an ideal position to promote and support breastfeeding. They are ideal leaders of primary health care systems and partners for public health.[9]

Objectives: (1) To develop and implement a breastfeeding education intervention in a primary health care unit. (2) To assess the effect of health education intervention on improving knowledge, attitude and practice of nursing mothers.

Methods

This study is a health education intervention study, carried out in El-Haweese primary health care unit in Suez governorate, from October to December, 2015. Study participants were nursing mothers with their infant who attended compulsory vaccination session with their infant. *Sampling*: systematic random sample was drawn from the compulsory vaccination session list which was taken before-hand to draw the third number in the list, and the follow was taken if the selected one is absent or don't accept to be enrolled in the study. *Sample Size:* based on the assumption that the baseline rate of mothers with correct knowledge is 50% and the expected rate after intervention will be 65%. The calculated sample size was 211 with an α error = 0.05 and β error = 0.2, and 20% for response rate to be 253 rounded to 250.

Inclusion criteria: nursing mothers and their Infants aged below6 months, full term babies born between 37 and 42 gestation weeks, and their babies without major birth defects such as congenital heart disease, cleft lip/cleft palate.

Exclusion criteria: Infant of low birth weight Infants with IEM (inborn error metabolism) who did not receive breast milk and any other milk except special formula and the mothers with maternal conditions that may justify permanent or temporary avoidance of breast feeding.

Study tools: An interview semi-structured questionnaire to assess knowledge, attitude of mothers . The questionnaire included; 1-Socio-demographic Data (age, education, marital status, income, employment status, maternal history). 2-Mothers` Knowledge about Breast Feeding were developed and revised by expertise in nutrition and pediatrics based on the WHO and UNICEF breastfeeding recommendations for optimal infant feeding.[10] 3-The Iowa Infant Feeding Attitudes Scale (IIFAS) was used to assess mothers' attitudes toward breastfeeding.[11] 4-Assessment of mother's practice of breastfeeding, include the type, time, pattern and duration of breastfeeding. Assessment of breastfeeding technique through observational breastfeeding check list which covered the most usual

breastfeeding techniques of postures, positioning, hold practice and latch-on.[13]

Study design: The study was performed on three steps, initial assessment of knowledge, attitude and practice using the interview questionnaire. Educational Intervention was applied. The strategies used for breastfeeding promotion include visual aids, individual counselling (through direct consultation, telephone support, and group educational sessions (either an individualized counseling or group teaching). Each mother in the selected sample was invited to attend at least two to educational breastfeeding sessions, held twice weekly of one hour duration each. The sessions discussed breastfeeding practice issues and mother's enquiries. Given an educational material as colored pamphlet. A post-test was carried out to assess knowledge, attitude and practice using the same pretest questionnaire and practice checklist to test the effectiveness of the intervention.

Ethical consideration: The protocol was approved from the ethical committee of scientific research at the faculty of medicine Ain Shams University. Written informed consent was taken from each subject and assurance of confidentiality and privacy was assured.

Data analysis: Data was revised for completeness and consistency. Data entry and analysis were done with SPSS program (statistical package for social science) for windows version 20.

Results

This study was done on 211 mother-infant pairs. (55%) of Mothers were in the age group 25–35ys. income was (≥2000) in 69 (32.7%) of the participants. The majority 171 (81%) of them were currently married and were from urban residence 117 (55.5%). almost three fourth of the participants were house wife 149 (70.6%). Nearly half of the participants were institutional educated (47.9%) (Table 1). The majority 173(82%) of the respondents reported to have previous Breastfeeding experience and their Previous BF duration was equal or more than six months 113 (65.3%). and the relatives were the main source of knowledge 126 (59.7%).

Regarding assessment of mothers' knowledge towards breastfeeding, the total knowledge score significantly increased in post-intervention compered to pre-intervention score (13.8 ±.9 post vs 9.5±2.79 pre, M±SD, p<0.001), and all for each item (Table 2).

As regards Mothers' attitude towards breastfeeding on IIFA Scale, there is a significant improvement of mother attitude post -intervention compered to pre -intervention in overall (p<0.001) and for each item. Their attitude towards formula feeding (91.9% post vs 50.3% pre, p<0.001), affection of child mother bond (92.9% post vs59.7pre, p<0.001) and "BF improve bonding"((82% post vs 53.6% pre, p<0.001). (Table 4)

According to the mothers` wrong believes and barriers to exclusive breastfeeding, the majority (>80%) of them report pain was a major barrier. Followed by Fear of distorted breast shape, Poor prenatal and postpartum support, and Insufficient milk production (Figure 1).

On examining breastfeeding practices among mothers, at the initial assessment, most of mothers (67%) were ever breastfeeding. Exclusive breastfeeding was reported only by 21.8% of mothers in compered then 73.9% became breastfeeding only in post intervention p< 0.001. The majority of participant were Pacifier user (39.8%postvs71.6%pre, p<0.001). Post the intervention there is significant improvement in practice (p value < 0.001) (Figure 2).

Assessment of correct breastfeeding technique, initially most of mothers (76.3%), mother's breast (79.6%), and

Table (1): Socio demographic Variables of the participants nursing mothers

Socio-Demographic data(N=211)	N (%)
Mother age (years)	
18- < 25	60 (28.4)
25- <35	116 (55.0)
≥ 35	35 (16.6)
Current marital status	
Married	171 (81.0)
Divorced	34 (16.1)
Widow	6 (2.8)
Residence	
Rural	94 (44.5)
Urban	117 (55.5)
Average monthly income	
< 500	5 (2.4)
500- < 1000	47 (22.3)
1000- < 2000	90 (42.7)
≥2000	69 (32.7)
Job	
House wife	149 (70.6)
Working for cash	62 (29.4)
Mother education	
Illiterate	6 (2.8)
Read & write	16 (7.6)
Primary	13 (6.2)
Preparatory	13 (6.2)
Secondary	62 (29.4)
University or higher	101 (47,9)

Table (2): Assessment of mothers 'knowledge about breastfeeding

Breastfeeding advantages	Number of right answers N= 211 mothers		P value
	Pre-Intervention N (%)	Post-Intervention N (%)	
BF is the best	208 (98.6)	209 (99.1)	1.000
EBF is the best	114 (54.0)	196 (92.9)	< 0.001
BF gives protection (prevent diarrhea, etc.)	169 (80.1)	206 (97.6)	< 0.001
protect from obesity	131 (62.1)	209 (99.1)	< 0.001
BF babies rarely has constipation	117 (55.5)	207 (98.1)	< 0.001
BM is more easily digested	137 (64.9)	210 (99.5)	< 0.001
EBF faster milestone development	120 (56.9)	209 (99.1)	< 0.001
BF baby will be more intelligent	115 (54.5)	199 (94.3)	< 0.001
Improve mother baby bond	161 (76.3)	210 (99.5)	< 0.001
BF prevents breast cancer	155 (73.5)	207 (98.1)	< 0.001
Prevent osteoporosis in mother	121 (57.3)	203 (96.2)	< 0.001
Control postpartum bleeding	113 (53.6)	201 (95.3)	< 0.001
BF is cheaper	152 (72.0)	208 (98.6)	< 0.001
Save money	153 (72.5)	211 (100)	< 0.001
Save time	128 (60.7)	211 (100)	< 0.001
Total knowledge score (15): mean ± SD	9.5450 ±2.79312	13.7820 ±0.91018	< 0.001

BF; breastfeeding EBF; exclusive breastfeeding

Table (3): Assessment of Breastfeeding practice by Observation: Correct Breastfeeding Technique

Assessment Items	Pre No (%)	Post No (%)	P value*
General look			
• ***Mother:*** healthy, relaxed, with baby eye contact (bonding)	161 (76.3)	197(93.4)	< 0.001
• ***Baby:*** healthy, relaxed, reaches or roots for breast	137 (64.9)	189(89.6)	< 0.001
• ***Breasts:*** healthy, no pain, well supported with fingers	168 (79.6)	201(95.3)	< 0.001
baby's Position a	124 (58.8)	200(94.8)	< 0.001
Baby's Attachment b	117 (55.5)	204(96.7)	< 0.001
Suckling c	107 (50.7)	201(95.3)	< 0.001
Checklist score: mean ± SD	3.9 ± 1.71	5.6 ± 0.83	< 0.001**

[a] **Correct Baby's Position:** Head and body in line Held close to mother's body Whole body supported Approaches breast; nose to nipple

[b] **Correct Baby's Attachment:** More areola seen above upper lip Mouth open wide Lower lip turned outwards. Chin touches breast

[c] **Suckling:** Slow, deep sucks with pauses Cheeks round when suckling

** Wilcoxon Signed Rank test was used

* McNemar test was used

Table (4): Mothers' attitude towards breastfeeding on IIFA Scale

Attitudes towards breastfeeding	Pre-intervention			Post-intervention			P value
	Agree	Neutral	Disagree	Agree	Neutral	Disagree	
The benefits of breast milk last only as long as the baby is breastfed*	48 (12.8)	18 (8.5)	145 (68.7)	5 (2.4)	3 (1.4)	203 (96.2)	< 0.001
Formula feeding is more convenient *	58 (27.7)	47 (22.3)	106 (50.3)	14 (6.7)	6 (2.8)	191 (91.9)	< .001
BF improve bonding	113 (53.6)	50 (23.7)	48 (22.8)	173 (82)	24 (11.4)	14 (6.6)	< .001
Formula fed more likely to overfeeding	111 (52.6)	52 (24.6)	48 (22.8)	163 (77.2)	19 (9)	29 (13.8)	< .001
Formula feeding is best choice when return to work *	111 (52.6)	54 (25.6)	46 (21.8)	77 (36.4)	29 (13.7)	105 (49.7)	< .001
Formula feed miss joys of motherhood	126 (59.7)	40 (19)	45 (21.3)	196 (92.9)	5 (2.4)	10 (4.7)	< .001
Not breastfeed in public places*	104 (49.2)	32 (15.2)	75 (35.6)	71 (33.7)	27 (12.8)	113 (53.5)	< .001
Breastfed babies are healthier	109 (51.7)	32 (15.2)	70 (33.2)	194 (92)	7 (3.3)	10 (4.7)	< .001
BF babies are more likely to overfeeding*	96 (45.5)	46 (21.8)	69 (32.7)	114 (54)	3 (1.4)	94 (44.5)	.064
Husbands feel left out if a mother breastfeeds*	108 (51.2)	41 (19.4)	62 (29.4)	104 (49.3)	10 (4.7)	97 (46)	.002
BM is the ideal food	122 (57.9)	43 (20.4)	46 (21.8)	203 (96.2)	2 (0.9)	6 (2.8)	< .001
BM is more easily digested	112 (53.1)	41 (19.4)	58 (27.4)	192 (91)	3 (1.4)	16 (7.5)	< .001
Formula is as healthy as breast milk *	97 (46)	41 (19.4)	73 (34.6)	93 (44.1)	9 (4.3)	109 (51.7)	< .001
Breast milk is more convenient	110 (52.1)	41 (19.4)	60 (42.6)	192 (91)	5 (2.4)	14 (6.6)	< .001
Breast milk is cheaper	106 (50.2)	42 (19.9)	63 (29.8)	202 (95.8)	0 (0.0)	9 (4.2)	< .001
A mother who occasionally drinks shouldn´t breastfeed*	79 (37.4)	71 (33.6)	61 (28.9)	9 (4.2)	9 (4.3)	193 (91.4)	< .001
BM is lacking in iron*	194 (92)	7 (3.3)	10 (4.7)	65 (30.8)	77 (36.5)	69 (32.7)	< .001

Reverse scored item **Significance (S): p<0,05**
Non Significance (N.S): p>0,05
BM: breast milk

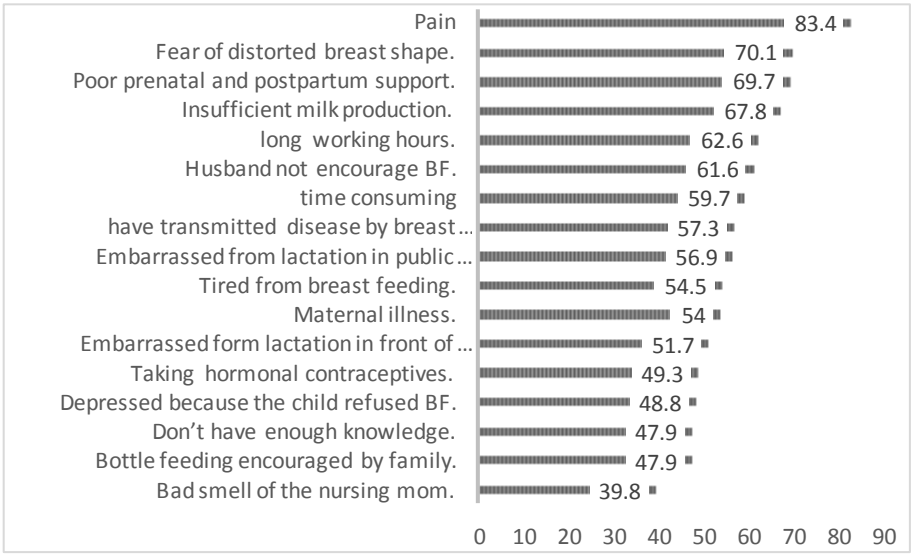

Figure (1): Mothers` wrong believes and barriers toward exclusive breastfeeding.

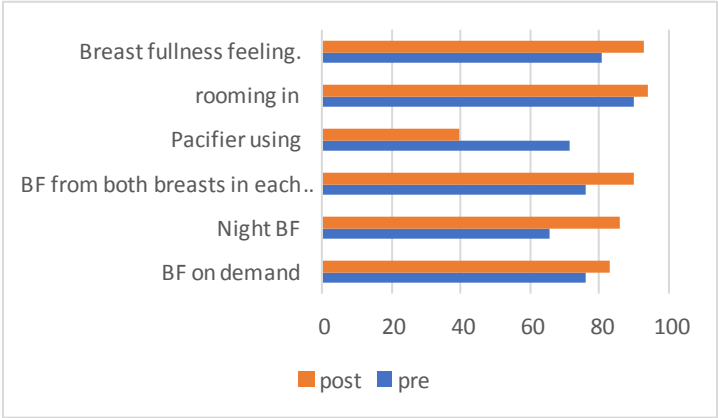

Figure (2) Recall of breastfeeding practices among nursing mothers pre-and post-intervention

babies (64.9%) had good general look. And more than half percent of babies had good body positions (post 94.8%vs58.8% pre, p<0.001), correct technique of baby's chin touching the breast during breastfeeding and lower lip turned outward was found in (96.7% post vs55.5% pre, p<0.001) and baby's suckling (95.3 post vs50.7% pre, p<0.001). After the intervention, there was increasing in mean of total score (mean ± SD= 5.6 ± 0.83post vs3.9 ± 1.71pre, p=0.001) (Table- 3).

Discussion

Breastfeeding contributes not only to achieving many of the SDGs, it is also a critical component of the Global Strategy for Women's, Children's and Adolescents' Health.[12] In this study, less than quarter of the mothers were exclusively BF with in the first 6 months of their infants age (21.8%) in pre-intervention phase. The overall mother's knowledge was (9.5 ±2.8) of total score fifteen. This result was nearly similar to that found in previous studies in Egypt, India, Nepal and Bangladesh (13-15). Most of mothers in this study98.6% knew that breastfeeding is the best

nutritional source for baby. Breast milk promoted bonding between mothers their child (76.3%) and protects child from diseases (80.1%). After the health education intervention, there was a significant improvement in mothers` knowledge towards BF ($p<0.001$). Nearly half of mothers only agree with the beneficial of BF on child (developmental milestone) (54.5%) and mother health -protecting osteoporosis (57. 3%). The majority (94.8) of participants in current study didn't receive any breastfeeding education before. And this may be the cause of their lower knowledge scores. and raise the need for breastfeeding health education provided at PHC centers.

In the current study, the sources of mothers' information regarding breastfeeding, the main source was from family members (59.7%). It was even higher (96.0%) in Sinai governorate-Egypt[14] and Iranians mothers (54%).[19] These results are also in Benghazi, Libya where the majority of respondents reported having information from their mother- in-law, a relative, or a neighbor.[20] Health care providers in this study were the second source of information (34.6%). On the other hand, a study involving women in Lebanon showed that the vast majority of mothers reported that physicians were the most influential in their knowledge about the breastfeeding (42.8%).[21]

Positive maternal attitudes towards infant feeding are reported to be an important component in child nutritional health.[22] In the Middle Eastern countries, which is mainly In the Islamic culture very supportive to BF. The Qur'an therefore promotes breastfeeding: 'Mothers shall give suck to their children for two full years for those who desire to complete the term'.[Qur'an, 2:233] We carried the present study among middle social class, majority were Muslims. Using IIFAS for measuring attitude, the result revealed that, mothers had neutral attitude (53.5±4.9) similar to other study results in Egypt and different parts of the world[14,23,24] and they wrongly believe that formula is as healthy for infants as breast milk 46%. These results are consistent with Abdulsalam (43.9%), Darby-Carlberg (36%) [(25).] Further, around Fifty percent of the included mothers agreed or strongly agreed that formula- feeding is the better choice for a working mother**.** And there was weak response 24% lacking husband support and even after the intervention which indicate room for future improvement through involve husband in the training process. 27.7 % of nursing mothers in this study had a positive attitude towards formula feeding "Formula feeding is more convenient", this could be due to lack of their knowledge about the advantages of breastfeeding. After the intervention, there is significant improvement of mother attitude ($p<0.001$). Their attitude towards formula feeding become more negative (91.9% post vs 50.3% pre, $p<0.001$), affection of child mother bond (92.9% post vs 59.7pre, $p<0.001$).

Mother's believes regarding possible barriers toward exclusive breastfeeding, (83.4%) of mothers perceived that exclusive breastfeeding Inducing breast pain to mother and insufficient breast milk production (67.8%). unsuitable for working mothers 62.6%, distorted breasts shape70% and it needs more effort and time 60%, embarrassed from lactation in public place 56%. Others assessed barriers to EBF as, A. Latifa et al.[26], who reported 28% and 15% from Saudi and Egyptian mothers' dissatisfaction with EBF. Their misconceptions included, inadequate breastmilk, and that BM is not applicable outdoor, neither suitable for working or busy mothers, and not proper for mothers with breast problems, in addition it needs more time and effort. This finding agree with by McCann et al.[31] who reported concerns among WIC

participants in US about insufficient milk supply, painful breasts during feeding, sexuality issues, maternal smoking, contraception, negative self-image, and embarrassment from public breastfeeding as reasons for early cessation. Other Published reports as well indicate that, insufficient milk supply was the most common reason cited by the women for weaning.[32, 31]

Breastfeeding is one of the oldest practices, recommended in Holy Quran, Biblical records and the ancient Hindu scriptures.[34] Current study EBF is lower than EDHS 2014 report 39.7%[4], and in an Egyptian survey 39.9%,[14] and in previous international studies in Jordan 36%,[30] in Emirate 25%,[31] in Ethiopia 55.6% **(32).** On the other hand, this result is better than what has been reported by previous studies conducted in Egypt in a rural area whereas only 9.7% (103 of 1,059) were exclusively breastfeeding their infants[33] in Kuwait 10.5%,[34] in India (7.8% and 16.5%) **(35,36).**

In our study, 76.3% of the mothers fed their infants on demand. This finding agree with Abul-Fadl[37] which reported feeding on demands of 78.9% in Lower Egypt and 76.3% in Upper Egypt. Rooming-in was practiced by 90.0%of mothers, which is much higher than that reported in Egypt about (65%) mothers were practicing night feeds, while 23% of mothers practiced feeding one side at a time.[38]

Unfortunately, in current study, mothers use of Pacifier for their babies was 71.6%, This is higher than an Egyptian study which found that 43.2% of women from lower Egypt and 39.4% from upper Egypt have given their children pacifiers.[37] Also, supported with different studies which reported that the use of pacifiers is deeply rooted in Egyptian culture. The association between pacifier use and shorter duration of breastfeeding and exclusive breastfeeding is proved. Children using pacifiers were 1.9 times more likely to have stopped breastfeeding by the 6th month compared to non-users.[39] Post the intervention there is a change of this ad practice (p value < 0.001).

Pre-and post-intervention practice, assessed score were, only 55% of the mothers were practicing correct breastfeeding attachment and positioning technique.

Nearly all women can breastfeed if they are supported to be confident and aware of good techniques and promotion of practices avoid the early introduction of complementary foods for sociocultural reasons.[40] A study conducted in Uganda found that health education to support BF was both feasible, accepted and inexpensive intervention.[41]

Our study showed that education and motivation to breastfeeding was a predictor of change in knowledge, attitude and practice.

Limitations

The present study has certain limitations such as intervention in nature. Small sample size that made difficult to generalize the findings. Further large-scale community surveys are recommended in this area for drawing conclusions. Mothers more likely to be involved/ consent would be living near the center, and have a higher education level.

Conclusions

Breastfeeding promotion interventions improved mothers' knowledge and attitudes toward breast feeding. And the level of practice significant increased among nursing mothers.

Recommendations

It is important to provide accurate prenatal and post education that focuses on methods and long-term benefits of infant feeding to mothers, family and health professionals.

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