

Positive Role of Counseling about Exclusive, Prolonged Breastfeeding to Delay Pregnancy

¹ Nadia H. Ahmed, ²Nadia A. Mohamed and Neama M. El-Magrabi³

¹Obstetrics &Gynecological Health Nursing, Faculty of Nursing ,Assiut University

²Obstetrics &Gynecological Health Nursing, Faculty of Nursing, South Valley University

³Community Health Nursing, Faculty of Nursing, Assiut University

drnadia37@yahoo.com

Abstract: Increase in population awareness of exclusive and prolonged breast-feeding would be of considerable potential public health benefit in Egypt. Lactation amenorrhea method is a reliable form of contraception for up to six months following childbirth. Provided that the mother's periods have not returned and she is exclusively breast-feeding with sufficient feeds and no dummy or bottle use. The aims of this study was to assess knowledge of mothers' about exclusive and prolonged breast-feeding as a method of delaying pregnancy and, planning, implementing and evaluating a counseling intervention on promoting this method. A Quiz experimental design was used in carrying out this study using pre- posttest. The study was conducted at the Rural Health Unite and at El-Moteaa village which was randomly selected. The sample was 200 mothers attended the study setting for delivery. One hundred mothers were randomly assigned to intervention group and 100 for the control group. All mothers in the two groups reported intention to breast feed their babies. Intention to exclusively breast feeding was reported by 74% of the intervention group compared to 41 of the control group. Over all there was statistical significance improvement in mothers' knowledge at the post intervention regarding method of exclusive and prolonged breast feeding and its effect on delaying pregnancy. Also, pregnancy occurs in 9 women at the intervention group compared to 30 of the control group. The intervention was effective in correcting mothers' knowledge about exclusive and prolonged breast feeding and was significantly effective in delaying pregnancy among the intervention group. It was recommended that educational and counseling session about exclusive breast feeding should be provided by nurses about positive role in delaying pregnancy in the six months postpartum.

[Nadia H. Ahmed, Nadia A. Mohamed and Neama M. El-Magrabi **Positive Role of Counseling about Exclusive, Prolonged Breastfeeding to Delay Pregnancy.** *J Am Sci* 2013;9(3):139-147].(ISSN: 1545-1003). <http://www.jofamericanscience.org> 19

Keywords: Lactation amenorrhea, Exclusive breastfeeding; delaying pregnancy, contraception.

1. Introduction

Breastfeeding is associated with many maternal and child health benefits including delay in fertility return postpartum (**Labbok, 2001 and Horta et al., 2008**). Today, breastfeeding is being rediscovered and has become the normative initial infant feeding behavior. However, the optimal patterns of breastfeeding that are also associated with fertility reduction are not yet the norm in many industrialized settings (**Ip et al., 2008**).

Optimal breastfeeding for child health is defined by the World Health Organization (**WHO, 2001**) as six months exclusive breastfeeding followed by continued breastfeeding with age-appropriate complementary feeding for up to two years or longer (**WHO/UNICEF, 2003**). The Healthy People 2010 goals for the United States include at least 75% initiation of breast feeding, with 50% continuation to six months and 25% to one year, and exclusive breastfeeding among 40% for three months and 17 % for six months **Center of Disease and Control (2008)**. Breast feeding can help baby to ward off infections, is a good source of nutrition, and decreases exposure to bacteria and other potentially

harmful organisms in water and other formulations (**El-Zanaty et al., 2000**)

The Lactation Amenorrhea Method (LAM) is a temporary method of family planning; and continues to be an effective method of pregnancy protection for some time (**Kramer & Kakuma, 2007**). Breastfeeding delays the resumption of menstruation after childbirth; lactation amenorrhea is associated with suppression of ovulation. It is still the primary factor responsible for birth spacing in sub-Saharan Africa, where the use of modern contraception is limited due to lack of access and ideological concerns in traditionally prone societies (**Labbok, 2001**). However, preventing short birth intervals is important because pregnancy is commonly occurred after early cessation of breastfeeding (**Becker et al., 2003 and Horta et al, 2008**). Meantime, early pregnancy is associated with an increased mortality risk in children (**WHO/UNICEF, 2003**).

A new study in Egypt suggested that prolonged breastfeeding would be widely acceptable among Egyptian women as a method of preventing pregnancy and spacing births especially among women who need birth spacing immediately postpartum (**Fahim et al.,**

2004). Likewise, it is simple, inexpensive, has no side effects, and decreases postpartum bleeding for women.

LAM if used properly, can prevent pregnancy, and thus help women to space births; for up to six months after delivery. After that, breastfeeding can continue for up to 18 months or more, but women must switch to another method of contraception (Fahim *et al.*, 2004). Health care providers can consider giving women advance supplies of contraceptives so that they can begin using them at six months post-partum, or sooner if their menses resume, without returning to a clinic.

However, Fahim *et al.*, (2004) conducted a study that evaluates the potential of LAM as a family planning method among breastfeeding Egyptian mothers. The results showed that breastfeeding is very common among Egyptian mothers and that many of them meet the criteria for using LAM. Yet, a large proportion of these women does not report using breastfeeding as a contraceptive and may not understand exactly how to do so. So health providers, especially at primary health care centers, rural units, and maternal and child health centers, can now educate women about the method and the multiple benefits of using it.

Health visiting and midwifery programmers that have been accredited by the UNICEF UK Baby Friendly Initiative (UNICEF, 2011) might address LAM, but this knowledge is not widespread because there is little or no mention of LAM in most education programs. The Royal College of Pediatrics and Child Health is considering including LAM in its e-learning curriculum, so this could change. International studies, including one from the World Health Organization (Royal College of Obstetricians and Gynecologists (RCOG, 2009 and UNICEF, 2010) show that LAM is more than 98 percent effective as a contraceptive if a woman meets the following criteria: She is fully or nearly fully breastfeeding, she has been amenorrhea (without menses) since childbirth, and she is no more than six months postpartum.

Appropriate midwifery and community health nursing should educate women during pregnancy and the lactation about the benefits of breast feeding as a natural method of delaying pregnancy if exclusive breastfeeding done. They need to educate mothers to maintain exclusive breast feeding for the first 6 months. Mothers likely to have difficulties with breast feeding should be identified early, and followed frequently with assistance in breast feeding.

In the immediate puerperium and during the first days after birth, practical support is one of the most important skills in breast-feeding counseling. To achieve this, knowledge is required about what new mothers know about breast feeding. Education of women to prevent early supplementary feeding of

babies, and how to support exclusive breast feeding that could improve infant health and delay pregnancy.

The exclusive Breastfeeding method as a birth control (LAM Lactational amenorrhea) refers to the natural postpartum infertility that occurs when a woman is not menstruating due to exclusive breastfeeding. Many mothers receive conflicting information on the subject of breastfeeding and fertility. Therefore this study was done to increase the awareness about the relation between exclusive breastfeeding and delaying of pregnancy. Also, the majority of Egyptian women will prefer using traditional method more than other types of family planning, which encourages the researchers to conduct this study.

Research hypothesis were: 1) Mothers who will attend the counseling intervention will have prolonged exclusive breast feeding than mothers in the control group. 2) Mothers who will attend the counseling intervention will delay their pregnancy for more than five months more than mothers in the control group.

2, Materials and Methods

Research design:

A Quiz experimental design was used in carrying out this study with pre and posttest.

Study setting:

A random selection of one village was done for conducting the study. The selected village was "El-Moteaa village". This village is one of the villages in the center of Assiut governorate in Egypt. According to the census of the year 2006, the total population in the El-Moteaa was 33,374 people, of whom there were 16017 women. The study was conducted in the Rural Health Unit (RHU) of El-Moteaa village. Also, home visit was initiated if the woman could not come to the RHU for follow up and posttest.

Sample:

Purposive samples of women who met the required criteria and agreed to participate in the study were recruited.

Inclusion criteria included:

The woman should have been: (1) considering breastfeeding her newborn; (2) planning to deliver at the RHU; (3) willing to stay in the study village for at least 3 months after delivery; (4) available to be contacted by phone or home visit; and (5) willing to participate in the study; (6) The mother had to be free of any known medical condition that would prevent her from successfully exclusively breastfeeding. Also, her newborn he/she had to be: (A) born at term (≥ 36 week's gestation); (B) with normal birth weight (≥ 2.5 kg); (C) with no neonatal medical complications requiring treatment in the neonatal intensive care unit; and (D) with Apgar scores at 1 and 5 minutes greater than or equal to 6. This criterion was important to

consider since any newborn problem will affect breast feeding.

Women who met the inclusion criteria and agreed to participate gave verbal consent (since getting a written consent is almost impossible to get from rural women). A screening was occurred during postpartum at RHU.

The total number of the study sample who met the required criteria was 200 women. They were randomly assigned to two equal groups (100 women each). The Intervention group (IG) and the control group (CG)

The IG attended the counseling sessions about exclusive breast feeding immediately before and after delivery; with continuation of the counseling sessions, when they come to the RHU according to the schedule of baby vaccination at the second and, fourth months after delivery.

The 100 women assigned to the control group (CG) received only conventional breastfeeding education prenatally from the RHU clinic staff. The CG participants were therefore treated similarly to all women who delivered their babies at the RHU.

Study tools:

An interview questionnaire was developed by the researchers after extensive literature review. It consisted of 5 parts:

1. Personal data as: the age of mothers, occupation and education level.
2. Baseline screening data at the time of recruitment, it consisted of intended breastfeeding and duration.
3. Assessment of initiation of breast feeding during fourth stage of labor.
4. Assessment of maternal knowledge about breast feeding and the relation between exclusive breast feeding and delaying pregnancy (20 questions). The answers were either correct or incorrect.
5. For the follow up, data were obtained on lactational amenorrhea status, assessed by the presence or absence of menses reported by the subject and occurrence of pregnancy.

The counseling program:

The IG group were contacted weekly during the first month and biweekly during the second and third months via telephone, or home visit, or if they come for the clinic if any problem arouse and when they come for vaccination, to collect data on infant feeding practices, breastfeeding difficulties, social support system, and onset of lactation (assessed during the first week post-partum). Information was also obtained on lactational amenorrhea status, assessed by the presence or absence of menses reported by the subject during the biweekly data collection.

Subjects and sample

Administrative approval:

The necessary official permission was obtained from the Dean of Faculty of Nursing, Assiut University

to proceed with the study. The necessary official permission was obtained from the manager of El-Moteaa rural health unit; Assiut; Egypt, to conduct the study.

Validity:

The questionnaire and the contents of the intervention were developed by the researchers based on extensive literature review. Two experts in obstetrics and gynecology and 2 experts in community health nursing reviewed the questionnaire and the intervention for content and face validity ($r = 0.89$). Their comments were reviewed and the necessary modifications were done.

Pilot study:

A pilot study was initially carried out on a group of 20 women who came to the RHU for delivery to assess the constructed tool for clarity, feasibility and applicability. The time needed to fill the questionnaire and conduct counseling was also estimated. The data obtained and the pilot subjects were not included in the study. The needed modifications of the questions were done, and the approximate time for counseling 100 women was calculated.

Ethical consideration:

A formal consent was obtained orally from women before being involved in the study. The nature and purpose of the study were explained. The researchers informed the women that there is no risk or cost for participation, and the participation is voluntary. Also, the women were assured that the confidentiality of information will be done and anonymity of each subject will be maintained.

Field work:

The study started from March 2012-till the end of October y 2012. The researchers introduced themselves to the eligible women and briefly explained the nature of the study.

The first session:

The filling of the interview questionnaire took 15-25 minutes for each participant; and counseling session took from 40-60 minutes according to the responses and needs of the woman. All of the 200 mothers were requested to return for follow –up when their baby reached the age of 2; 4 and 6 months for vaccination. The mothers who did not come back were contacted by home visit. During the last follow up visit, each woman interviewed individually (the post- test) to assess their knowledge and exclusive breast feeding practices and the delay of pregnancy.

At the first counseling session the IG discussed their intention to breast feed their babies and barriers that can hinder the process. Also, they received pre – designed picture booklet about breast feeding because the majority of the study sample were illiterates. The pictures conveys information about breast feeding “colostrum should be given to the baby, nipple should

be cleaned before and after breast feeding the baby, wash hands before breast feeding of the baby to prevent infection and diarrhea, holding breast during breast feeding, position of the baby on the breast, position of the baby to wind him, how long should mother breast feed the baby at each feed, when to breast feed the baby, how to place your baby in the cot after breast feeding, at what age, if any, introduce water, artificial milk, solids or other feeds to a breast fed baby, at what age should the baby be given breast milk and additional food together and how to that the baby gets enough milk. Also the hand- out provided specific information and instructions related to importance of exclusive and prolonged breast feeding and its role in delaying pregnancy.

The follow up sessions: discussion of the experience of exclusive breast feeding and finding solutions for any barriers such as to breast feed or not in case of infant diarrhea, also discussion of the state of amenorrhea. Refresh information was tailored according to each mother's need and attendance to scheduled vaccination of her baby, at home or by phone.

Evaluation of the counseling: To evaluate the effectiveness of the counseling program, an interview was conducted with each of the 200 mothers to discuss her experience and fill the post- test using the same questionnaire. This session took 60-90 minutes for each mother.

3. Results

Table (1) showed personal data for intervention and control groups. The table clarified that 60% of the study group & 56% of the control group were in the reproductive age 21-30 years. The majority of the sample was housewives and about half was illiterate with only 4% and 5% who had university education in the intervention and control groups respectively.

Table 2 illustrated the pre- post -test assessment of mothers' intention and time of initiation of breast feeding among intervention and control groups. The table showed that all women in both groups intended to breast feed their babies. However, intention for exclusive breast feeding increased from 26%, at the pre- test for intervention group to 74%, while it is decreased from 41% to 38% among the CG% at the post test.

Also, 71%, 74% of the IG, CG, respectively reported intention to initiate breast feeding before one hour increased to 88% of the IG who initiated breast feeding before one hour and 74% for the CG.

Table 3 displayed the pre- post- test assessment of women's correct knowledge about exclusive breast feeding in intervention & control groups. The table showed statistical significant increase in IG correct knowledge at the post test than that of the pre- test for both groups.

Table 4 illustrated the relation between personal data and intention to exclusive breast feeding in the intervention and the control groups. The table showed no statistical significance effect of personal data on exclusive breast feeding in both groups. However, 67.5%, of the CG and 56.1% of the CG between 21-30 years, and more than three quarters of house wives in both groups reported exclusive breast feeding

Figure (1): described the relation between the counseling intervention and introducing complementary food among exclusive breast feeding women in the intervention and control groups. The table showed a statistical significant decrease in introducing food to the baby among the IG who intended prolonged and exclusive breast feeding than that of the CG where $P < 0.001$.

Figure (2): illustrated the relation between the intervention and return of menstruation among exclusive breast feeding women in the intervention and control groups. The table showed a statistical significant delay of menstruation among the IG than that of the CG, where $P = < 0.04$.

Figure (3) showed distribution of occurrence of pregnancy among exclusively breast feeding mothers in the intervention and control groups after the intervention. The table showed statistical significant delay and reduction in the number of pregnancies among the IG than that of the CG.

4. Discussion

This study investigates the effectiveness of the counseling intervention on exclusive, prolonged breast feeding and the relationship between lactation amenorrhea, exclusive, prolonged breastfeeding.

It is clear from the results of this study that all women -regardless of their age, education and working condition- intended to breast fed their infants. Also, a quarter of the IG and two fifth of the CG intended to exclusively breast feed their infants. This finding is in agreement with (**Fahim et al., 2004**). Who reported that the majority of Egyptian women begin breastfeeding soon after birth; 88 percent of the infants were put to the breast within the first day after delivery, and 56 percent within the first hour.

The introduction of food for infants aged 4 to 6 months is a critical factor that decreases the duration of lactation menorrhoea. However, the findings of the current study clarified that the majority of mothers reported that they intend to add baby drinks such as sugar water and Carawia for soothing the infants as a cultural practice among Egyptian women and still considering it as exclusive breast feeding. **El- Zanaty and Way, (2000)** mentioned that although breastfeeding is initiated early for the majority of infants, prelacteal feeding is common; 47 percent of all infants receive prelacteal feeds during the first three days after birth. Infants who received prelacteal feeds

were most often given sugar or glucose water or tea and other infusions. Therefore, the counseling intervention was successful in improving the mothers' knowledge to promote exclusive breast-feeding for 6 months and to

delay the introduction of complementary feeding until 6 months postpartum, which was likely to increase the duration of lactation amenorrhea among the intervention group than those of the control group.

Table (1): Personal data for intervention and control groups.

Item	Intervention group "n=100"		Control group "n=100"		p-value
	No.	%	No.	%	
1-Age					
< 20 yrs.	10	10	8	8	P = 0.465 N.S
21-30 yrs.	60	60	56	56	
31-40 yrs.	25	25	28	28	
> 41 yrs.	5	5	8	8	
2-Work of mother:					
- Work outside home	19	19	21	21	P = 0.519 N.S
-Housewife	81	81	79	79	
3-Education:					
- Illiterate	51	51	49	49	P = 0.481 N.S
- Primary	9	9	11	11	
- Prep school	8	8	10	10	
- Secondary	28	28	25	25	
- University	4	4	5	5	

Table (2): Distribution of pre- post -test assessment of mothers' intention and time of initiation of breast feeding among intervention and control groups.

Intention to breast feed the baby	Intervention group "n=100"		Control group "n=100"	
	Pre.	Post	Pre.	Post
- Intended to breast feed the baby	100	100	100	100
- Exclusive breast feeding	26	74	41	38
- Non-exclusive breast feeding	78	26	59	62
Reported intended time of initiation of breast feeding				
- <1 hour	71	88	74	74
- 1 -2 hrs	15	8	26	26
- 2 – 24 hrs	11	4	17	17
>24 hrs	3	0	10	10

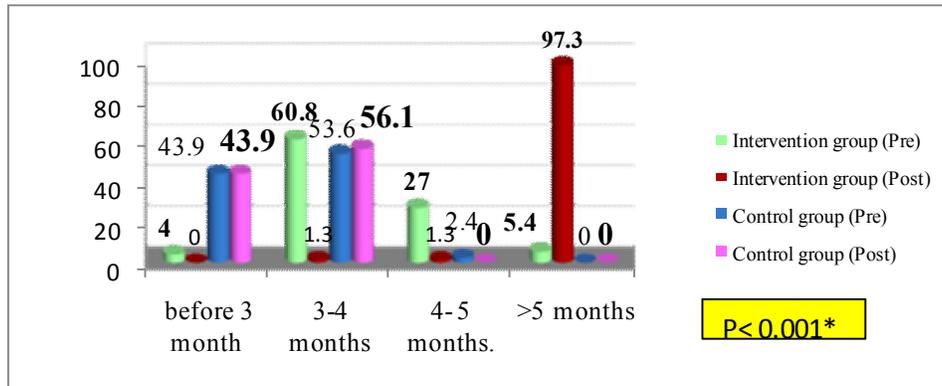
Table 3: Distribution of pre- post- test assessment of women's correct knowledge about exclusive breast feeding in intervention & control groups

Questions	Intervention group				Control group			
	Pre-test		Post test		Pre		Post	
	No.	%	No.	%	No.	%	No.	%
1. Should colostrum be given to your baby?	90	90	98	98	91	91	91	91
2. Should your nipple be cleaned before and after breast feeding your baby?	95	95	99	99	94	94	94	94
3. Should you wash your hands before breast feeding your baby?	91	91	94	94	93	93	93	93
4. How should your breast be held during breast feeding?	43	43	87	87	42	42	42	42
5. How should you position your baby on the breast?	45	45	91	91	67	67	67	67
6. How should you position your baby to wind him?	44	44	86	86	67	67	67	67
7. How long should you keep your baby at each breast?	45	45	79	79	47	47	47	47
8. How often should you breast feed your baby during the day?	51	51	99	99	55	55	55	55
9. How often should you breast feed your baby during the night?	44	44	96	96	71	71	71	71
10. Till what age should you breast feed your baby excessively?	20	20	80	80	19	19	19	19
11. At what age, if any, would you introduce water, artificial milk, solids or other feeds to a breast fed baby?	19	19	81	81	18	18	18	18
12. At what age should your baby be given breast milk and additional solid food together?	3	3	97	97	5	5	5	5
13. How do you know that your baby gets enough milk?	47	47	79	79	45	45	45	45
14. Interval between delivery and start of breast feeding	4	4	96	96	8	8	8	8
15. Do you intend to breast feed at night?	25	25	95	95	22	22	22	22
16. Do you intend to give Carawi or any other fluid at night	75	75	25	25	75	75	75	75
17. Do you know what is exclusive breast feeding	1	1	99	99	2	2	2	2
18. Number of night time breast feeding episodes in EBF	1	1	99	99	2	2	2	2

19. For how long you breast feed during night for EBF	0	0	99	99	1	1	1	1
20. Do you know that EBF delay pregnancy	6	6	94	94	5	5	5	5
P Value		P= 0.04	P= 0.01		P Value		P= 0.04	

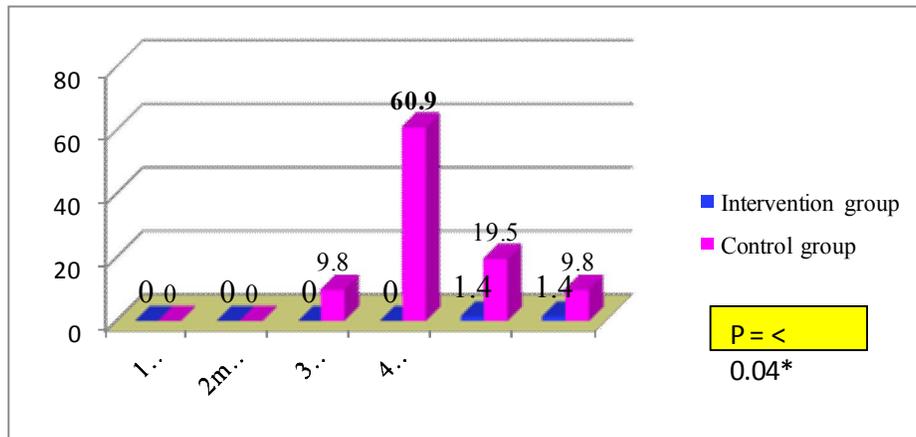
Table (4): Relation between personal data and intention to exclusive breast feeding in intervention and control group.

Item	Intervention group "n = 100"				Control group "n=100"			
	Exclusive "n=74"		Non "n= 26"		Exclusive "n=41"		Non "n=59"	
	No.	%	No.	%	No.	%	No.	%
1-Age								
< 20 yrs.	7	9.4	3	11.5	3	7.3	5	8.5
21-30 yrs.	50	67.5	10	38.5	23	56.1	33	55.9
31-40 yrs.	15	20.3	10	38.5	12	29.3	16	27.1
≥ 41 yrs.	2	2.7	3	11.5	3	7.3	5	8.5
P-value	P = 0.237 "N.S"							
3-Work of mother:								
- work outside	15	20.3	4	15.4	10	24.4	11	18.6
- House wife	59	79.73	22	84.6	31	75.6	48	81.4
P-value	P = 0.471 "N.S"							



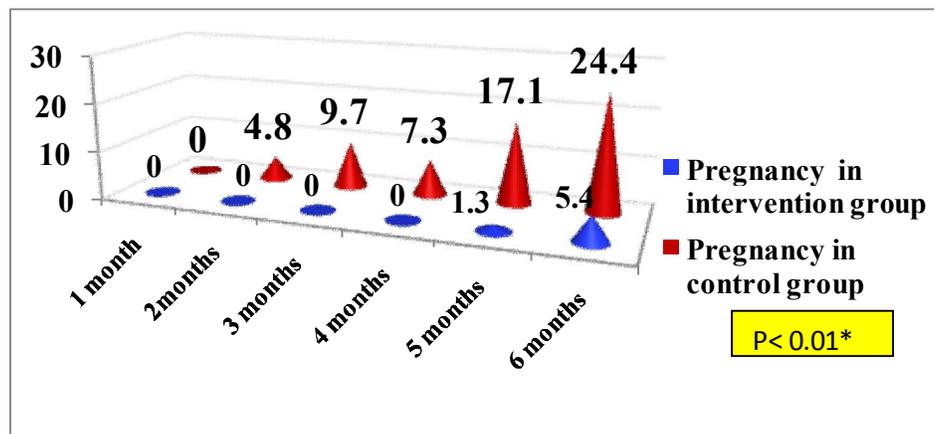
* Significance level at P = < 0.05.

Figure (1): Distribution of occurrence of pregnancy among exclusively breast feeding mothers in the intervention and control groups after the intervention



* Significance level at P = < 0.05.

Figure (2): Distribution of occurrence of pregnancy among exclusively breast feeding mothers in the intervention and control groups after the intervention



* Significance level at $P = < 0.05$.

Figure (3): Distribution of occurrence of pregnancy among exclusively breast feeding mothers in the intervention and control groups after the intervention

Also, **Gray et al., (1990)** reported that breast feeding is important for both mothers and babies and should be encouraged. Breastfeeding can also provide natural, safe, effective contraceptive protection, if certain conditions are met, for up to six month's postpartum. In addition, **Dionget al., (2000)**, reported that regardless of their education; mother employment was accompanied by increased risk of early complementary feeding than house wives. This finding is in agreement with the current study which shows that exclusive breast feeding is less among working mothers than in housewives; as mothers who work haven't sufficient time for exclusive breast feeding. Moreover, **Shaaban and Glasier (2008)** found that exclusive breast –feeding was more frequent in highly educated mothers in kingdom of Saudi Arabia.

Exclusive breastfeeding is common but not universal in very early infancy in Egypt. Among infants under two months of age, 79 percent were reported to have received only breast milk. However, the proportion of exclusively breastfed drops off rapidly among older infants. By age 4-5 months, around seven in ten babies are receiving some form of supplementation, with somewhat more than three in ten were given complementary foods (**Dewey et al., 1997**).

Regarding mothers' knowledge about exclusive breast feeding, the results showed lack in their knowledge at the pre-test which statistically improved after implementation of the counseling intervention among the IG.

The knowledge about the relationship between breast-feeding and lactation amenorrhea was investigated in the current study. The results clarified that very small percentage of women in the pre- test, in both groups, know that prolonged exclusive breast feeding lead to delay menstruation and in turn delay pregnancy. Moreover, the counseling intervention was

effective in improving IG women's knowledge with statistical significant difference. Many previous studies have shown the beneficial role of breast-feeding in birth spacing. It is the most common means of contraception in many developing countries. **Radwan et al., (2009)** is incongruent with the findings of the current study and illustrated that when using LAM, menses can be delayed, for more than 6 months.

Also, **Simondonet al., (2001)** and **Simondonet al., (2003)** emphasized that introduction of other foods and fluids may reduce breast-feeding frequency and duration, one could assume that this would increase the risk of ovulation and menses resumption during lactation. In the contrary, several studies have shown an inverse association between the timing or amount of infant supplementation and the duration of lactational amenorrhea (**Gray et al., 1990**); **Kennedy & Visness, (1992)**.

In this study, return of menstruation delayed significantly, in the intervention group than that of the control group with significance difference between the two groups ($P < .05$). This finding is harmonious with **Khalil, (1994)** in a multivariate analysis where amenorrhea and exclusively breastfeeding was positively correlated.

Then natural contraceptive effect of breast-feeding has long been recognized by **Kennedy & Visness, (1992)**. It is well known that breast-feeding is the major factor influencing the duration of postpartum infertility. In the present study, there were significance relation ($P < 0.01$) between pregnancy and exclusive breast feeding in the post –test. Pregnancy occurred more in control group (9 women in intervention group compared to 30 women in the control group) who less frequently breast feed their infant and introduce complementary food early. These findings agreed with **Tommaselli et al., (2000)** who found that the most

important parameters that reduce the risk of pregnancy during breastfeeding are the total duration of breastfeeding and frequency of breastfeeding sessions. In reality, the inhibition of ovarian activity depends mainly on the frequency and distribution of suckling sessions throughout the day and night and on the overall time the newborn spends suckling from the mother's nipples every day. It has been reported by **McNeilly (2001)** that the suckling stimulus prevents normal hypothalamic GnRH secretion and, subsequently, the generation of a normal pituitary LH surge. The mechanisms through which suckling acts upon hypothalamic GnRH secretion is not known, even though the combined action of prolactin, dopamine, opiates, and oxytocin may be hypothesized, although a single involvement of prolactin seems to be unlikely. Also, **Labbok (2001)** and **Diaz (1995)** reported that lactational amenorrhea lasts longer in women who breastfeed more frequently and on demand, for a longer period, including at night. The number of breastfeeding sessions for "complete" breastfeeding should be at least six per day. And LAM must be considered suspended if there is a lapse of 10 hours between two breastfeeding sessions, even if only once or when the intervals between breastfeeding sessions usually last more than 6 hours (**Turk et al., (2010)** and **Tommaselli et al., (2000)**). Most studies state that the introduction of supplementary foods reduces both the total breastfeeding time and the intervals between breastfeeding sessions, thus influencing the resumption of ovarian activity.

It has been claimed that the lactation amenorrhea method (LAM) is responsible for preventing more pregnancies in developing countries than all other methods of contraception combined (**Khalil, 1994**). A consensus meeting held in Bellagio, Italy, in 1988 postulated that full or nearly full breast-feeding during lactational amenorrhea confers 98% protection against pregnancy in the first 6 months after childbirth (**Kennedy and Visness, 1992**). LAM is a reliable way to avoid pregnancy. Several international studies have shown the effectiveness of LAM (**Fahim et al., 2004** and **Labbok, 2001**). The WHO conducted a multinational study to clarify the relationships between infant feeding practices, lactation amenorrhea, and pregnancy rate. Women who met the LAM criteria had cumulative pregnancy rate from 0.9% to 1.2%, which is equivalent to the protection provided by many nonpermanent contraception methods (**WHO, 1999**).

On the other hand, **Tay et al., (1996)** found no correlation between duration of amenorrhea and prolactin plasma concentrations over 24 hours; or night and day separately, throughout gestation. Also, **Labbok, (2001)** and **Diaz (1995)** reported a fundamental mistrust of breastfeeding as a form of contraception. **Jackson, (2005)** illustrated that this

might arise because LAM is a 'natural' method, which is often seen as ineffective and unscientific.

Heinig, (2001), **Van der Wijden et al., (2008)** and **Tay et al., (1996)** studied the influence of prolactin upon the resumption of fertility. They found a strong correlation between the timing of introduction of dietary supplements to the baby and the duration of amenorrhea. In the present study the researchers found that more than two thirds of mothers in the IG compared to one third of the mothers in the CG continue breast feeding after delivery, and pregnancy occurred only among 5.4 % of the IG and 24,4% of the CG with statistical significant difference ($P < 0.01$) between breast feeding and pregnancy. In fact, LAM is both effective and scientific, as it is based on an understanding of physiology of breast feeding. The WHO conducted a multinational study to clarify the relationships between infant feeding practices, lactation amenorrhea, and pregnancy rate. Women who met the LAM criteria had cumulative pregnancy rate from 0.9% to 1.2%, which is equivalent to the protection provided by many nonpermanent contraception methods (**WHO, 2001**).

Conclusion:

In conclusion, this preliminary study showed that breast feeding is in the heart of all Egyptian women, where they all reported that they intend to breast feed their infants regardless of their age, level of education and working status with increase in the house wives than that of the working mothers.

Intention to exclusively breast feed the baby was reported by almost three quarters of the Intervention group compared to less than half of the control group.

However, in the pre- intervention, mothers were lacking knowledge about the effectiveness of exclusive breast feeding as a factor in delaying pregnancy. The post –test showed significant statistical improvement in their knowledge and commitment to exclusive breast feeding.

Also, lactational amenorrhea was reported by the majority of women in the intervention group than that of the control group. Likewise, pregnancy occurred among 9 women of the intervention group compared to thirty women of the control group. These findings could explain that the counseling intervention was successful in motivating women to exclusive breast feeding as a mean for delaying pregnancy.

Recommendation:

1. More community education is needed to inform nursing mothers about the lactation amenorrhea method (LAM) and how to use it more effectively. Counseling interventions regarding exclusive, prolonged breast feeding should be included in the antenatal care.
2. Early initiation of breast-feeding and refraining from providing the infant with glucose or other fluids

after delivery since it is strongly associated with longer duration of postpartum amenorrhea

3. Spread knowledge about efficiency of exclusive and prolonged breast feeding to delay pregnancy, as a cheap and natural method with prescription of family planning method after that.
4. Train nurses to conduct health education sessions to educate mothers.

Corresponding author

Nadia Abdallah Mohamed
Obstetrics & Gynecological Nursing,
Faculty of Nursing, South Valley University
drnadia37@yahoo.com
drnadia.Ali@Nurs.SVU.edu.eg

References

1. Becker, S.; S. Rutstein and Labbok M. (2003). Estimation of births averted due to breastfeeding and increases in levels of contraception needed to substitute for breastfeeding. *J. Bio.Soc.Sci.*, 35: 559 - 574.
2. Center of Disease and Control (2008). NIS Survey, infants born in 2005 www.cdc.gov/breastfeeding/data/NIS_data/index.htm.
3. Dewey, K. A.; R. J. Cohen, L. L. Rivera, J. Canhuati and K. M. Brown (1997). Effects of age at introduction of complementary foods to breast-fed infants on duration of lactation amenorrhea in Honduran woman. *American Journal of Clinical Nutrition*, 65, 1403–1409.
4. Diaz S, Seron-Ferre M, Croxatto HB. (1995) neuroendocrine mechanisms of lactational infertility in women. *Biol. Res.* 28: 155–163.
5. Diong, S.; M. Johnson and R. Langdon (2000). Breast feeding for Chinese mothers living in Australia. *Breastfeeding Review*, 8: 17–2.
6. El-Zanaty, F. and A. Way (2000). Egypt demographic and health survey. Caverton (MD): Ministry of Health and Population (Egypt), National Population Council and ORC Macro, 20-13.
7. Fahim, H.; A. K. I. Khella, A. H. Issa, D. C. Sokal and M. A. Gadalla (2004). Lactational amenorrhea as a method of family planning in Egypt. *Contraception*, 69:317–322.
8. Gray, R. H.; O. M. Campbell, R. Apelo, S. S. Eslami, H. Zacur, R. M. Ramos, J. C. Gehret and M. H. Labbok (1990). Risk of ovulation during lactation. *Lancet*, 335:25–39.
9. Heinig, M.J. (2001). Host defense benefits of breastfeeding for the infant. Effect of breastfeeding duration and exclusivity. *Pediatr Clin North Am*, 48:105– 123.
10. Horta B; R. Bahl, J. Martines and C. Victora (2008). Evidence on the long-term effects of breastfeeding: systematic reviews and meta-analysis. www.who.int/child-adolescent-health/publications/NUTRITION/ISBN_92_4_159523_0.htm.
11. Ip S.; M. Chung and G. Raman (2008). Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries. www.ahrq.gov/clinic/tp/brfouftp.htm.
12. Jackson, K.B. (2005) Lactational amenorrhoea method as a contraceptive. *Brit Midwifery*, 13: 229-31.
13. Kennedy, K. I and C. M. Visness (1992). Contraceptive efficacy of lactation amenorrhea. *Lancet*, 25:227-30.
14. Khalil K. A, Atta H. Y, Kamel F. A, Youssef R. M. (1996). Determinants of the duration of lactation amenorrhea among mothers in Alexandria. *Eastern Mediterranean Health Journal*, 2:391–406.
15. Kramer, M.S. and R. Kakuma (2007). The optimal duration of exclusive breastfeeding: a systematic review. *Eur. J. Contracept Reprod Health Care*, 12:335-9.
16. Labbok, M. (2001). Effects of breastfeeding on the mother. *Pedclin of North America*, 48:143-5.
17. McNeilly A.S. (2001) Lactational control of reproduction. *Reproduction, Fertility and Development*, 13:7-8, 583-590.
18. Radwan, H.; A. Mussaiger and F. Hachem (2009). Breast-Feeding and Lactational Amenorrhea in the United Arab Emirates. *Journal of Pediatric Nursing*, 24:71-78.
19. RCOG. (2009). Royal College of Obstetricians and Gynecologists. Post-natal sexual and reproductive health. London:
20. Shaaban, O.M. and A.E. Glasier (2008). Pregnancy during breastfeeding in rural Egypt. *Contraception*, 77:350 - 354.
21. Simondon, K. B.; V. Delaunay, A. Diallo, E. Elguero and F. Simondon (2003). Lactational amenorrhea is associated with child age at the time of introduction of complementary feeding. *Am. J. Clin. Nutr.*, 78:154-161.
22. Simondon, K.B.; R. Costes, V. Delaunay, A. Diallo and F. Simondon (2001). Children's height, health and appetite influence mothers' weaning decisions in rural Senegal. *International J. Epidemiol*, 30:476 – 481.
23. Tay, C.C.; A.F. Glasier and A.S. McNeilly (1996). Twenty-four hour patterns of prolactin secretion during lactation and the relationship to suckling and the resumption of fertility in breast-feeding women. *Hum. Reprod*, 11: 950–955.
24. Tommaselli, G., M. Guida, S. Paloma, M. Barbato and C. Nappi (2000). Using Complete Breastfeeding Lactational Amenorrhoea as Birth Spacing Methods. *Elsevier Science Inc.*, 61:253-257.
25. Turk, R.; F. Terzioğlu and K. Eroglu (2010). The use of lactational amenorrhea as a method of family planning in eastern Turkey and influential factors. *J. Midwifery Wom Heal*, 55: 1-7.
26. UNICEF department of health (2010). Off to the best start: important information about feeding your baby. London: DH.
27. UNICEF, UK Baby Friendly Initiative annual conference (BFI) (2011). University. www.unicef.org.uk/BabyFriendly/Health-Professionals/Going-Baby-Friendly/University.
28. Van der Wijden C.; J. Kleijnen and T. Van Den Berk (2008). Lactational amenorrhea for family planning. *Cochrane Database System Review*, 4. Art. No.: CD001329.
29. WHO. (2001). Collaborative Study Team on the Role of Breastfeeding on the Prevention of Infant Mortality. *Lancet*, 355:451–5.
30. WHO/UNICEF. (2003). Global strategy for Infant and Young Child Feeding. WHO, Geneva.