

**Knowledge, Attitude and Practice of Lactational Amenorrhea as Contraception method among Women attending primary health care units in Qena city**Reham N. Nagar<sup>a\*</sup>, Ahmed M. M. Hany<sup>b</sup>, Mohamed A Mohamed<sup>c</sup><sup>a</sup>Department of Public Health and Community Medicine, Faculty of Medicine, South Valley University, Qena, Egypt.<sup>b</sup>Department of Public health and Community Medicine, , Faculty of Medicine, Assiut University, Assiut, Egypt.<sup>c</sup>Department of Obstetrics and Gynecology, Faculty of Medicine, South Valley University, Qena, Egypt.**Abstract**

**Background:** The lactational amenorrhea method (LAM) is 98% successful in preventing future pregnancy within the first six months after delivery. Correct application and adherence to LAM's three criteria have an impact on its efficiency and efficacy.

**Objectives:** Assess the knowledge about lactational amenorrhea method (LAM) of women attending primary health care in QENA city, identify attitude toward LAM and determine the proportion of women use LAM was also investigated the factors determining practice of LAM.

**Patients and methods:** This cross-sectional study on 400 breastfeeding women in reproductive ages 15:49 years was undertaken at family planning clinics of five primary health care units in Qena city to determine the prevalence of LAM usage. A structured questionnaire was utilised there.

**Results:** Prevalence of usage lactational amenorrhea method (LAM) among the women attend primary health care units in QENA city was 65.3%. The failure of LAM and occurrence pregnancy was 29.9% among women use LAM. There is a significant positive correlation between duration of breastfeeding and duration of exclusive breastfeeding and duration of amenorrhea. According to logistic regression analysis mother age, mother education, family size, socioeconomic level significant related to LAM practice. Practicing of LAM was higher in women from rural residence, not working women and educated women level with lower socioeconomic level.

**Conclusion:** According to the findings rural women are more likely to practice LAM. According to the findings, health care practitioners should encourage the mothers to breastfeed their children and provide women with good lactational amenorrhea advice.

**Keywords:** Lactational amenorrhea; Method; LAM ; Family planning ; Qena.

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## Introduction

Family planning is important for women's health and the health of their families it can help a country and achieve development goals faster. One of the Sustainable Development Goals' objectives is to ensure that everyone has access to reproductive health services, including family planning, due to the significance of this goal. (SDGs)(Starbird et al.,2016). It is estimated that roughly 40% of the 150 million pregnancies worldwide each year are unplanned, with the majority of them being unwanted(Van der Wijden et al., 2003). According to epidemiological studies, postpartum women are among the most vulnerable to unwanted pregnancies(Huang et al., 2012).

The junction of family planning and nursing provides a chance to improve both mother and child health outcomes during the postpartum period, as well as urge women to space and time their pregnancies in a healthy way ( Hakik et al.,2021) An evidence suggests that using LAM as contraception may result in better breastfeeding practices (Kouyaté et al.,2013)

The lactational Amenorrhea Method is a viable family planning strategy in low-resource communities and developing countries, such as Egypt(Pirincci et al.,2016). when the mother is educated and encouraged to use breastfeeding as a method of contraception. Many women can use this strategy because it is available and accessible. (Van der Wijden et al., 2003).

According to research, women who exclusively or almost exclusively breastfeed within the first six months after giving birth while still amenorrheic have a higher likelihood of not getting pregnant again. This shows that compared to less than one to two women who used LAM properly, 5 out of 100 women who used LAM may become pregnant inadvertently within the first six months after giving birth.(Berens and Labbok., 2015).

The present study aimed to assess the knowledge about lactational amenorrhea method (LAM) of women attending primary health care in Qena city, and identify the women attitude toward LAM.. Also, to determine the proportion of the women who use LAM and investigate factors determining knowledge, attitude and practice of LAM among the studied women.

## Patients and Methods

The knowledge, attitudes, and use of lactational amenorrhea as a form of contraception among women visiting primary healthcare facilities in QENA city were investigated in a cross-sectional study. 400 women of reproductive age completed a structured questionnaire. The participants were chosen using a simple random sample. Sample size was estimated to determine a prevalence of LAM usage and knowledge among lactating women. The following formula was used

$$n = \frac{Z^2 p(1 - p)}{d^2}$$

If n is the sample size, Z is the standard normal variant (at 5% type 1 error (P0.05), it is 1.96, P (anticipated proportion in population based on prior studies) = 10%, and d (absolute error or precision) =0.05, the degree of confidence often sought for is 95%. We increased the number of participants from the original 250 to 400.

### *Inclusion criteria*

All breastfeeding women between the ages of 15 and 49 who visited family planning clinics and gave their consent to participate in the study were included.

### *Exclusion criteria*

Not married women and those their age outside the reproductive age range (15-49 years).

### *Data collection*

Data was gathered between November 2021 and April 2022. Married women of reproductive age who were seeking primary healthcare were the target audience for the interviews. In the primary health care waiting room, interviews were done

once a week with an average of 20 carefully chosen women per day. A Korean study that examined the relationship between LAM and other factors served as the basis for the interview questions. The following survey question applied to our study: Age, education level, family size, and socioeconomic status are the main demographic factors. These factors were modified from the Fahmy and Elsherbini scale (Fahmy et al., 2015). Breastfeeding and LAM practices: usage of LAM, correct use and knowledge about LAM, failure of LAM, breastfeeding duration, duration of exclusive BF, duration of amenorrhea breastfeeding barriers. Pregnancy factors affect LAM usage: age of first pregnancy, number of pregnancies, number of miscarriage and unintended pregnancy

The questionnaire was pre-tested on 40 participants (or around 10% of the sample size) in a pilot study, and revisions were made as a result.

The current study had been approved by the ethics committee of Faculty of Medicine, SVU, Qena, Egypt. The ethical approval code: SVU-MED-COM009-1-21-10-251.

### Statistical analysis

All statistical analyses were performed using IBM SPSS (Statistical Package for the Social Science; IBM Corp., Armonk, NY, USA) release 26 for Microsoft Windows. Comparing qualitative variables that were expressed as frequencies and percentages was done using chi-square tests. Comparing quantitative measurements that were supplied as means with standard deviation was done using the student t-test (SD). Regression analysis and the correlation of different variables were performed, as stated. P value under 0.05 was regarded as significant.

### Results

A total of 400 lactating women in reproductive age (15-49) were included in the study, the mean age was 29.27±7.9 years, 52% of them were in the age group (20- <30) and 57% were from rural areas. Most of the lactating women were housewife (78.3%) and only (21.8%) were working. From the total number of studied women, 47% had attended at basic education. Prevalence of usage lactational amenorrhea method (LAM) among the women

attend primary health care units in QENA city is 65.3% (Table 1).

Among the studied women in the age group (15-49) 53.6% use LAM in the age group below 30 years old. (p- value <0.0001) which show highly statistically significant relation between maternal age and usage of LAM as shown in (Table 2 and Fig. 1).

Despite the fact that 52.5% of women who live in rural areas use LAM compared to 47.5% of women who live in urban areas (p-value=0.013), there is a strong relation between residence and LAM use. With regard to mother education, of the women who were studied, 95.5% of illiterate women, 57.5% of women with only a basic education, and 36.1% of women with a university education use LAM. (p- value < 0.0001) as shown in (Table 2).

Concerning women's occupation, 62.3% of the housewife in the studied women have used LAM, while 70.2% of the employee have used LAM and 82.5% of the skill work have used LAM. (p- value =0.031) as shown in (Table .2) preeclampsia (p- value < 0.020) as shown in (Table. 2).

Concerning family size, among the studied women, 24.6% of women with a family size, 3-4 members use LAM. 70.3% of women with a family size, 5 members use LAM. 46.3% of women with a family size of 6 members use LAM. 88.6% of women with a family size of 7 or more members use LAM. (p- value < 0.0001) as shown in (Table 2).

Concerning socioeconomic level, 28.9% of women with low socioeconomic level have used LAM while 79.1% of women with middle socioeconomic level use LAM and 90.4% of women with high socioeconomic level have used LAM. (p- value < 0.0001).

65.3% of women included in the study have used LAM, 64.3% have used correct LAM, 90.5% of lactating women know about LAM and 35.25% have failure of usage LAM and get pregnant. And 38% of studied women had breast feeding barriers. as shown in (Table 3).

The mean of duration of breast feeding is 11.12 months  $\pm$  7.33 and the mean of duration of amenorrhea is 6 months  $\pm$  4.11 and the mean of exclusive BF duration 4.63 $\pm$ 2.34. as shown in (Table 3).

Concerning correct use of LAM 84.8% of studied women use LAM use it correctly while 16.15% of women without correct use. this variable was highly statistically significant (P<0.0001) as shown in (Table 4).

Concerning knowledge about LAM as contraception, 63.3% of women use LAM know about LAM compared to 36.6% of women not use LAM know about LAM as contraception. (P=0.01) as shown in (Table 4).

As regard failure of LAM (women get pregnant) 55.3% of women have used LAM as contraception get pregnant while 70.7% of women using LAM as contraception not get pregnant. (P $\leq$ 0.002) as shown in (Table 4).

Concerning breastfeeding barriers 84.2% of women have used LAM have breastfeeding barriers while 15.8% of women not use LAM have breastfeeding barriers. (P<0.0001) as shown in (Table 4).

Mean of duration of breastfeeding in the women use LAM is 14.3  $\pm$ 6.94 while in the women not use LAM is 5.15  $\pm$ 3.05 , the mean of duration of amenorrhea in the women use LAM is 8.33  $\pm$  2.76 and in the women not use LAM is 1.61  $\pm$  2.2 and the mean of exclusive breastfeeding in women use LAM is 6.03  $\pm$  1.2 compare to 1.99  $\pm$ 1.57 in non LAM users. (P<0.0001) as shown in (Table 5).

By bivariate correlation analysis there is moderate positive correlation between duration of amenorrhea and duration of breastfeeding in lactating women (r\*=0.540, P<0.0001) and there is moderate positive correlation between duration of amenorrhea and duration of exclusive breastfeeding.( r\*=0.644, P< 0.0001) as shown in (Table 6 and Fig. 2).

By logistic regression analysis for factors affecting LAM practices 11 factors associated with of LAM practice among the women studied at primary health care in QENA city. The most contributing factors for LAM practice were mothers' education university education, basic education, family size 3-4 members in the family, 6 members in the family, 5 members in the family. (P- value <0.0001). mother residence (p-value= 0.013) and knowledge about LAM (p-value= 0.014). as shown in (Table 7).

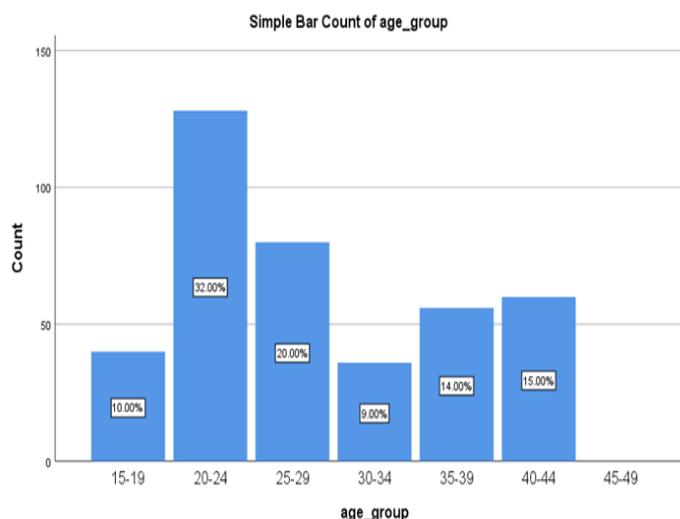


Fig.1. Percentage frequencies of age groups in the studied women

**Table1:Demographic characteristics of the studied women (N=400)**

<b>Characteristics</b>	
<b>Age in years (Mean±SD)</b>	29.27+7.9
<b>Age group</b>	N (%)
<b>15-19</b>	40 (10%)
<b>20-24</b>	128(32%)
<b>25-29</b>	80(20%)
<b>30-34</b>	36(9%)
<b>35-39</b>	56(14%)
<b>40-44</b>	60(15%)
<b>45-49</b>	
<b>Residence:</b>	N (%)
<b>Rural</b>	228(57%)
<b>Urban</b>	172 (43%)
<b>Education level of women:</b>	N (%)
<b>Illiterate</b>	129(32.3%)
<b>Basic education</b>	188(47%)
<b>university</b>	83 (20%)
<b>women's occupation:</b>	N (%)
<b>House wife</b>	313(78.3%)
<b>Employee</b>	47(11.8%)
<b>Skill worker</b>	40(10%)
<b>Family size:</b>	N (%)
<b>3-4</b>	65 (16.3%)
<b>5</b>	127(31.8)
<b>6</b>	67(16.8)
<b>7 or more</b>	141(35.3)
<b>Socioeconomic level:</b>	N (%)
<b>Mild</b>	135(33.8%)
<b>Moderate</b>	148 (37%)
<b>High</b>	115 (28.7%)

**Table2. Relationship between usage (LAM) and demographic characteristics of the studied women:**

Demographic characteristic	Total	Use LAM N (%)	Non-Use N (%)	P- value
<b>Age group</b>				
<b>15-19</b>	40	32 (80%)	8 (20%)	< 0.0001
<b>20-24</b>	128	72 (56.3%)	56 (43.8%)	
<b>25-29</b>	80	36 (45%)	44 (55%)	
<b>30-34</b>	36	21 (58.3%)	15 (41.7%)	
<b>35-39</b>	56	40 (71.4%)	16 (28.6%)	
<b>40-45</b>	60	60 (100%)	0 (0%)	
<b>Residence</b>				
<b>Urban</b>	172	124 (72%)	48 (29.9%)	0.013
<b>Rural</b>	228	137 (60%)	91 (39.9%)	
<b>mother's education</b>				
<b>Illiterate</b>	129	123 (95.5%)	6 (4.7%)	< 0.0001
<b>Basic education</b>	188	108 (57%)	80 (42.6%)	
<b>University education</b>	83	30 (36.1%)	53 (63.9%)	
<b>mother's occupation</b>				
<b>House wife</b>	313	195 (62%)	118 (37.7%)	0.031
<b>Employee</b>	47	33 (70.2%)	14 (29.8%)	
<b>Skill work</b>	40	33 (82.5%)	7 (17.5%)	
<b>Family size</b>				
<b>7 or more</b>	140	124(88%)	16 (11.4%)	< 0.0001
<b>6</b>	67	31 (46.3%)	36 (53.7%)	
<b>5</b>	128	90 (70.3%)	38 (29.7%)	
<b>3-4</b>	65	16 (24.6%)	49 (75.4%)	

**Table3. Breast feeding and usage LAM practice among studied women:**

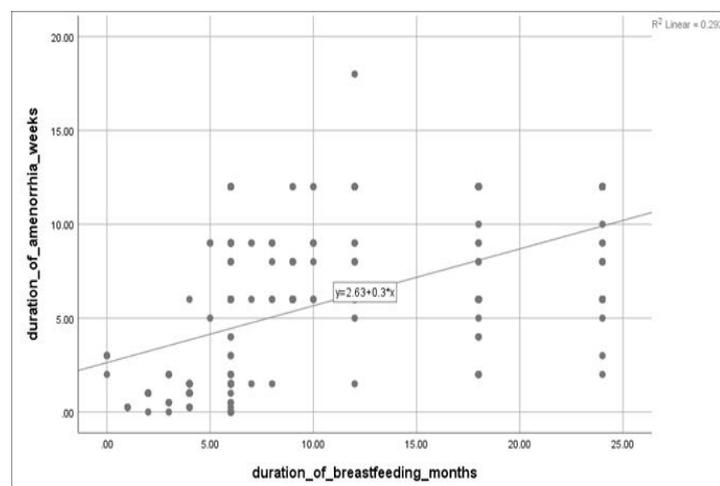
Practices	
<b>LAM: N (%)</b>	
<b>Yes</b>	261 (65.3%)
<b>No</b>	139 (34.8%)
<b>Correct use LAM: N (%)</b>	
<b>Yes</b>	257 (64.3%)
<b>No</b>	142 (35.7%)
<b>Knowledge about LAM: N (%)</b>	
<b>Yes</b>	362 (90.5%)
<b>No</b>	38 (9.5%)
<b>Failure of LAM usage: N (%)</b>	
<b>YES</b>	141 (35.25%)
<b>No</b>	259 (64.75%)
<b>Breastfeeding barriers: N (%)</b>	
<b>Yes</b>	152 (38%)
<b>No</b>	247 (61.8%)
<b>Mean of breastfeeding duration ± SD</b>	11.12 months ± 7.33
<b>Mean of exclusive breastfeeding ± SD</b>	4.63 months ± 2.34
<b>Mean of LAM duration ± SD</b>	6 months ± 4.11

**Table 4. Relationship between usage LAM and breastfeeding and LAM practices of the studied women:**

Practices	Total	LAM users N (%)	Non-users N (%)	P-value
<b>Correct LAM</b>				
<b>Yes</b>	257	218 (84.8%)	39 (15.2%)	< 0.0001
<b>No</b>	142	42 (29.6%)	100 (70%)	
<b>knowledge about LAM</b>				
<b>Yes</b>	362	229 (63%)	133 (37%)	0.01
<b>No</b>	38	32 (84.2%)	6 (15.8%)	
<b>Failure LAM</b>				
<b>Yes</b>	141	78 (55.3%)	63 (44.6%)	0.002
<b>No</b>	259	183 (71%)	76 (29.3%)	
<b>Breastfeeding barriers</b>				
<b>Yes</b>	152	128 (84%)	24 (15.8%)	< 0.0001
<b>No</b>	274	133 (54%)	114 (46.2%)	

**Table 5. Relationship between usage LAM and breastfeeding duration and amenorrhea duration of the studied women:**

Practices	Use LAM Mean ±SD	Non-using Mean ±SD	p-value	t-value
<b>Breastfeeding duration</b>	14.3±6.9	5.15±3	< .0001	14.7
<b>Amenorrhea duration</b>	8.3±2.76	1.61±2.2	< .0001	24.8
<b>Exclusive Breastfeeding duration</b>	6.03±1.2	1.99±1.6	< .0001	28.6



**Fig.2.** Correlation between duration of breastfeeding and duration of amenorrhea

**Table 6. Correlation between duration of amenorrhea and duration of breastfeeding in lactating women**

Variables	Duration of amenorrhea	
	r*	P value
Duration of breastfeeding	0.540	< 0.0001
Duration of exclusive BF	0.644	< 0.0001

**Table 7. Multivariable logistic regression analysis for factors affect practice LAM among the studied women in primary health unit Qena CITY.**

Variables	Odds ratio OR	95% CI		P Value
		Lower	Upper	
Basic education of mother	15.185	6.369	36.207	<0.0001
University of mother	36.217	14.235	92.142	<0.0001
Moderate socioeconomic	0.108	0.063	0.185	<0.0001
High socioeconomic	0.043	0.021	0.089	<0.0001
6 members in family	9	4.432	18.275	<0.0001
5members in family	3.272	1.718	6.231	<0.0001
3-4 members in family	23.734	11.013	51.149	<0.0001
Breastfeeding barriers	0.219	0.132	0.362	<0.0001
Number of pregnancies	0.445	0.366	0.541	<0.0001
Number of miscarriage	0.564	0.438	0.681	<0.0001
Residence	1.716	1.121	2.627	0.013
Knowledge about LAM	3.098	1.262	7.602	0.014
Skill worker mother	0.315	0.150	0.818	0.015
Employed mother	0.701	0.360	1.364	0.296

## Discussion

Modern temporary family planning techniques like the Lactational Amenorrhea Method (LAM) encourage both nursing and family planning simultaneously. The LAM was created as a safe contraception and a method of delaying menstruation. It took a lot of effort and money to

promote it. Using physiology, the lactational amenorrhea method (LAM) is a highly effective way for individual women to space deliveries. Suckling reduces gonadotropin-releasing hormone, luteinizing hormone, and follicle stimulating hormone secretion. Reduced suckling signals the return of ovulation. During nursing, menses before 6 months are usually anovulatory, and fertility

remains low. This is physiology of LAM( **Van der Wijdenet al.,2003**).

This was cross sectional study conducted in primary health units in QENA city included that a total of 400 lactating women in reproductive age (15-49) were included in the study Prevalence of usage lactational amenorrhea method (LAM) among the women attend primary health care units in QENA city is 65.7%. Women who were currently lactating and who had previously nursed their children were found to be in agreement with the findings of various research. According to the Egypt demographic and health survey (EDHS) (**EDHS, 2014**), 96 percent of the last-born children born in the two years prior to the survey had ever been nursed (**Eshaket al., 2018**)The present study revealed that more than half of the breastfed mothers practiced LAM 65.7%. It shows that 53.6% of LAM users were in the age group less than 30 years and 46.3% aged from 30 to less than 49 years. This finding is consistent with the findings of the EDHS 2014. The duration of lactational amenorrhea, on the other hand, did not appear to differ between teenagers and women over the age of 20. In Uttar Pradesh, women over 30 had a much longer duration (about 12 months) than teenagers (3.5 months). In a prior study, Singh et al found that in bivariate analysis, the duration of amenorrhea appeared to be longer in the two categories of teenagers (15 and 15–20 at the time of marriage) than in older women(**Figaroa et al., 2020**).Contrary to the results of the present study, the number of Nigerians who had ever used LAM was lowest among teenagers (5.0 percent among those aged 15 to 19), grew to 10.0 percent among those aged 20 to 24, and finally was highest among women aged 35 to 39 (**Audu et al., 2006**).

There are variations in the knowledge and intentional use of lactational amenorrhea as a family planning method; these variations may be caused by differences in breastfeeding

duration, suckling frequency (including nighttime feeding), timing and pattern of supplementation (including formula feeding), nutritional profile of the mother, or possibly an artefact of self-reporting by adolescents or older women. (**Figaroa et al.,2020**).

According to EDHS 2014, the percentage of women who practised LAM in the current survey was much higher in rural regions (52.5%). Also, rural women in Sub-Saharan Africa used the lactational amenorrhea technique substantially more than urban women, and the use of the LAM method increased significantly with the number of living children (**Auduet al., 2006**). the percentage of women who practiced LAM in the current study was significantly decreasing with the urban residents and working women (**Hakik et al., 2021**).

In the current study, 47.1 percent of lactating women who were illiterate had used LAM, 41.3 percent of lactating women who had attended basic education had used LAM, 11.5 percent of lactating women who had attended university education had used LAM, and mother education was a significant correlate to LAM use, in agreement with previous studies that found that the majority of their studied women had high education 66.2 % ( **Chris et al ., 2013**). On other hand this is in disagreement with the result of previous study the percentage of women who practiced LAM in the current study was significantly decreasing with the increased level of women education (**Hakik et al., 2021**).

LAM usage in current study decreasing with mother occupation only 15.3% working women use LAM, These findings were in disagreement with the results of the previous study as they found that most of their studied women employed (71.8%) (**Chris et al ., 2013**).

LAM practices in this study increase in low socioeconomic level in compare with high socioeconomic level this result is in agreement

with the result of previous study in Niger most common form of reporting about breastfeeding and contraception use, particularly in low-income settings (Sipsma et al., 2013).

The mean of duration of breastfeeding is  $14.3 \pm SD 6.9$  months, the mean of lactational amenorrhea is  $8.33 \pm SD 2.76$  months and the mean of exclusive breastfeeding (not starting supplemental feeding only breastfed) in women use LAM is  $6.03 \pm 1.2$ . Around 80% of Egyptian mothers breastfed their children for at least 6 months, and 40% continued to do so for 15 to 18 months, according to the EDHS. Among breastfeeding mothers, more over half did not utilize any other kind of contraception. (EDHS, 2014). Effective LAM in women with exclusive breastfeeding 70.3% in the previous study (Türk et al., 2010).

In current study usage of LAM practice increase in association with increase knowledge about LAM as method of contraception. With agreement the result of previous study The lactational amenorrhea method has a 50.7 percent awareness rate. (Audu et al., 2006).

In the current study, the prevalence of pregnancy among LAM users (users' failure) was 29.9%. According to the findings of the current study, 30.8 percent of LAM users (users who failed) were pregnant (Hakik et al., 2021). a survey in Calabar, Nigeria, found a 30% prevalence of unplanned pregnancy. These outcomes all agreed with the findings at hand. Contrarily, among LAM users, the prevalence of unwanted pregnancy was 14.3% as found by (Chris et al., 2013).

In current study the number of pregnancies and number of miscarriage have significant negative relation as mean of number of pregnancies in women use LAM. In contrast to previous study Compared to younger primiparous women, the duration of lactational amenorrhea is typically prolonged in older multiparous women (Türk et al., 2010).

## Conclusion

The large majority of the participants in this study stated that breastfeeding can be used as a technique of family planning until menstruation returns. Only about two third of the women in the study said they had ever used LAM. Women from rural areas, not working, and educated with lower socioeconomic were more likely to practice LAM. Correct practice of LAM and fulfill the criteria: baby 6 month or less, exclusive breastfeeding with amenorrhea give good result of LAM as contraception. Unintended pregnancy was reported in about one third of LAM users due to incorrect practicing.

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