IOSR Journal of Nursing and Health Science (IOSR-JNHS)
e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 6, Issue 5 Ver. III. (Sep. -Oct .2017), PP 63-70
www.iosrjournals.org

Factors influencing breastfeeding practice after cesarean section delivery

Ekbal Abd El Rheem Emam[1]and Aml Sayed Ali[2]
[1]*Assistant Professor of woman health and obstetric nursing*
[2]*Lecturer of pediatric nursing, Faculty of Nursing, Minia University*
Corresponding author: dr_ekbal_2010@yahoo.com

Abstract: *The delivery by cesarean section is often associated with non-initiation or delayed initiation of breastfeeding, or discontinuation of the process. The aim of this study was to identify the factors influencing breastfeeding practice among women after cesarean section delivery. This cross-sectional analytic study was carried out at the Obstetrics and Genecology Department in the Obstetrics and Gynecology Hospital at Minia University on 224 women delivered by cesarean section in the setting. A structured interview questionnaire form comprising questions about personal characteristics, obstetric history, details of breastfeeding, knowledge related to breastfeeding, practice of strategies for successful breastfeeding, and Edinburgh Postpartum Depression Scale. Data collection was from January to December 2016. Only 28.1% of the mothers started breastfeeding immediately. The most commonly reported breastfeeding problem related to breast was milk engorgement (8.9%), related to mother was the concern about insufficient milk (18.7%), and related to newborn was frequent suckling (29.3%). Less than half of the women had satisfactory knowledge of breastfeeding (48.2%), 79.9% had adequate use of strategies for successful breastfeeding, and 41.5% had postpartum depression. The multivariate analysis identified a good newborn status and having antenatal care as positive predictors, while the negative predictors were higher level of mother education, higher gravidity, and giving glucose to newborn. The study recommends educational interventions, both at the individual and community levels to address the barriers and misconceptions related to breastfeeding after cesarean section, with encouraging women to attend antenatal care regularly.*

Keywords*: Breastfeeding, Cesarean section, Barriers*

Date of Submission: 11-09-2017 Date of acceptance: 23 -09-2017

I. Introduction

Breastfeeding is a natural process with a gamut of beneficial effects on mothers and infants ***(Victora et al., 2015; Carvalho and Boccolini, 2016)***.The advantages of breastfeeding are intensified when it is practiced properly. Thus, it should be timely initiated, i.e. within the first hour after delivery ***(Tilahun et al, 2016)***, with exclusive breastfeeding for six months ***(Still et al, 2017)***, although the term could have different definitions ***(Labbok and Starling, 2012)***.

Nonetheless, the literature indicates changes in breastfeeding trends, with tendency towards decreasing rates both in developed ***(Libuda et al, 2017)*** and developing ***(Al-Nuaimi et al, 2017)*** countries. A number of factors have been associated this drift including the socioeconomic variables of the mother, as well as the cultural environment and the support the mother gets from the family and the community ***(Sharma and Byrne, 2016)***. Another explanatory factor is the modernization trend that may lead to preference of formula feeding ***(Fosu-Brefo and Arthur, 2015)***. On the other hand, the timely initiation and the maintenance of exclusive breastfeeding is potentiated by intervention increasing the awareness of mothers ***(Maimburg, 2017)***, techniques as early skin-to-skin contact ***(Boyd, 2017)***, and community programs supporting maternity rights ***(Lubold, 2017)***.

The delivery by cesarean section is an operative approach replacing the natural process of delivery. Its rates have a tendency towards increases during the last few decades ***(Chung et al, 2017)***. Research demonstrated that having a delivery by cesarean section is associated with non-initiation ***(Wallenborn et al, 2017)*** or delayed initiation of breastfeeding***(Maimburg, 2017)***, as well as with discontinuation of exclusive breastfeeding or even or total stopping of the process ***(Cato et al, 2017; Fernández-Cañadas Morillo et al, 2017; Alzaheb, 2017)***. Cesarean section has also been significantly related to a higher rate of use of formula supplementation ***(Nguyen et al, 2017)***.

Significance and aim of the study: Although research demonstrated a negative impact of cesarean section on the initiation and continuation of breastfeeding, there is a paucity of studies investigating the factors affecting breastfeeding in cesarean section. The identification of such factors could help in designing

interventions targeting these factors, and consequently improving the practice of breastfeeding. Therefore, the aim of this study was to identify the factors influencing breastfeeding practice among women after cesarean section delivery.

II. Subjects And Methods

Research design and setting: This cross-sectional analytic study was carried out at the Obstetrics and Gynecology Department in the Obstetrics and Genecology Hospital at Minia University.

Subjects: Women delivered by cesarean section in the setting during the time of the study constituted the study population. They were eligible for inclusion in the study sample if their period of stay in the hospital after delivery was 48-72 hours. Those with serious postpartum complications were excluded. The sample size was calculated to detect any factor influencing immediate breastfeeding of 30% or higher with an Odds Ratio (OR) 2.5 or higher, at 95% level of confidence and 80% study power. Using the sample size calculation for logistic regression ***(Demidenko, 2008)***, and accounting for an expected dropout rate of about 20%, the required sample size was 224 women. The sample was recruited using consecutive sampling technique according to eligibility criteria.

Data collection tool: A structured interview questionnaire form was used for data collection. It comprised the following parts. **Part I** was for woman's personal characteristics as age, education, job, as well as the obstetric history including gravidity, parity and abortions. **Part II** covered the details of the current pregnancy; it involved questions about antenatal care, pregnancy complications, labor site, anesthesia, medications, newborn status, and co-rooming. **Part III** was for the details of breastfeeding such as the time of start, and related problems, and the perception of barriers in normal and cesarean labor. **Part IV** tested woman's knowledge related to breastfeeding through 25 True/False questions such as the nutrition and fluids during breastfeeding, effect on breasts, use of medications, when to stop, etc. For scoring, a correct response was scored 1 and the incorrect zero. The scores of the items were summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a percent score. Knowledge was considered satisfactory if the percent score was 50% or more and unsatisfactory if less than 50%.

Part V dealt with women's practice of strategies for successful breastfeeding. It involved 13 strategies such as starting breastfeeding the earliest possible, avoiding fixing any schedule for breastfeeding, using relaxation techniques, co-rooming, avoiding artificial nipples, etc. Each successful strategy used was scored one, and the numbers of strategies were summed-up. The practice of the woman was considered adequate if she used 60% or more of the strategies. **Part VI** consisted of Edinburgh Postpartum Depression Scale (EPDS) developed by ***Cox et al. (1987)*** to identify patients at risk for perinatal depression. It consists of 10 questions with 4 possible responses from always to never. These are scored from zero to three. The scoring is reversed for positive items so that a higher score indicates more risk of depression. A score of 13 or higher indicates a high risk and need for referral.

The tool was tested for face and content validity by two experts in Obstetric and Gynecological Nursing, and one Professor in Psychiatry. They reviewed the instruments for clarity, relevance, comprehensiveness, understanding, and applicability. The necessary modifications were done accordingly. Meanwhile, the Edinburgh tool is a standardized tool with confirmed validity and reliability. It also showed good reliability when tested through determining its alpha Cronbach coefficient in the present study.

Pilot study: A pilot study was conducted on 10% of the total sample to check the clarity of items and to determine the feasibility of the study. The data collection form was finalized based on the pilot results. The women of the pilot sample were not included in the main study sample.

Fieldwork: Once the necessary permissions were obtained, the researchers started recruiting the women in the study sample according to the inclusion and exclusion criteria. Eligible women were invited to participate after explaining to them the aim and procedures of the study. After giving a verbal informed consent, the researcher interviewed the woman individually using the data collection form. This took approximately 30 minutes to be completed. At the end of the interview, the researcher provided the woman with a health education session to correct any wrong knowledge or misconceptions identified during the interview. The data collection phase extended through a period of 9 months from January to December 2016.

Ethical considerations: An official permission was granted from the Director of the Obstetrics and Gynecology Hospital at Minia University after clarifying the aim and procedures of the study. An informed verbal consent was obtained from each woman before collecting any data and after explaining the study aim in a simple and clear manner to be understood by common people. No harmful maneuvers were performed or used, and no foreseen hazards were anticipated from conducting the study on these women. Participants were informed about their right to withdraw from the study at any time without giving any reason. Data were considered confidential and not be used except in research. The researchers' phone numbers were identified to participants to return at any time for any explanation.

Statistical analysis: Data entry and statistical analysis were done using SPSS 20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. To identify the independent predictors of the odds of immediate breastfeeding, multiple logistic regression analysis was used. In order to identify the independent predictors of the depression and practice scores, multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

III. Results

The study sample consisted of 224 women delivered by cesarean section. Their age ranged between 19 and 45 years as shown in Table 1. Approximately a half of them (49.1%) had basic/intermediate education, and the majorities were housewives (88.8%). Only 21.0% were primigravida and 28.6% were primipara, and 42.9% had previous abortions.

Table 2 demonstrates that the majority of the women had antenatal care for their current pregnancy (82.6%), but only 44.3% got instructions regarding breastfeeding. Meanwhile, more than half of them had pregnancy complications (58.9%). The great majority were delivered in hospitals (95.5%), had spinal anesthesia (97.3%), analgesia (94.2%) in addition to antibiotics (83.5%). Around four-fifth of the newborns were normal (79.5%), and co-rooming with mother occurred within 2 hours in 65.2% of the cases.

Concerning breastfeeding, Table 3 illustrates that only 28.1% of the mothers started it immediately, within the first two hours following delivery. More than two-fifth of the newborns were given glucose with water (43.3%). The most commonly reported breastfeeding problem related to breast was milk engorgement (8.9%), related to mother was the concern about insufficient milk (18.7%), and related to newborn was frequent suckling (29.3%). The number of problems per mother ranged between zero and ten, with median 1.00. Slightly less than half of the women had satisfactory knowledge of breastfeeding (48.2%), and 79.9% of them had adequate use of strategies for successful breastfeeding. Meanwhile, the majority (82.6%) had high perception of the barriers to breastfeeding in cesarean section. The table also demonstrates that slightly more than two-fifth of the women had postpartum depression (41.5%).

As regards the factors influencing the immediate start of breastfeeding, the multivariate logistic regression analysis (Table 4) identified a good newborn status and having antenatal care (ANC) as positive predictors. Conversely, the negative predictors of immediate breastfeeding were higher level of mother education, higher gravidity, and giving glucose to newborn.

Table 5 demonstrates that mother education and a higher perception of the barriers of breastfeeding in cesarean section were the statistically significant independent positive predictors of the score of use of strategies for successful breastfeeding. Conversely, the postpartum depression score was a negative predictor. The model explains 24% of the variation in the score of used strategies.

Concerning the factors influencing the postpartum depression score, Table 6 illustrates that the number of breastfeeding problems and the antenatal care (ANC) were its statistically significant independent positive predictors. Conversely, mother level of education was a negative predictor. However, the model explains 16% of the variation in the score of postpartum depression.

IV. Discussion

The present study results indicate a low rate of immediate breastfeeding among women delivered by cesarean section. This low rate could be attributed to lack of knowledge and awareness, in addition to high prevalence of misconceptions concerning breastfeeding after cesarean section. This might be supported by the low level of satisfactory knowledge and the high perception of barriers of breastfeeding following cesarean delivery. A similarly low rate of timely initiation of breastfeeding was reported in a study in Ethiopia, where the Odds Ratio of initiation after cesarean section was 0.11 compared to after vaginal delivery ***(Tilahun et al, 2016)***. On the same line, ***Majra and Silan (2016)*** in a study in India attributed the low rate of early initiation of breastfeeding to the low level of knowledge among women regarding proper techniques and problems, as well as the cultural habits concerning prelacteal feeding.

According to the present study results, having a newborn in good health status was identified as the main factor positively influencing the immediate start of breastfeeding. Thus, a good newborn status increases the chance of immediate breastfeeding by ten-folds. This is quite plausible since a newborn suffering from any deviation from normal may need interventions that could delay his/her start of breastfeeding. Added to this is the psychological impact of having a newborn with ill-health status on the mother, which could pose a barrier for immediate breastfeeding. In agreement with this, a study in Germany identified newborn health status problems and admissions to NICU were strong negative predictors of immediate initiation of breastfeeding ***(Wallwiener et al, 2015)***. Similar findings were also reported by ***Alzaheb (2016)*** in a study in Saudi Arabia.

Another important factor with a positive influence on immediate breastfeeding, as identified in the current study was the mother attendance of antenatal care (ANC) during pregnancy. This was shown to increase the chance of immediate breastfeeding by three-folds. The finding underscores the role of ANC in encouraging proper breastfeeding among attendants through providing correct information, correcting misconceptions, and encouraging the use of strategies that increase the probability of successful breastfeeding. In agreement with this, studies in Ethiopia demonstrated a positive impact of counseling regarding infant feeding on successful breastfeeding ***(Bimerew et al, 2016; Kasahun et al, 2017)***.

On the contrary, a number of factors seem to have a negative impact on immediate breastfeeding as revealed by the results of the current study. Thus, a higher level of mother education turned to be a negative predictor of immediate breastfeeding. This could be attributed to higher concerns about the effect of breastfeeding on maternal body shape, a misconception often found among those in higher socioeconomic standard women. It could also be related to financial reasons, where the more educated might be more able to afford the costs of formula feeding. In line with this, a study in Norway revealed the impact of socioeconomic disparities on exclusive breastfeeding ***(Bærug et al, 2017)***.

Another maternal factor with a negative influence on the immediate start of breastfeeding revealed in the present study was the gravidity. The study findings revealed that the higher the gravidity of the woman, the lower is her chance of immediate breastfeeding. The finding might be explained by the mother's weariness of repeated breastfeeding, with more consumption of her body reserves, which could also have a negative impact on her ability to produce sufficient milk. A similar tendency to lower rates of initiation of breastfeeding with repeated deliveries was shown in studies in China ***(Lok et al, 2015)***, Ethiopia ***(Liben and Yesuf, 2016)***, and Nova Scotia, Canada ***(Nix and Dodds, 2017)***.

The current study has also demonstrated a negative influence of giving the newborn glucose or sugar in water on the immediate start of breastfeeding. This incorrect practice could lead to delay in mother's decision to start feeding her infant given that he/she had already taken the needed nutrition temporarily. It could also decrease newborn's tendency or ability of suckling. In agreement with this, ***Patel et al (2013)***, in a study in India demonstrated that prelacteal feeding of newborns had a statistically significant association with delayed initiation of breastfeeding.

Concerning mother's use of strategies for successful breastfeeding, the current study findings showed that it increased with the level of mother education, which is quite expected. Moreover, a higher perception of the barriers of breastfeeding in cesarean section was also a positive predictor of the use of such strategies. This could be attributed to that a higher awareness of the barriers might encourage the mother to look for means to overcome such barriers through seeking helping strategies. This could also be enhanced by higher level of education of the mother. The finding is in agreement with who mentioned that the level of education of the mother is associated with better breastfeeding practices in both timely initiation and maintenance ***(Steurer, 2017)***.

Slightly more than two-fifth of the women in the current study had a high risk of postpartum depression. The rate is high compared with previous studies such as in Philippines, 6.7% ***(Liu et al, 2017)***. As regards the factors influencing postpartum depression, the present study findings identified the number of breastfeeding problems as a main positive predictor. This could be attributed to the psychological troubles the mother could experience due to her inability to breastfeed her infant. Moreover, the postpartum depression was identified as a negative predictor of mother's use of strategies for successful breastfeeding. Thus, the mother with more problems is more vulnerable to depression; this discourages her from using success strategies, and she enters a vicious circle ending with total failure of breastfeeding. In congruence with this, a study in Korea revealed a higher rate of postpartum depression among women who were not able to breastfeed their infants, particularly among those delivered by cesarean section ***(Nam et al, 2017)***.

A paradoxical finding of the present study was the negative effect of attendance of antenatal care on the risk of postpartum depression. Thus, it was identified as a significant independent positive predictor of the depression score. This might be explained by the lack of temporal relationship in cross-sectional designs. For instance, the mother who experiences depression symptoms could have a more tendency to seek help through antenatal care rather than the antenatal care increases the risk of depression. This needs a prospective design to disentangle the true nature of the temporal relationship.

V. Conclusions And Recommendations

To conclude, a low percentage of women delivered by cesarean section practice timely initiation of breastfeeding, with high prevalence of postpartum depression. Breastfeeding is influenced by infant health condition at birth, antenatal care, mother education, gravidity, and prelacteal feeding. The study recommends educational interventions, both at the individual and community levels to address the barriers and misconceptions related to breastfeeding after cesarean section, with encouraging women to attend antenatal care

regularly. These interventions should target the more vulnerable women such as those with low socioeconomic level and high gravidity.

References

[1]. ***Al-Nuaimi N., Katende G., and Arulappan J. (2017)***: Breastfeeding Trends and Determinants: Implications and recommendations for Gulf Cooperation Council countries. Sultan Qaboos Univ Med J.; 17(2):e155-e161. doi: 10.18295/squmj.2016.17.02.004. Epub 2017 Jan 20.

[2]. ***Alzaheb R.A. (2016)***: Factors associated with the initiation of breastfeeding within the first 48 hours of life in Tabuk, Saudi Arabia. Int Breastfeed J.;11:21. doi: 10.1186/s13006-016-0079-4. eCollection 2016.

[3]. ***Alzaheb R.A. (2017)***: Factors Influencing Exclusive Breastfeeding in Tabuk, Saudi Arabia. Clin Med Insights Pediatr.;11:1179556517698136. doi: 10.1177/1179556517698136. eCollection 2017.

[4]. ***Bærug A., Laake P., Løland B.F., Tylleskär T., Tufte E., and Fretheim A. (2017)***: Explaining socioeconomic inequalities in exclusive breast feeding in Norway. Arch Dis Child.; 102(8):708-714. doi: 10.1136/archdischild-2016-312038. Epub 2017 Feb 24.

[5]. ***Bimerew A., Teshome M., and Kassa G.M. (2016)***: Prevalence of timely breastfeeding initiation and associated factors in Dembecha district, North West Ethiopia: a cross-sectional study. Int Breastfeed J.;11:28. eCollection 2016.

[6]. ***Boyd M.M. (2017)***: Implementing Skin-to-Skin Contact for Cesarean Birth. AORN J.;105(6):579-592. doi: 10.1016/j.aorn.2017.04.003.

[7]. ***Carvalho M.L., Boccolini C.S., Oliveira M.I., and Leal M.D. (2016)***: The baby-friendly hospital initiative and breastfeeding at birth in Brazil: a cross sectional study. Reprod Health.;13(Suppl 3):119.

[8]. ***Cato K., Sylvén S.M., Lindbäck J., Skalkidou A., and Rubertsson C. (2017)***: Risk factors for exclusive breastfeeding lasting less than two months-Identifying women in need of targeted breastfeeding support. PLoS One.;12(6):e0179402. doi: 10.1371/journal.pone.0179402. eCollection 2017.

[9]. ***Chung W.H., Kong C.W., and To W.W. (2017)***: Secular trends in caesarean section rates over 20 years in a regional obstetric unit in Hong Kong. Hong Kong Med J.;23(4):340-8. doi: 10.12809/hkmj176217. Epub 2017 Jul 7.

[10]. ***Cox J.L., Holden J.M., and Sagovsky R. (1987)***: Detection of postpartum depression: Development of the 10- item Edinburgh Postpartum Depression Scale. British Journal of Psychiatry; 150:782-786.

[11]. ***Demidenko E. (2008)***: "Sample size and optimal design for logistic regression with binary interaction." Statistics in Medicine; 27:36-46

[12]. ***Fernández-Cañadas Morillo A., Durán Duque M., Hernández López A.B., Muriel Miguel C., Martínez Rodríguez B., Oscoz Prim A., Pérez Riveiro P., Salcedo Mariña A., Royuela Vicente A., Casillas Santana M.L., and Marín Gabriel M.A. (2017)***: A Comparison of Factors Associated with Cessation of Exclusive Breastfeeding at 3 and 6 Months. Breastfeed Med. doi: 10.1089/bfm.2017.0045. [Epub ahead of print] (Spain)

[13]. ***Fosu-Brefo R., and Arthur E. (2015)***: Effect of timely initiation of breastfeeding on child health in Ghana. Health Econ Rev.;5:8. doi: 10.1186/s13561-015-0044-8. eCollection 2015.

[14]. ***Kasahun A.W., Wako W.G., Gebere M.W., and Neima G.H. (2017)***: Predictors of exclusive breastfeeding duration among 6-12 month aged children in gurage zone, South Ethiopia: a survival analysis. Int Breastfeed J.;12:20. doi: 10.1186/s13006-017-0107-z. eCollection 2016.

[15]. ***Labbok M.H., and Starling A. (2012)***: Definitions of breastfeeding: call for the development and use of consistent definitions in research and peer-reviewed literature. Breastfeed Med.;7(6):397-402. doi: 10.1089/bfm.2012.9975.

[16]. ***Liben M.L., and Yesuf E.M. (2016)***: Determinants of early initiation of breastfeeding in Amibara district, Northeastern Ethiopia: a community based cross-sectional study. Int Breastfeed J.;11:7. doi: 10.1186/s13006-016-0067-8. eCollection 2016.

[17]. ***Libuda L., Bolzenius K., and Alexy U. (2017)***: Breastfeeding trends in healthy infants since 1990-results of the DONALD study. Eur J Clin Nutr.;71(8):1016-1018. doi: 10.1038/ejcn.2017.106. Epub 2017 Jun 28.

[18]. ***Liu S., Yan Y., Gao X., Xiang S., Sha T., Zeng G., and He Q. (2017)***: Risk factors for postpartum depression among Chinese women: path model analysis. BMC Pregnancy Childbirth.;17(1):133. doi: 10.1186/s12884-017-1320-x.

[19]. ***Lok K.Y., Bai D.L., and Tarrant M. (2015)***: Predictors of breastfeeding initiation in Hong Kong and Mainland China born mothers. BMC Pregnancy Childbirth.;15:286. doi: 10.1186/s12884-015-0719-5.

[20]. ***Lubold A.M. (2017)***: The effect of family policies and public health initiatives on breastfeeding initiation among 18 high-income countries: a qualitative comparative analysis research design. Int Breastfeed J.;12:34. doi: 10.1186/s13006-017-0122-0. eCollection 2017.

[21]. ***Maimburg R.D. (2017)***: Rates of breastfeeding initiation among newborns. Sex Reprod Healthc.;12:1-2. doi: 10.1016/j.srhc.2017.01.001. Epub 2017 Jan 5.

[22]. ***Majra J.P., and Silan V.K. (2016)***: Barriers to Early Initiation and Continuation of Breastfeeding in a Tertiary care Institute of Haryana: A Qualitative Study in Nursing Care Providers. J Clin Diagn Res.;10(9):LC16-LC20. Epub 2016 Sep 1.

[23]. ***Nam J.Y., Choi Y., Kim J., Cho K.H., and Park E.C. (2017)***: The synergistic effect of breastfeeding discontinuation and cesarean section delivery on postpartum depression: A nationwide population-based cohort study in Korea. J Affect Disord.;218:53-58. doi: 10.1016/j.jad.2017.04.048. Epub 2017 Apr 24.

[24]. ***Nguyen T., Dennison B.A., Fan W., Xu C., and Birkhead G.S. (2017)***: Variation in Formula Supplementation of Breastfed Newborn Infants in New York Hospitals. Pediatrics.;140(1). pii: e20170142. doi: 10.1542/peds.2017-0142.

[25]. ***Nix K., and Dodds L. (2017)***: Changes in breastfeeding initiation at hospital discharge between first and second births in Nova Scotia: a population-based cohort study. CMAJ Open.;5(1):E213-E221. doi: 10.9778/cmajo.20160116. eCollection 2017 Jan-Mar.

[26]. ***Patel A., Banerjee A., and Kaletwad A. (2013)***: Factors associated with prelacteal feeding and timely initiation of breastfeeding in hospital-delivered infants in India. J Hum Lact.;29(4):572-8. doi: 10.1177/0890334412474718. Epub 2013 Feb 20.

[27]. ***Sharma I.K., and Byrne A. (2016)***: Early initiation of breastfeeding: a systematic literature review of factors and barriers in South Asia. Int Breastfeed J.;11:17. doi: 10.1186/s13006-016-0076-7. eCollection 2016.

[28]. ***Steurer L.M. (2017)***: Maternity Leave Length and Workplace Policies' Impact on the Sustainment of Breastfeeding: Global Perspectives. Public Health Nurs.;34(3):286-294. doi: 10.1111/phn.12321. Epub 2017 Mar 10.

[29]. ***Still R., Marais D., and Hollis J.L. (2017)***: Mothers' understanding of the term 'exclusive breastfeeding': a systematic review. Matern Child Nutr.;13(3). doi: 10.1111/mcn.12336. Epub 2016 Oct 18.
[30]. ***Tilahun G., Degu G., Azale T., and Tigabu A. (2016)***: Prevalence and associated factors of timely initiation of breastfeeding among mothers at Debre Berhan town, Ethiopia: a cross-sectional study. Int Breastfeed J.;11:27. eCollection 2016.
[31]. ***Victora C.G., Horta B.L., Loret de Mola C., Quevedo L., Pinheiro R.T., Gigante D.P., Goncalves H., and Barros F.C. (2015)***: Association between breastfeeding and intelligence, educational attainment, and income at 30 years of age: a prospective birth cohort study from Brazil. Lancet Glob Health.;3(4):e199–205.
[32]. ***Wallenborn J.T., Graves W.C., and Masho S.W. (2017)***: Breastfeeding Initiation in Mothers with Repeat Cesarean Section: The Impact of Marital Status. Breastfeed Med.;12:227-232. doi: 10.1089/bfm. 2016.0205. Epub 2017 Mar 30.
[33]. ***Wallwiener S., Müller M., Doster A., Plewniok K., Wallwiener C.W., Fluhr H., Feller S., Brucker S.Y., Wallwiener M., and Reck C. (2016)***: Predictors of impaired breastfeeding initiation and maintenance in a diverse sample: what is important? Arch Gynecol Obstet.;294(3):455-66. doi: 10.1007/s00404-015-3994-5. Epub 2015 Dec 28.

Table 1: Socio-demographic characteristics and obstetric history of women in the study sample (n=224)

	Frequency	Percent
Age:		
<30	149	66.5
30+	75	33.5
Range	19.0-45.0	
Mean±SD	27.4±5.1	
Median	27.0	
Education:		
None	90	40.2
Basic/intermediate	110	49.1
University	24	10.7
Job:		
Housewife	199	88.8
Working	25	11.2
Gravidity:		
1	47	21.0
2-3	130	58.0
4+	47	21.0
Parity:		
1	64	28.6
2-3	143	63.8
4+	17	7.6
Abortions	96	42.9

Table 2: Current pregnancy and labor characteristics of women in the study sample (n=224)

	Frequency	Percent
Had antenatal care	185	82.6
Got instructions about BF	82	44.3
Had pregnancy complications	132	58.9
Labor site:		
Hospital	214	95.5
Medical center	10	4.5
Anesthesia:		
Spinal	218	97.3
General	6	2.7
Medications administered:		
Analgesics	211	94.2
Antibiotics	187	83.5
Anti-bleeding	53	23.7
Newborn status:		
Normal	178	79.5
Abnormal	46	20.5
Co-rooming (within 2 hours)	146	65.2

(@) Not mutually exclusive

Table 3: Breastfeeding (BF) characteristics and related problems, knowledge, perception of barriers, success strategies, and depression among women in the study sample (n=224)

	Frequency	Percent
Start of BF (hours):		
Immediate (<2)	63	28.1
2+	161	71.9
Range	<1.0-96.0	
Mean±SD	4.3±10.6	
Median	2.0	
Newborn had glucose with water	97	43.3
Have high perception of BF barriers:		
After normal labor	113	50.4
After CS	185	82.6
Breastfeeding problems:		
Mother (breast):		
Milk engorgement	20	8.9
Mastitis	19	8.4
Nipple cracking	15	6.7
Nipple ulceration	9	4.0
Mother (general):		
Concern about insufficient milk	42	18.7
Concern about newborn not getting sufficient feeding	37	16.4
Maternal exhaustion and fatigue	32	14.2
Conflict between breastfeeding and work	26	11.6
Inability to reach most suitable position	20	8.9
Maternal anxiety and irritability	20	8.9
Newborn:		
Newborn frequent suckling	66	29.3
Newborn unwilling due to sleepiness	30	13.3
Newborn having difficulty suckling	23	10.2
Newborn unwilling due to irritability	22	9.8
Newborn has difficulty taking nipple	19	8.4
Total number of problems:		
Range	0-10	
Mean±SD	1.79±2.11	
Median	1.00	
Knowledge of BF:		
Satisfactory (60%+)	108	48.2
Unsatisfactory (<60%)	116	51.8
Strategies used for successful BF:		
Adequate (60%+)	179	79.9
Inadequate (<60%)	45	20.1
Postpartum depression (Edinburg):		
No (<13)	131	58.8
Yes (13+)	93	41.5

(@) Not mutually exclusive

Table 4: Best fitting multiple logistic regression model for the immediate start of BF

	Wald	Df	P	OR	95.0% CI for OR	
					Upper	Lower
Constant	.266	1	.606	.500		
Education	4.107	1	.043	.680	.468	.987
Gravidity	4.957	1	.026	.749	.581	.966
ANC	6.204	1	.013	3.026	1.266	7.230
Good newborn status	21.552	1	<0.001	10.472	3.885	28.226
Glucose to newborn	5.571	1	.018	.333	.133	.830
Nagelkerke R Square: 0.46						
Hosmer and Lemeshow Test: p=0.441						
Omnibus Tests of Model Coefficients: p<0.001						
Variables excluded: age, job status, previous BF, anesthesia type, complications, problems, knowledge, barriers, rooming-in						

Table 5: Best fitting multiple linear regression model for the success strategies score

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	.26	.08		3.295	.001	.11	.42
Education	.04	.01	.28	4.740	<0.001	.02	.06
BF barriers in CS	.23	.04	.37	6.343	<0.001	.16	.31
Depression score	-.01	.00	-.16	-2.633	.009	-.01	.00

r-square=0.24 Model ANOVA: F=24.90, p<0.001

Variables entered and excluded: age, parity, ANC, previous BF, problems, complications, anesthesia type, newborn status, rooming-in, knowledge score, general BF barriers score

Table 6: Best fitting multiple linear regression model for the depression score

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	7.751	1.160		6.682	.000	5.465	10.037
Education	-.363	.176	-.128	-2.060	.041	-.710	-.016
ANC	1.781	.660	.167	2.698	.008	.480	3.082
No. of problems	2.443	.421	.356	5.802	<0.001	1.613	3.273

r-square=0.16 Model ANOVA: F=15.59, p<0.001

Variables entered and excluded: age, job, parity, previous BF, symptoms, complications, anesthesia type, newborn status, rooming-in, knowledge score, general and CS BF barriers score

Ekbal Abd El Rheem Emam¬. " Factors influencing breastfeeding practice after cesarean section delivery." IOSR Journal of Nursing and Health Science (IOSR-JNHS) , vol. 6, no. 5, 2017, pp. 63–70.