

Original Research Article

Exclusive breastfeeding knowledge, practices and determinants among mothers in rural areas, Egypt

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ABSTRACT

Background: Objective of the study was to explore exclusive breastfeeding knowledge and practice of among mothers of children less than 2 years in rural areas in Beni-Suef governorate and factors that determine them.

Methods: A community-based cross-sectional study was conducted in rural areas, Beni-Suef governorate over 6 months (February 2019-July 2019) using a designed well-structured questionnaire.

Results: The mean breastfeeding knowledge score of enrolled mothers was 7.87 ± 2.2 out of 15. (74.5%) of mothers recruited in this study obtained their knowledge from their mothers, families, and friends. Only 40.4% of the mothers have exclusively breastfed their children. While 57% of participants added food or fluids before 6 months and 37.6% added additional artificial feeding. Mothers' age, education, occupation, marital status, the order of last-child, mode of delivery, place of delivery and monthly family income were independently associated with exclusive breastfeeding in univariate analysis. While in multi-variate analysis, only mothers' age, education, occupation, marital status and breastfeeding knowledge score was associated.

Conclusions: Rural women had suboptimal knowledge about exclusive breastfeeding, justifying the suboptimal practices of the mothers. Hence, it is recommended to develop interventions emphasizing practical education targeted at addressing factors that influence exclusive breastfeeding. And successful infant-feeding interventions aimed at promoting overall infant health.

Keywords: Exclusive breastfeeding, Egypt, Practices, Rural

INTRODUCTION

Human milk is uniquely appropriate for the infant's needs.¹ It maintains the infant's healthy development and growth by providing ideal nutrition.² World Health Organization (WHO) has recommended exclusive breastfeeding for the first six months of life to achieve optimal development, growth, and health through stimulation of the immune system.³ Thus, protects infants from acute respiratory infections and diarrhea, which represent the two major causes of infant mortality in developing countries. Also improves their vaccination responses.⁴

Moreover, it was confirmed that breastfeeding has advantages for mothers, as improving birth spacing, reducing the risk of postpartum hemorrhage through stimulating the uterine involution, enhancing weight loss after pregnancy and being the first mother-infant communication pathway.^{5,6}

According to UNICEF, since 1995, the global breastfeeding rates have shown only slow progression. Yet, only 44 percent of the world's newborns are breastfed within one hour of birth. Globally, less than 40 percent of under six months children are fed solely breast milk with no additional liquids or foods, including water.

This figure has stagnated for nearly two decades.⁷ In Egypt, the 2014 Egyptian Demographic and Health Survey showed that early infancy exclusive breastfeeding is prevalent but not universal. 71% of under two months infants, receiving only breast milk. However, this proportion drops off rapidly as infants get older. Only 13% of 4-5 months children were exclusively breastfed.⁸ Inadequacy of proper knowledge together with painful breastfeeding experiences resulted in the premature introduction of inappropriate foods and lack of breastfeeding practice. With the development of some hazards such as poor infant's growth, diarrhea, and low breast milk production.⁹

Disparities in breastfeeding rates in urban and rural areas have been scarcely explored. In rural areas, additional factors as few economic resources, and limited access to health care might affect lactating mothers' decisions. Though implementing different programs to encourage EBF, very few researches have declared the determinants of EBF among rural Egyptian mothers.¹⁰

Hence, there is an increased need to recognize the obstructing factors responsible for EBF malpractice. The authors designed the present study to explore the exclusive breastfeeding knowledge and practice among mothers of less than 2 years children in rural areas in Beni-Suef governorate and factors that determine them.

METHODS

A community-based cross-sectional study was conducted in rural areas, Beni-Suef governorate over 6 months (February 2019-July 2019) to explore exclusive breastfeeding knowledge and practice among mothers of children less than 2 years in rural areas in Beni-Suef governorate and factors that determine them.

Informed consent was obtained after the participants had been informed about the study objectives.

A multistage random sampling was done, Beni-Suef governorate was divided into 7 districts, from which Beni-Suef and El Fashn district were chosen randomly; then, Beni-Suef and El Fashn district were divided into 34 villages for each of them, from which we chose randomly four villages (two from each district).

We invited lactating mothers who had children from ages 6 months - 2 years to participate in the study while mothers of children less than 6 months, of children with medical problems preventing EBF practice such as galactosemia and unwilling mothers were excluded from the study. All eligible mothers from these four villages were interviewed and enrolled in this research through home visits conducted by investigators. Data were gathered using a designed, well-structured questionnaire completed during face-to-face interviews with the mothers. It included the following sections:

I- socio-demographics characteristics: Age in years, education and occupation of mothers, daily working hours, marital status, education of husband, the order of last-child, mode and place of delivery of last-child, family support, and family income.

II- BF knowledge: This section developed by authors after reviewing the WHO and UNICEF breastfeeding recommendations for optimal infant feeding.^{3,11,12} It composed of 15 items to evaluate the mothers' knowledge about exclusive breastfeeding. Closed-ended format was used for the knowledge part, fifteen questions of true/false and do not know choice. Items of the EBF knowledge section were translated to Arabic by a panel of qualified professionals followed by a back-translation into English by another independent expert. We score each correct answer as one point with the possible score ranges from 0 to 15. The higher the score, the higher the knowledge of breastfeeding.

III- EBF practice: This section that composed of 13 questions of multiple-choice options to evaluate the mothers' practice about exclusive breastfeeding.

This questionnaire also had been tested on a few eligible mothers as a pilot study to test the reliability of the questions (Cronbach's alpha) of 0.76 and the time needed to interview with a mother. Then proper corrections and adjustments had been fulfilled.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study protocol was reviewed and granted ethical clearance by the Research Ethics committee of Faculty of Medicine Beni-Suef University (FWA #: FWA00015574). Approval no (FMBSUREC/07012019/ Senosy), Informed consent was obtained after the participants had been informed about the study objectives.

Statistical analysis

Data was analyzed using the software, statistical package for the social sciences (SPSS) version 18 (SPSS Inc., Chicago, Illinois, USA). Frequency distribution and descriptive statistics have been calculated. χ^2 -test, t-test, and regression model were performed when indicated. P values of less than 0.05 were considered significant.

RESULTS

984 mothers from rural areas in Beni-Suef were assessed for breastfeeding knowledge, and practices. Table 1 showed the background characteristics of mothers. More than half (56.5%) of subjects were in the age group of 21-34 years, subjects had completed education till secondary and universities were 39.7% and 30.2% respectively, only one-third (32.9%) of mothers were working, with average

6 to 8 hours of daily work in 58% of working mothers, 68.2% of the working mother had the benefit of family support. 40.2% of husbands had a university education or higher. Most of the mothers (85.5%) are married. 42.5% of subjects had enough monthly family income but not saving. Regarding their last-child, 28.6% were the first child, more than half 52.3% were delivered by CS, 73.4% were delivered in hospital (Table 1).

Table 1: Background characteristics of mothers in rural areas, Beni- Suef, 2019.

Variables	Number (n=984)	%
Age distribution (years)		
≤ 20	178	18.1
21-34	556	56.5
≥35	250	25.4
Mothers' education		
Illiterate, read and write	90	9.1
Primary and preparatory	206	20.9
Secondary	391	39.7
University or higher	297	30.2
Marital status		
Married	841	85.5
Widow	54	5.5
Divorced	89	9
Husbands' education		
Illiterate, read and write	67	6.8
Primary and preparatory	202	20.5
Secondary	319	32.4
University or higher	396	40.2
Mothers' occupation		
Working	324	32.9
Housewife	660	67.1
Daily working hours (n=324)		
Less than 6 hours	89	27.5
6-8 hours	188	58
More than 8 hours	47	14.5
Family support during work (n=324)		
Yes	221	68.2
No	103	31.8
Last Child's order		
1 st	281	28.6
2 nd	255	25.9
3 rd	250	25.4
4 th or more	198	20.1
Mode of delivery of last child		
Normal vaginal	469	47.7
Caesarian Section	515	52.3
Place of birth of last child		
Home	262	26.6
Hospital	722	73.4
Monthly family income		
Enough and saving	199	20.2
Enough but not saving	418	42.5
Not enough	367	37.3

Table 2: Association of exclusive breastfeeding knowledge score with source of knowledge among mothers from rural areas, Beni- Suef, 2019.

Source of breastfeeding knowledge	N (%)	Breastfeeding knowledge score (mean±SD)	P value
Primary healthcare visits	191 (19.4)	7.06±2.84	0.0001*
Mother, family and friends	733 (74.5)	8±1.89	
Search and study	60 (6.1)	8.8±2.74	

Table 3: Association of breastfeeding knowledge score with background characteristics of mothers from rural areas, Beni- Suef, 2019.

Variables	Number (n=984)	Breastfeeding knowledge score (mean±SD)	P value
Age distribution (years)			
≤ 20	178	7.72±2.13	0.387
21-34	556	7.85±2.03	
≥35	250	8.01±2.6	
Mothers' education			
Illiterate, read and write	90	7.47±1.67	0.011*
Primary and preparatory	206	7.86±1.89	
Secondary	391	7.72±2.5	
University or higher	297	8.19±2.09	
Husbands' education			
Illiterate, read and write	67	7.73±1.53	0.001*
Primary and preparatory	202	7.05±2.49	
Secondary	319	8.33± 2.13	
University or higher	396	7.93±2.1	
Mothers' occupation			
Working	324	8.57±2.13	0.001*
Housewife	660	7.52±2.16	
Monthly family income			
Enough and saving	199	7.99±1.76	0.672
Enough but not saving	418	7.82±2.22	
Not enough	367	7.85±2.41	

The mean EBF knowledge score of enrolled mothers from the rural area was 7.87±2.2, with a score ranged from 2 to 14. About three-fourth (74.5%) of mothers recruited in this study got their knowledge from their mothers, families, and friends.

But the mean knowledge score was significantly higher among mothers who get their knowledge from search and study (8.8 ± 2.74) (Table 2).

Table 4: Mothers' practice of breastfeeding, rural area, Beni- Suef, 2019.

Variable	N	%
Exclusive breastfeeding for 6 months		
Yes	398	40.4
No	586	59.6
Adding food or fluids before 6 months		
Yes	561	57
No	423	43
Adding additional artificial feeding before 6 month		
Yes	370	37.6
No	614	62.4
Initiation of breastfeeding during 1st hour after delivery		
Yes	687	69.8
No	297	30.2
Start weaning after 6 months		
Yes	713	72.5
No	271	27.5
Continue breastfeeding for at least 1 year		
Yes	736	74.8
No	248	25.2
Continue breastfeeding during your illness or child illness		
Yes	640	65
No	344	35
Adding water or herbs before 6 months		
Yes	444	45.1
No	540	54.9
Did you breastfeed your child outdoors?		
Yes	558	56.7
No	426	43.3
Did you extract your milk for your baby while being outdoors?		
Yes	188	19.1
No	796	80.9
Did you breastfeed your child on demand?		
Yes	762	77.4
No	222	22.6
After delivery, is there any help to facilitate breastfeeding?		
Yes	731	74.3
No	253	25.7
Who supports you?		
Husband	257	26.1
Mother	514	52.2
Family and friends	146	14.8
Healthcare providers	67	6.8

A significant higher knowledge score for mothers with university or higher education (8.19 ± 2.09) ($p=0.011$), for mothers whose husband had secondary education (8.33 ± 2.13), ($p=0.001$), and for mothers who are working (8.57 ± 2.13), ($p=0.001$). But maternal age and monthly family income are not significantly associated with maternal knowledge score (Table 3).

EBF practices among mothers from the rural area were shown in Table 4, where only 40.4% of the mothers have exclusively breastfed their children. While 57% of participants added food or fluids before 6 months and 37.6% added additional artificial feeding.

About two-thirds of all mothers (69.8%) initiated breastfeeding within the first hour after delivery, about 74.8% of all mothers continued breastfeeding for at least 1 year, and 65% continued breastfeeding during her or her child's illness. Weaning was started after 6 months in 72.5% of participants. While we reported the addition of water or herbs before the age of 6 months in 45.1%. 56.7% of mothers breastfed their babies outdoors, while only 19.1 of them extract their milk while being outdoors.

Interestingly, 77.4% of mothers breastfed their babies on demand, 74.3% reported having help to facilitate breastfeeding, the majority (52.2%) from their mothers followed by their husbands (26.1%) (Table 4).

Univariate and multiple regression analysis

Table 5 illustrates the univariate and multiple logistic regressions of background characteristics of mothers from rural areas in Beni-Suef associated with exclusive breastfeeding practice. The multiple logistic regression analyses include variables that were significant at $p < 0.05$ at the univariate analysis (mothers' age, education, occupation, marital status, the order of last-child, mode of delivery, place of delivery and monthly family income, breastfeeding knowledge score of mothers), that were independently associated with exclusive breastfeeding.

Mothers aged ≤ 20 years (AOR 2.07; 95% CI 1.22, 3.49), and 21-34 years (AOR 2.43; 95% CI 1.63, 3.63) were more likely to practice EBF compared to those aged ≥ 35 years. Mothers with primary or preparatory education were less likely to practice exclusive breastfeeding than those with university or higher education (AOR 0.78; 95% CI 0.47, 1.29).

There was a significant influence of being married (AOR 3.04; 95% CI 1.28, 7.2), being working mother (AOR 1.36; 95% CI 0.97, 1.92) and being with optimal breastfeeding knowledge score (AOR 1.34; 95% CI 1.26-1.45) in increasing the practice of EBF (p value < 0.001) (Table 5).

Table 5: Predictors for exclusive breastfeeding practice among mothers, rural area, Beni- Suef multivariable analysis using logistic regression.

Variables	Exclusive breastfeeding for 6 months (n=984)		Odds ratio (95% CI)	P value
	Yes (n= 398)	No (n=586)		
	N (%)	N (%)		
Age distribution (years)				
≤ 20	69 (38.8)	109 (61.2)	2.07 (1.22 - 3.49)	0.0001*
21-34	264 (47.5)	292 (52.5)	2.43 (1.63 - 3.63)	
≥35	65 (26)	185 (74)	1	
Mothers' education				
Illiterate, read and write	29 (32.2)	61 (67.8)	1.19 (0.62 - 2.29)	0.02*
Primary and preparatory	61 (29.6)	145 (70.4)	0.78 (0.47 - 1.29)	
Secondary	182 (46.5)	209 (53.5)	1.41 (0.96 - 2.09)	
University or higher	126 (42.4)	171 (57.6)	1	
Marital status				
Married	361 (42.9)	480 (57.1)	3.04 (1.28 - 7.2)	0.01*
Widow	23 (42.6)	31 (57.4)	2.59 (1.35 - 4.97)	
Divorced	14 (15.7)	75 (84.3)	1	
Mothers' occupation				
Working	112 (34.6)	212 (65.4)	1.36 (0.97 - 1.92)	0.05*
Housewife	286 (43.3)	374 (56.7)	1	
Last Child's order				
1 st	116 (41.3)	165 (58.7)	0.51 (0.322 - 0.82)	0.25
2 nd	121 (47.5)	134 (52.5)	0.76 (0.49 - 1.2)	
3 rd	82 (32.8)	168 (67.2)	0.39 (0.24 - 0.62)	
4 th or more	79 (39.9)	119 (60.1)	1	
Mode of delivery of last child				
Normal vaginal	214 (45.6)	255 (54.4)	1.33 (0.92 - 1.91)	0.12
Caesarian section	184 (35.7)	331 (64.3)	1	
Place of birth of last child				
Home	124 (47.3)	138 (52.7)	1.33 (0.89 - 2)	0.15
Hospital	274 (38)	448 (62)	1	
Monthly family income				
Enough and saving	94 (47.2)	105 (52.8)	1.31 (0.87 - 1.97)	0.08
Enough but not saving	200 (47.8)	218 (52.2)	1.45 (1.04 - 2.03)	
Not enough	104 (28.3)	263 (71.7)	1	
Breastfeeding knowledge				
Optimal	290 (50.6)	283 (49.4)	1.34 (1.26 - 1.45)	0.0001*
Suboptimal	108 (26.3)	303 (73.7)	1	

DISCUSSION

Breastfeeding is the most appropriate feed for infants and mothers' milk gives the ideal nutrition and proper healthy growth and development for infants.¹ In this study, we aimed to assess maternal knowledge about exclusive breastfeeding, the breastfeeding practices and the socio-demographic factors that affect exclusive breastfeeding.

There was a suboptimal level of knowledge and awareness about EBF among the participant mothers. Similar results have also been detected in Ethiopia showed that Knowledge of study participant mothers who attend ANC and immunization clinic towards exclusive

breastfeeding (EBF) was poor.¹³ In contrast, Onah reported an acceptable level of knowledge in Nigeria.¹⁴

The study had revealed a significantly higher knowledge score for mothers with university or higher education, similar findings were found in which shows the importance of education in gaining a high level of knowledge and awareness about exclusive breastfeeding benefits.

There is a statistically significant relationship between knowledge score and working state, where a significantly higher knowledge score was for mothers who are working. The Malaysian study showed similar results.¹⁵⁻¹⁷

Although most mothers who recruited in this study got their knowledge from their mothers, families, and friends. The mean knowledge score was significantly higher among mothers, who get their knowledge from search and study, In contrast to the Ethiopian study, the major source of information was health institutions 255 (66.4%), and the same was Ghana.^{13,18} The past dissimilarities indicate the urgency of dissemination of instructions through Egyptian health institutions about exclusive breastfeeding to be the main source of knowledge among attendances' mothers.

Regarding breastfeeding practices among participant mothers, Only 40.4% of the mothers have exclusively breastfed their children. In contrast to Ghanaian study, where over two-thirds (66%) exclusively breastfed their infants till 6 months.¹⁹

About two-thirds of all mothers had initiated breastfeeding within the first hour after delivery. Similar to other published studies in Nepal where 57.0% of mothers started breastfeeding within the first hour after birth.²⁰ In contrast to another Egyptian study, where only 32.2% of women had initiated breastfeeding in the first hour of labor.²¹

74.8% of all mothers continued breastfeeding for at least 1 year. 72.5% of participants started weaning after 6 months, similar to a study conducted in Ghana. Where 77.3% continued breastfeeding for at least 1 year but only 33.7% adapted time complementary feeding.¹⁹

Despite the significant influence of being a working mother in increasing the practice of EBF (p value <0.001), only 19.1 of them extract their milk while being outdoors, the same findings were in a study in Ghana 22. After multivariate analysis by adjusted logistic regression, significant association only was found with Mothers' age, education, occupation, marital status and breastfeeding knowledge score (Table 5). This was similar to Hassan et al.²³

As a large proportion of rural lactating mothers were uncomfortable with the idea of expressing and storing breast milk. So, interventions should be taken to increase mothers 'awareness and changing their wrong concepts regarding expressing and storing breast milk especially for working mothers who must leave their infants at home, to support them to work and exclusively breastfeed at the same time.

CONCLUSION

Rural women had suboptimal knowledge about exclusive breastfeeding. Justifying the suboptimal practices of the mothers. Mothers' age, education, occupation, marital status and breastfeeding knowledge score was associated with EBF practice. Hence, it is recommended to develop successful infant-feeding interventions aimed at promoting overall infant health. Our findings also support

the need for health care system interventions, family interventions, and public health education campaigns emphasizing factors that influence exclusive breastfeeding to promote optimal EBF knowledge and practices, especially in less-educated women.

Limitations

Using a cross-sectional study design, besides mothers of children up to 2 years, may present recall bias.

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