Socio-Demographic Factors Associated with Exclusive Breastfeeding from Birth to Six Months in An Urban Public Health Center, Egypt

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Abstract

Background: Breastfeeding is the best first source of infant nutrition. Breastfeeding provides health benefits to both the baby and the mother. Babies ought to be exclusively breastfed for the first 6 months. Numerous factors are associated with the exclusivity of breastfeeding and one of the important ones is the socio-demographic factors. **Objectives:** To estimate the proportion of infants who are breastfed exclusively during the first 6 months. To identify maternal socio-demographic factors and barriers affecting the practice/duration of exclusive breastfeeding (EBF) among them. **Method**: Cross-sectional study was conducted among 334 mothers at 1st Settlement health care center; a standardized interview questionnaire was used to gather information about socio-demographic characteristics, health service utilization, the outcome of pregnancy, Family support in childcare and maternal knowledge, attitude and practice concerning EBF. **Results:** 51.1% of studied mothers practice EBF. The age, education, and occupation didn't affect the practice of EBF. Also, no difference was found regarding the utilization of antenatal care, the outcome of pregnancy and family support in childcare. The number of living children, using stimulant drinks, knowledge scores, attitude towards breastfeeding concerning exclusive breastfeeding in 1st 6 months and its stoppage during the illness of mother or child were the key indicators for exclusive breastfeeding. practice differs between two groups in the form of time of beginning breastfeeding, lactation frequency and frequency of breastfeeding/day. **Conclusion:** Providing adequate knowledge to raise awareness of EBF and increase the involvement of health care providers in enhancing knowledge through antenatal care will be the best approaches to increase EBF practice.

Keywords: *Breastfeeding, Socio-Demographic Factors, Knowledge, Attitude, Practice.*

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Introduction

Breastfeeding is a natural safety way against the worst effects of poverty. "Exclusive breastfeeding (EBF)" is realized as an infant's consumption of ONLY breast milk with no supplementation of any other liquids or solids (not even water), except for oral rehydration solution, or drops/syrup of vitamins, minerals or medications.[1]

Infants who are exclusively breastfed for six months achieve optimal growth and development. Also, they experience less morbidity and mortality. It is estimated that 10% to 15% of under-5 deaths in resource-poor countries could be prevented through the achievement of universal coverage with EBF alone.[2] Long-term health benefits from EBF include reduction of the risk of overweight and obesity and higher intelligence quotient (IQ).[3] Also, it is a natural method for birth spacing.[4] Therefore, EBF is considered as a cost effective infant-feeding method.[5]

Thus, one of the strategies of the Sustainable Development Goals is to

increase the EBF rate to 50%.[1] The Baby-friendly Hospital Initiative (BFHI) seeks to provide mothers and babies with a good start for breastfeeding. The maternity facility's annual statistics should indicate that at least 75% of the mothers who delivered in the past year are either exclusively breastfeeding or exclusively feeding their babies human milk from birth to discharge or, if not, this is because of acceptable medical reasons. This is an approximate indicator of EBF support in the facility.[6]

Breastfeeding is nearly universal in Egypt, the Egyptian Demographic and Health Survey showed that 47 % of infants received pre-lacteal feeds; only a minority of babies are exclusively breastfed throughout the first 6 months of life.[7] Egypt made a great effort concerning EBF and application of BFHI, different obstacles face Egypt including early initiation of breastfeeding and EBF rates are still low, due to lack of community awareness about EBF importance. As well, inadequate training programs of health care professionals on infant nutrition and EBF.[8] Cultural and religious believes affect the prevalence of breastfeeding.[9] Evaluation of mother's knowledge, attitude towards EBF is a key to identify their practices. A study done in Nigeria found that although universal breastfeeding was present in the community but the knowledge and practice of EBF were low.[2] Another study in Ethiopia found that the prevalence of EBF was 60.8%.Unemployed mothers, received counseling during antenatal care and postnatal care about breastfeeding and infant feeding, didn't give pre-lacteal feeding, and had adequate knowledge about breastfeeding were more likely to practice EBF.[10]

In Egypt, A study done in El-Minia Governorate found that rural women had satisfactory knowledge about the advantages of breastfeeding for child and mother. EBF was found to be associated with mother's education but not with mother's age at birth, mother's occupation, or place of birth. However, some attitudes and practices of the mothers were suboptimal.[11]

Promotion of EBF would be the best approach to prevent malnourishment among children as breast milk is a safe, cheap and affordable source of nutrition. Thus, this study was conducted aiming: To estimate the proportion of infants who are breastfed exclusively during the first 6 months and to identify maternal socio-demographic factors and barriers affecting the practice/duration of EBF.

Method

Study design: A cross-sectional study was adopted to fulfill the purpose of the study.

Study setting and time: The present study was carried out at First Settlement, New Cairo, Cairo, Egypt, in 11 months duration from March 2018 to January 2019.

Study Population: The study population consisted of all mothers (with infants up to 24 months' age at the time of data collection). Data were collected from mothers attending vaccination sessions or child clinical care visits. Inclusion criteria include: Mothers who either had Completed 6 months on EBF of their infants, Ongoing exclusive breastfeeding but still under 6 months of age, Non-exclusive breastfeeding before completing 6 months, completely stopped breastfeeding before 6 months. Exclusion criteria include Mothers who had never breastfeed their infants.

Sampling method: Systematic random sampling involved randomly selecting two days per week, and this random selection repeated every week for four months period with the exclusion of weekends. Also, mothers were selected by systematic random sampling technique from clinic attendants.

Table (1): Relation between Socio-Demographic Factors and Special Habits of Studied Mothers and Exclusivity of Breast Feeding:(N=334)

Socio-demographic characteristics N (%) 334 (100%)			Non-exclusive BF No (%) 163(48.9)	Exclusive BF No (%) 171(51.1)	P-value
Age in years	**Mean ± SD**	28.07 ± 5.22	28.52 ± 4.98	27.64 ± 5.41	0.127*
Education of mothers	**Below university**	173 (52)	84 (51.5)	89 (52.4)	0.88**
	University and post-graduate education	160 (48)	79 (48.5)	81 (47.6)	
Mother's Occupational status	**Housewife**	257 (76.9)	123 (75.5)	134 (78.2)	0.54**
	Governmental job	35 (46.2)	19 (47.5)	16 (44.7)	
	Private job	42 (53.9)	21 (52.5)	21 (55.3)	
No. of living children	**<4 children**	271 (81.1)	123 (75.5)	147 (86.5)	0.01**
	≥4 children	63 (18.9)	40 (24.5)	23 (13.5)	
Special habits:					
Sleeping hours/day*	**≤6 hours**	215 (64.2)	68 (41.7)	68 (39.4)	0.60**
	> 6 hours	119 (35.7)	54 (33.1)	65 (38.2)	
Smoking (Yes)		4 (1.2)	0 (0.0)	4 (2.4)	0.04**
Using Stimulant drinks (Yes)		231 (69.2)	104 (63.8)	127 (73.5)	0.05**

** p value for student -t test ** p value for chi square test*

Table (2): Relation between Health Service Utilization, The Outcome of Pregnancy and Exclusivity of Breast Feeding among Studied Mothers: (N=334)

Perinatal period No (%) 334 (100%)			Non-exclusive BF No (%) 163 (48.9)	Exclusive BF No (%) 171 (51.1)	P-value*
Receive antenatal care (Yes)		236 (70.6)	116 (71.2)	120 (70.0)	0.81
Mode of delivery	**Normal labor**	111 (33.3)	50 (30.7)	61 (35.9)	0.31
	Cesarean section	223 (66.7)	113 (69.3)	110 (64.1)	
Current child gender	**Male**	151 (45.3)	82 (50.3)	69 (40.6)	0.07
	Female	183 (54.7)	81 (49.7)	102 (59.4)	
Gestational age	**Preterm**	81 (24.3)	40 (24.5)	41 (24.1)	0.20
	Full term	218 (65.2)	101 (62.0)	117 (68.2)	
	Post term	35 (10.5)	22 (13.5)	13 (7.6)	
Newborn nursery		50 (15.0)	24 (14.7)	26 (15.3)	0.88
Regular visits for well-baby clinics		138 (41.4)	74 (45.4)	64 (37.6)	0.15

** p value for chi square test*

Inclusion criteria: include all mothers (with infants up to 24 months' age at the time of data collection)

Sample Size: Using Open Epi version 3.01program based on the proportion of mothers who practice exclusive breast-feeding which was 32% (Samesh et al.,2014) [(11)], this yield a sample size of (335). The sample size was increased to include(368) participants to account for non-response and refusal among mothers, taking into consideration that sample size was calculated with a confidence level of 95% and a margin of error ±5%. Our sample was (334) participants consisted of (171) practice EBF and (163) not practicing EBF.

Study sample: three hundred sixty-eight (368) participants were selected through a

Table (3): Relation between Family Support in Child Care among Studied Mothers and Exclusivity of Breast Feeding: :(N=334)

Family support No (%) 334(100%)		Non-exclusive BF No (%) 163(48.9)	Exclusive BF No (%) 171(51.1)	P-value**
Received help in housekeeping*	137 (41.1)	63 (38.7)	74 (43.5)	0.36
Partner help in housework	149 (44.7)	68 (41.7)	81 (47.6)	0.27
Partner help in childcare	262 (78.4)	124 (76.1)	138 (80.6)	0.31
Partner encourage breastfeeding	281 (84.1)	142 (87.1)	139 (81.2)	0.13

**(mother, sister, relative, servant) ** p value for chi square test*

random sampling technique. Nearly 91% (334) of them responded. the reasons for non-participating were lack of time and refusal.

Tool of the study: well-structured standardized Arabic face to face interview questionnaire was used to collect the data. The questionnaires consisted of four sections. Section A; gathered information on the respondents' Socio-demographic characteristics and special habits: include age, work type, education, smoking, Also, medical history: history of chronic diseases including diabetes, Hypertension. Section B; Health service utilization, the outcome of pregnancy: antenatal care, gestational age, mode of delivery, child gender, entry to newborn nursery and regular visits for well-baby clinics. Section c; Family support in childcare: received help in housekeeping and their childcare, partners help in housework and helped their wives in childcare. partners encouraged their wives for breastfeeding. sections D; consisted of standardized measures of knowledge, attitude, and practice of EBF (Samesh et al.,2014) (Oche, et al, 2011).[2,11]

Pilot Study: A pilot study was carried out on 10% of the sample to test the reliability of the questions and the time needed to interview a mother. Then, proper corrections and adjustments had been fulfilled. Pilot data were excluded from the study results.

Data Management and Analysis

The collected data was revised, coded, tabulated, and introduced to personal computer and then analyzed using SPSS program (Statistical Package for Social Sciences) for Windows Version 22. Data were presented using descriptive statistics in the form of frequencies, percentages, mean and standard deviation. To determine the factors that might be associated with EBF, for quantitative variables t-test was used and for qualitative variables chi-square test was used. Statistical significance was considered at P-value $\leq$ 0.05. Knowledge score was calculated for the participants by giving 1 for the right answer and 0 for the wrong one .The studied mothers were asked about their knowledge regarding exclusive breastfeeding. Questions were about benefits of EBF which include cost as it is a cheap method for feeding, Increase relation between mother and infant, Increase child intelligence, Help infant teething, Increase infant immunity, Natural contraceptive method. Knowledge about the meaning of exclusive breastfeeding and the source of this knowledge.

Ethical Consideration

The required ethical and administrative approvals were obtained. Informed consent was obtained from each participant. To assure confidentiality, the questionnaire was anonymous. Participants were informed about the aim of the study.

Table (4): Relation between Breastfeeding Attitude among Studied Mothers and Exclusivity of Breast Feeding: (N=334)

Attitude No (%) 334 (100)			Non-exclusive BF No (%) 163 (48.9)	Exclusive BF No (%) 171 (51.1)	P-value*
Repeated breastfeeding increase quantity of milk	Yes	273 (81.7)	132 (81.0)	141 (82.4)	0.48
	No	39 (11.7)	22 (13.5)	17 (10.0)	
	Don't know	22 (6.6)	9 (5.5)	13 (7.6)	
EBF is enough for infant in 1st 6 months of his life	Totally agree	87 (26.1)	21 (12.9)	66 (38.8)	0.01
	Agree	121 (36.3)	43 (26.4)	79 (46.1)	
	Doesn't agree	126 (37.7)	99 (60.7)	26 (15.3)	
EBF should stop during illness of mother or child	Child illness	6 (1.8)	0 (0.0)	6 (3.5)	0.01
	Mother illness	24 (7.2)	17 (10.4)	7 (4.1)	
	Doesn't stop	304 (91)	146 (89.6)	158 (92.4)	
Three months leave childcare is enough for breastfeeding	Yes	7 (22.2)	5 (21.7)	5 (19.2)	0.61

** p value for chi square test*

Results

The current study included 334 mothers attending vaccination sessions or child clinical care visits. 51.1% of studied mothers practice exclusive breastfeeding (Results are not tabulated).

Age of studied mothers ranged from (17-44) with mean of 28± 5. Most mothers and their husbands had a university education (42%) for each of them. Most of mothers were housewife (76.9%). Most of the participants lived in 1st settlement (84.1%) and had less than four children (81%%). The majority of mothers who participated in the study were non-smokers (98.8%), slept below or equal 6 hours per day (64%) and didn't suffer from any chronic disease (92%).

The age of the studied mothers, education, and occupation didn't differ between mothers' practice exclusive breastfeeding and mothers' practice mixed feeding. But the number of living children whose studied mothers had and the use of stimulant drinks affect directly the practice of EBF, as mothers who had less than 4 children, not using stimulant drinks(p value=0.05) practice EBF more. Also, there was a difference between them in smoking habits (P value<0.05) but smoking didn't interfere with exclusive BF Table (1).

Most of the newborns were born full-term (65.2%), female infants (54.7%) and had born by cesarean section (66.7%). Most of the mothers received antenatal care (70.6%) and didn't utilize routine follow up for their infant (58.6%). The majority of the newborns weren't need newborn nursery (85%) with no statistical significant difference between the two groups as regard utilization of antenatal care, gestational age, mode of delivery, child gender, entry to newborn nursery and regular visits for well-baby clinics(p-value >0.05)Table (2).

Most of the mothers didn't have any help in housekeeping (58.9%) and their partners didn't help in housework (55.3%) but helped their wives in childcare (78.4%). The majority of partners encouraged their wives for breastfeeding (84%). There was no statistical difference between the two groups as regard family support in childcare. Table (3).

Regarding knowledge of EBF among study participants, the mean knowledge score among them was 7.69±.90 and their main source of knowledge were doctors (55.9%)

Table (5): Relation between Breastfeeding Practice among Studied Mothers and Exclusivity of Breast Feeding: :(N=334)

Practice No (%) 334 (100%)			Non-exclusive BF No (%) 163 (48.9)	Exclusive BF No (%) 171 (51.1)	P-value*
Start to breastfed	Immediately	216 (64.6)	114 (69.9)	102 (59.4)	0.04
	2-24 hours	72 (21.6)	26 (16.0)	46 (27.1)	
	after 24 hours	46 (13.8)	23 (14.1)	23 (13.5)	
Lactation frequency	Every 2 hours	58 (17.4)	31 (19.0)	27 (15.9)	0.04
	Before sleeping	5 (1.5)	5 (3.1)	0 (0.0)	
	Upon request	271 (81.1)	127 (77.9)	144 (84.1)	
Duration of each fed	< half an hour	161 (48.3)	79 (48.5)	82 (48.2)	0.13
	Half an hour	33 (9.9)	11 (6.7)	22 (12.9)	
	> half an hour	18 (5.4)	12 (7.4)	6 (3.5)	
	Doesn't know	121 (36.3)	61 (37.4)	60 (35.3)	
Frequency of breastfeeding/day	< 8	40 (12)	21 (12.9)	19 (11.2)	0.03
	8 or more	64 (19.2)	40 (24.5)	24 (14.1)	
	Doesn't count	230 (68.8)	102 (62.6)	128 (74.8)	

** p value for chi square test*

and their family (26.1%) followed by reading (9.6%), media (8%) and friends (0.5%). There was a statistically significant relationship between mother's knowledge and practice of EBF as mothers who practice exclusive breastfeeding had higher knowledge scores (7.82±0.87 compared to 7.56±0.93) (t-test =2.63, p value<0.01) (Results are not tabulated).

Most of the participated mothers thought that repeated breastfeeding increases the quantity of milk (81.7%). 37.7% of them did not agree that EBF is enough for infant 1st 6 months of his life. The majority of participated mothers thought that exclusive breastfeeding shouldn't stop during the illness of mother or child (91%) and three months leave childcare wasn't enough for breastfeeding (77.8%). There was a statistically significant difference between two groups regarding attitude towards breastfeeding concerning exclusivity in 1st 6 months as most of the studied mothers agreed that breast milk is enough for infants in the 1st 6 months of his life and didn't stop during the illness of mother or child (p-value <0.05). There was no statistically significant difference between the two groups as regards their attitude towards repeated breastfeeding with the quantity of milk nor leave childcare. Table (4).

The majority of studied mothers started breastfeeding immediately after labor (64.6%), breastfed their infants on demand (81.1%). 48.3% of studied mothers took less than half an hour every time they breastfed their infant without counting the frequency of breastfeeding/day(68.8%). There was a statistical significant difference between the two groups regarding breastfeeding practice including the time of beginning breastfeeding, lactation frequency and frequency of breastfeeding/day. As most of the females who practice EBF started it 2-24 hours after delivery, practice lactation on demand so they did not count the number of fed per day. There was no statistically significant difference between the two groups as regard the duration of each breastfed Table (5). Among non-exclusive breastfeeding mothers (48.9%), the most important reasons for non-exclusivity include working mothers (34.6%) and scanty of breast milk (30.2%). 52.5% of them gave their infant food which was other than formula milk and yogurt. (Results are not tabulated).

Discussion

The analysis of this study revealed several interesting points. The *first factor* was different socio-demographic characters of the participants including the age of the participated mothers, the current study found that the age of the study participants didsn't differ between mothers practice EBF and mothers practice mixed feeding as illustrated in *table(1).* This finding was in agreement with Samesh et al., 2014 who found that exclusive breastfeeding was not associated with mother's age at birth, and contradict with the finding of *Zielinska et al.,2017 , and Mitiku et al.,2015*, who found that mothers whose age group ranges from 25 to 35 years were nine-fold more likely to practice EBF than their counterpart mothers who were younger than 25 years ($p < 0.05$**)** this contradiction may be attributed to the difference in study settings.[11,12,13]

Also, education and occupation of parents; most of the studied mothers had university education (42%), housewife (76.9%), lived in1st settlement (84.1%). The current study found that there was no difference as regard parent's education and occupation between 2 groups as shown in *table (1).* This finding was in agreement with *Oche et al., 2011* ,who found that no significant relation between maternal education and exclusive breastfeeding, and contradict the finding of Mitiku et al., 2015**,** who found that mothers who are housewives were better at practicing EBF than employed mothers or farmers ($p < 0.05$).[2,13] Also contradict the finding of Samesh et al., 2014, who found a significant relationship between maternal education and exclusive breastfeeding.[11]

The second factor was the health service utilization and the outcome of pregnancy among studied mothers; the Majority of newborns were born full term, female infants, had born by cesarean section, and most of the studied mothers had two children. Most of the mothers received antenatal care and didn't utilize routine follow up for their infant. Most of newborns weren't need a newborn nursery. current study did not find statistically significant difference between the two groups as regard the health service utilization and the outcome of pregnancy as shown in *table (2).* This finding was not in agreement with Al Ghwass and Ahmed , 2011, who found that antenatal care (four or more visits), early breastfeeding initiation after delivery, male infant, and absence of breastfeeding difficulties were the significant predictors associated with higher chance for EBF at Egypt.[14] Also, contradict with *Kok leong Tan, 2011 and Alzaheb, 2017* who found that an association existed between low birth weight as a need for nursery and a low prevalence of EBF in the first 6 months of life.[15,16]

There is a statistically significant difference between the two groups as regards the number of living children as mother have less than 4 children practice more EBF shown in *table (1).* These findings contradicted with Kok leong Tan, 2011, who found that exclusive breastfeeding was more common among mothers with increased parity.[15]

Another factor was the role of family support in childcare; In the current study, the majority of partners helped their wives in childcare and encouraged their wives for breastfeeding but didn't help in housework. Most mothers didn't have any help in housekeeping. The current study showed that there was no statistically significant difference between the two groups as regard family support in childcare as illustrated in *table (3).* This finding contradicted with Kok leong Tan, 2011 and with Dashti, 2014, who found that a husband's preference for breastfeeding over formula feeding was positively associated with breastfeeding initiation and longer duration of full-breastfeeding which is consistent with Western studies, The above variations

could be attributed to the orientation of Egyptian husbands towards EBF as a good source of nutrition.[15,17]

The fourth factor was Participants' knowledge regarding breastfeeding among studied sample; in the current study, there was a statistically significant relation between studied mother's knowledge and practicing EBF as mothers who practice EBF had higher scores. knowledge score was calculated by asking questions about benefits of EBF, the majority of studied mothers reported right answers as breastfeeding was cheap (99,7), increase relation between mother and infant(99.1), increase child intelligence(99.1), help infant teething (98.5), Increase infant immunity (99.4) but not sufficient contraceptive method (55.8%). Also, identify correctly the meaning of EBF by 56.6% and their source of knowledge was doctors (55.9%) and family (26.1%). This finding was incongruent with *Oche et al., 2011,Samesh et al., 2014, Zielinska et al., 2017 and Dhakal et al., 2017,* who found that adequate knowledge is associated with the practice of EBF. Main Sources of information on EBF were mothers of respondents and health workers.[2,11,13.18]

Fifth factor was breastfeeding attitude among studied sample; shows that there was a statistically significant difference between two groups regarding attitude towards breastfeeding concerning exclusivity in 1st 6 months as most of the studied mothers agreed that breast milk is enough for infant in 1st 6 months of his life and didn't stop during illness of mother or child . There was no statistically significant difference between the two groups as regards their attitude towards repeated breastfeeding in relation to the quantity of milk nor leave childcare. This finding was in agreement with *Dashti, 2014,* who found that more than eight in 10 women gave this explanation (as doubt the adequacy of their milk supply) one of their reasons for discontinuing breastfeeding.[17]

Finally, the breastfeeding practice among the studied sample; concerning the proportion of infants who are breastfed exclusively for 6 months, 51.1% of studied mothers practice exclusive breastfeeding. *Dhakal et al., 2017,* found 49.2% of the mothers practice EBF Democratic Republic of the Congo (DRC) which is nearly the same as the finding in the current study.[18] Also, El-Gilany, 2003, found that in Egypt 42.5% of mothers reported exclusive breastfeeding to infants less than 4 months of age. but a lower rate was found by Samesh *et al,2014,* who found that 32.2% of children received EBF. Also, *Jones et al., 2011,* found a lower rate as only 16.8% had been breastfed exclusively for 6 months. This variation in EBF rates may be due to the difference in study setting and population under study.[11,19,20]

The majority of mothers started breastfeeding immediately after labor, breastfed their infants on demand.48.3% of mothers took less than half an hour every time they breastfed their infant without counting the frequency of breastfeeding/day. Among non-exclusive breastfeeding mothers (48.9%), the most important reasons for non-exclusivity included working mothers and scanty of breast milk. This finding agreed with El-Gilany, 2003, who found that in Egypt Non-working mothers are more likely to breastfeed exclusively and more likely to continue breastfeeding for 1 year.[19] 52.5% of them gave their infant food which was other than formula milk and yoghurt. The current study finding contradicted with *Samesh et al,2014* who found that Yogurt and juice were considered suitable as the main diet for weaned infants but agreed with him in showed that most of the mothers initiated breastfeeding immediately after delivery.[11,19]

Conclusion and Recommendations

EBF is a healthy and cost-effective method of feeding. 51.1% of studied mothers practice EBF. The number of living children, using stimulant drinks, knowledge scores, attitude towards breastfeeding concerning exclusivity in 1st 6 months and stoppage of breastfeeding during the illness of mother or child were the key indicators for exclusive breastfeeding. There is a need for health care system interventions and health education campaigns targeting the whole community with special attention to future mothers.

Limitation of the study

The present study had several limitations that should be addressed. First; Being a cross-sectional study, causal associations could not be established. second, this study is conducted only at one urban health care center; results might not be the same at other health care centers. The nature of the participants and their social class may affect the results.

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Conflicts of Interest

The authors report no conflicts of interest.

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