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# "Breastfeeding initiation and Determinants of exclusive breastfeeding: A study in a tertiary care hospital, Dhaka, Bangladesh"

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***Abstract:*** *Breastfeeding is of considerable importance in the context of childhood nutrition. Nutritional requirements of an infant can be obtained solely from breast milk for the first six months of life. Many studies had been done in Bangladesh regarding infant feeding practices. The present study has been designed to evaluate the determinants of exclusive breastfeeding which may reflect the current breastfeeding situation in this part of old Dhaka.This case control study conducted among babies aged 4 to 6 months. A total of 60 exclusively breastfed (EBF) and 180 non-exclusively breastfed (NEBF) babies were enrolled. Parents or caregivers were interviewed with a semi-structured questionnaire. Initially univariate association was sought; factors found to be significantly associated in univariate analysis were entered into multivariate model for generating odds ratio adjusted for possible related confounder. EBF was not related to the mother's age (P>.05), education (P>.05) or parity (P>.05), rather it's the place and mode of delivery (P<.05) that shows the difference. Babies who had delivered by C/S were found to be less likely to exclusively breast fed (OR .53 CI .29-.94). Further mothers who delivered at clinic were less likely to practice EBF than those delivered at public hospital or even at home (OR .23 CI .13 - .39). EBF practice is more among the babies whose parents had knowledge about EBF before delivery (P< .05). Regarding initiation of breastfeeding in EBF group, most (90.3%) of the babies started breastfeeding within 24 hours. In NEBF the percentage is 62.3% (P<.05). The most common (64.5%) reason for not exclusively breast feeding was 'not enough breast milk'. EBF campaign should be strengthened among people of all socioeconomic and socio demographic strata. Private facility where delivery facility is available advocacy should be made to encourage them to act pro-EBF. Necessary counseling to mothers having C/S should be made by treating physician about possible initiation unless there is a valid reason. EBF campaign should also be initiated toward educating mothers about EBF even before delivery.*

***Key words:*** *Breastfeeding, Exclusive breastfeeding, Mother-infant pair, Childhood nutrition*

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## I. Introduction

Breastfeeding is critical for sustaining the health and well-being of newborns and infants. The WHO recommends exclusive breastfeeding (BF) for 6 months, with introduction of complementary foods and continued BF thereafter (WHO, 2001). Globally, over one million newborn infants could be saved each year by early initiation of breastfeeding. In developing countries alone, early initiation could save as many as 1.45 million lives each year by reducing deaths mainly due to diarrheal disorders and lower respiratory tract infections in children (Lauer 2006). No more than 35% of infants worldwide are exclusively breastfed during the first four months of life; complementary feeding frequently begins too early or too late (WHO 2000).In Bangladesh, only 43 per cent of infants were exclusively breastfed up to 6 months (WHO 2007). The proportion of early initiation of breastfeeding in Bangladeshi women is relatively low (NIPORT 1997).Many studies had been done in Bangladesh regarding infant feeding practices. Studies have identified serious problems such as mother discard colostrums, delay in initiation of breastfeeding after birth, giving newborns pre-lacteal feeds like honey, sugar water, cow's milk or artificial milk or even water (Shameem 1999).

## II. Objectives

**General objective:**

- To evaluate the determinants of exclusive breastfeeding mother –infant pair in Bangladesh

Specific objectives:

- To know more about breastfeeding practice and its associated actors in Bangladesh

## III. Methods and Materials

It was a case control study done in the department of Paediatrics, Sir Salimullah Medical College Mitford Hospital, Bangladesh from July 2009 to February 2010. Children age between 4 to 6 months of age attending with their mothers or caregivers in Pediatrics outpatient department for minor illnesses, in the ORT corner or in the EPI centre and also admitted into the Pediatric ward were approached and those who gave informed voluntary consent to participate in the study were enrolled. Those who were exclusively breastfed were considered as case and non-exclusively breastfed were considered as control. Based on calculation sample size estimated for case (exclusively breastfed baby) was 61 and for control (non-exclusively breastfed baby) was 183. However, complete data of 60 EBF and 180 were available after screening. Hence data of 240 subjects were picked for analysis. Babies who attended hospital for life threatening illness, or with cleft lip or palate, whose mothers died or left who are adopted or cared by caregivers other than mothers and parents of those children who didn't consent to participate were excluded from the study. Face to face interview of the babies' mothers or care givers was conducted by the researcher at health facility, upon their consent and convenience. Socio-demographic and personal information was recorded from patient through interview and baseline parameters were collected from the patient records and files. Collected data was sorted and screened for any discrepancy. The edited data was entered on to the template of SPSS 16. For background variables and socio-demographic data descriptive statistics and relative frequency (percentage) was generated. In addition descriptive statistics and univariate statistics were generated to compare the demographic factors of exclusive breastfeeding (EBF) and non-exclusive breastfeeding (non-EBF) groups. Association between socioeconomic variables and related factors was assessed through chi square test. Level of significance was considered at $P < 0.05$. Multivariate analysis was done to determine individual risk factor adjusting for others Odds ratio and 95% CI was reported.

## IV. Results

The number of exclusively breastfed (EBF) and non-exclusively breastfed (NEBF) babies in the present study were 60 and 180 respectively. All the babies were aged between 4–6 months with an average 4.5±1.24 months. In EBF group 50.8% were male and 49.2% were female. In non EBF group 57.2% were male and 42.8% were female. No statistically significant difference was found in two groups ($P>0.05$). Though the percentage of EBF and NEBF infants from urban (23.9% and 33.9%), semi-urban (44.6% and 32.2% ) and urban slums (10.4% and 12.8%) were quite different, but those from rural areas were same (21.1% in both groups). There was no statistically difference between them ($P>0.05$).Mothers below 20 years of age were 16.9% and 22.8% in EBF and NEBF groups respectively, whereas those aged 20 years or more were 83.1% and 77.2%. But the data had no statistical difference in terms of mothers age ($P>0.05$). Regarding mother's education, there was a significant statistical difference between the two groups ($P<0.05$). Among the mothers of EBF and NEBF groups, 32.2% and 42.8% had secondary education or above respectively, 47.6% and 36.0% had primary education. But 20.2% and 21.2% mothers in two groups had no formal education at all. So those mothers who were less educated (primary or below) breastfed their child more exclusively than those who were more educated (secondary or more). Mother's occupation in the two groups also had shown significant statistical difference ($P<0.05$). There were 79.0% housewife and 21.0% working mothers in EBF group, whereas they were 70.0% and 30.05 respectively in NEBF group, i.e., housewife were more in the EBF group. Among the fathers of NEBF babies 26.1% had no formal education, 40.6% studied up to primary level and 33.3% studied up to secondary and above. Among the fathers of EBF babies 29.2% were illiterate, 52.4% studied up to primary level and 18.4% studied up to secondary and above level. Statistically significant difference exists in two groups ($P<0.05$), i.e. fathers with primary education or below are more in the EBF group than those with secondary education.

Among the mother of EBF child 35.5% had parity >2 and among the mother of NEBF babies 17.2% had parity >2. EBF is significantly more in mothers with parity >2 ($P<0.05$). Among the mother of EBF child 37.8% had nuclear family and among the mother of NEBF babies 62.2% had joint family. No statistically significant difference in family type is seen in two groups ($P>0.05$). Among the EBF babies around two third have family income between taka 4000 – 8000 and in NEBF group the percentage in the group is 42.8%. EBF is found relatively more in lower income group, i.e. those with monthly family income taka 4000-8000 ($P<0.05$). In the EBF babies 91.7% were born at term and in NEBF 87.8% were born at term. The difference is statistically

significant (P<0.05). EBF is significantly less in preterm babies. Among the exclusive breastfed babies public hospital delivery 41.7% and in NEBF group the percentage is 29.4%. EBF is significantly less in babies delivered at private clinic than those at home and public hospital (P<0.01). Among the babies born by NVD, 78.3% were having exclusive breastfeeding and in NEBF group the percentage is 62.2% and this difference was statistically significant (P<0.05). EBF is more in NVD. In EBF group most (90.3%) of the babies started Breast feeding within 24 hours. In NEBF the percentage is 62.3% (P<0.05). The initiation of breastfeeding is much earlier in EBF group. Among the non exclusive breastfed babies 18.3% were predominantly breastfeeding, around 80% were partially breast fed and 4.1% didn't breast fed at all. Regarding prelacteal feeding, Majority of the babies had traditional sugar, glucose, honey, misree water etc. after birth. Few had (4.5%) plain water. Among the reasons for not giving exclusive breastfeeding, around two third (64.5%) said that the baby 'didn't get enough milk', 7% of them 'followed breastfeeding practice of previous children', 6.6% of them said that 'mother did not have enough time for EBF', 6.6% were influenced by 'feeding practice of peers', 4.4% were 'influenced by liking of husband', in 3.9% cases 'mother didn't like Breastfeeding', 'in 2.2% cases 'misconception about harm caused by BF' was responsible. Majority (81.1%) of the NEBF infants was given powdered/tinned milk and 16.1%, 2.8% were given 'cow's milk' and 'goat milk' respectively.

Most husbands (85.0%) preferred breastfeeding in EBF group and in NEBF group, they are only 47.2% (P<0.05%). Regarding knowledge about breastfeeding significant statistical difference is found in two group (P<0.05), but no significant statistical difference is found in two group regarding knowledge about time of initiation of breastfeeding (P>0.05). EBF is more in mothers having knowledge about it before or after child birth than those having no idea at all. Determinant of exclusive breastfeeding were assessed through binary logistic regression using exclusive breastfeeding as dependent variable, and all factors found to have association in Uni-variate analysis and other logically relevant variables were entered into the model simultaneously. Following Logistic regression working mothers, LUCS, no preference of husbands regarding breastfeeding, delivery at private clinic and ignorance about the concept of exclusive breastfeeding were found to be independent determinant of exclusive breastfeeding practice.

**Table 1:** Distribution of the babies by place of delivery (n=240)

| **PLACE OF DELIVERY** | **EBF** | **NEBF** |
|---|---|---|
| Home | 29 (48.3) | 88 (48.9) |
| Public hospital | 25 (41.7) | 53 (29.4) |
| Private clinic | 06 (10.0) | 39 (21.7) |
| Total | 60 (100) | 180 (100) |

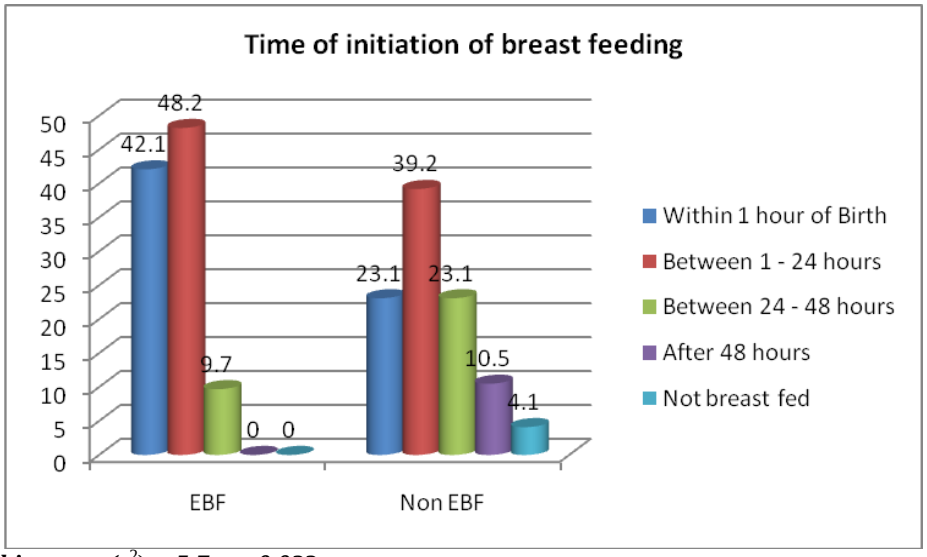
***Chi square ($\chi^2$) = 10.6, P = .001***

**Table 2:** Distribution of the babies by mode of delivery (n=240)

| **MODE OF DELIVERY** | **EBF** | **NEBF** |
|---|---|---|
| NVD | 47 (78.3) | 112 (62.2) |
| LUCS | 13 (21.7) | 68 (37.8) |
| Total | 60 (100) | 180 (100) |

***Chi square ($\chi^2$) = 5.8, P = 0.018***

**Figure 1:** Time of initiation of breastfeeding after delivery (n= 240)




***Chi square*** ***($\chi^2$) = 5.7, p= 0.033***

**Figure 2:** Distribution of the type of prelacteal feeding among non-EBF babies (n=180)

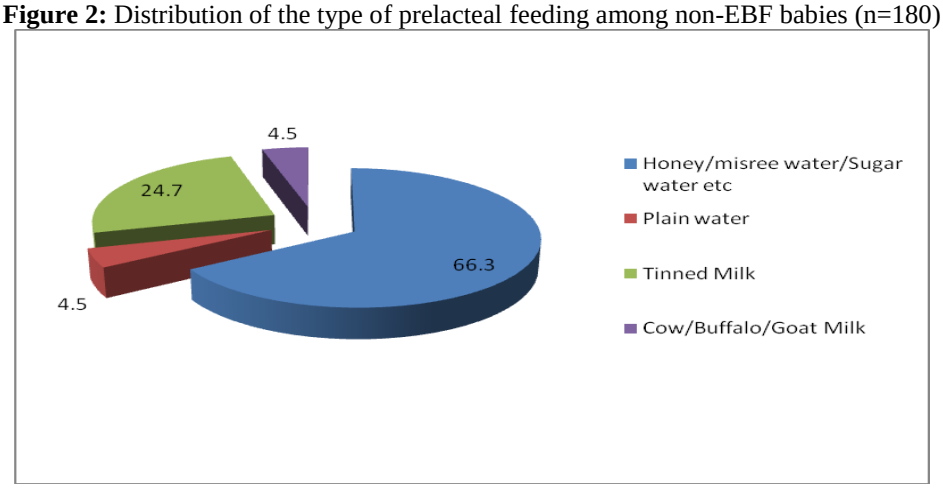



**Figure 3:** Distribution of the type of feeding among non EBF babies (n=180)

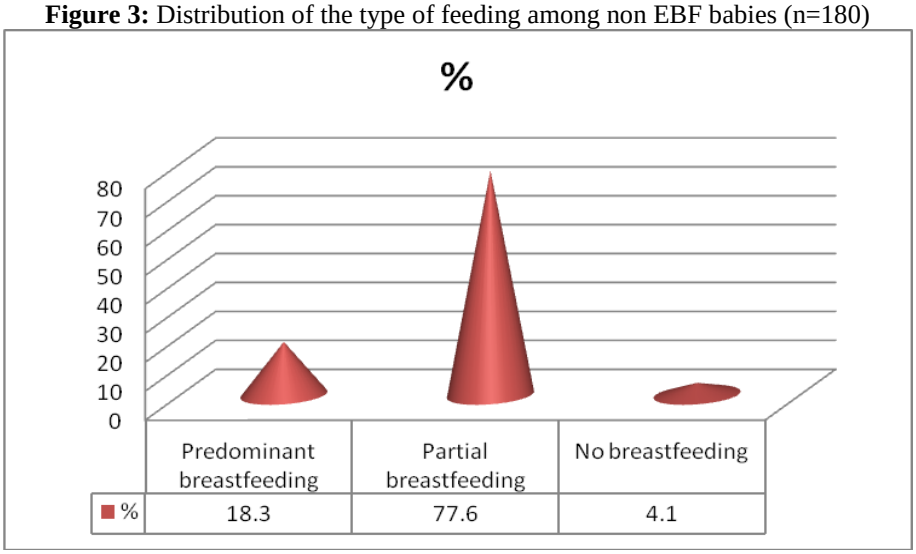



**Table 3:** Distribution of the babies by reason for not giving exclusive breastfeeding (n=180)

| **Reason for not giving exclusive breast feeding** | **Frequency** | **Percentage** |
|---|---|---|

| | | |
|---|---|---|
| Baby did not get sufficient breast milk | 148 | **64.5** |
| Followed breastfeeding practice of previous children | 16 | **7.0** |
| Mother did not have enough time for EBF | 15 | **6.6** |
| Influenced by feeding practice of peers | 15 | **6.6** |
| Influenced by feeding preference of husband | 10 | **4.4** |
| Disliking by mother | 09 | **3.9** |
| Misconception about harm caused by breastfeeding | 05 | **2.2** |
| Powdered milk is more nutritious than breastmilk | 02 | **0.9** |
| **Others (Mother was away, working mother etc.)** | **09** | **3.9** |

***percentage exceeds 100 due to multiple responses***

**Table 4:** Distribution of the babies by liking of husband as to feeding practice (n=240)

| **Husbands preference** | **EBF** | **NEBF** |
|---|---|---|
| Breastfeeding | 51 (85.0) | **85 (47.2)** |
| No preference | 06 (10) | **75 (41.7)** |
| Other methods | 03 (5.0) | **20 (11.1)** |
| **Total** | **60 (100)** | **180 (100)** |

***Chi square ($\chi 2$) = 20.5 P = 0.021***

**Table 5:** Multivariate analysis of factors for EBF through binary logistic regression (n=240)

| **Variables** | **OR** | **95.0% C.I. OR** | | |
|---|---|---|---|---|
| | | **Lower** | **Upper** | **P value** |
| Sex | 0.613 | 0.387 | 1.073 | 0.083 |
| Mothers age | 0.804 | 0.428 | 1.509 | 0.497 |
| Residence | 1.263 | 0.724 | 2.204 | 0.411 |
| Family income | 0.383 | 0.222 | 1.660 | 0.341 |
| Parity | 0.530 | 0.297 | 1.444 | 0.231 |
| Mothers education | 1.911 | 0.541 | 5.501 | 0.116 |
| Mothers occupation | 0.663 | 0.372 | .982 | 0.041* |
| Fathers education | 1.251 | 0.842 | 1.911 | 0.623 |
| Husband's preference | 0.523 | 0.273 | .785 | 0.044* |

| | | | | |
|---|---|---|---|---|
| Mode of delivery | 0.530 | 0.297 | 0.944 | 0.009* |
| Place of delivery | 0.226 | 0.132 | 0.390 | 0.000* |
| Knowledge (initiation) | 1.529 | 0.658 | 3.545 | 0.324 |
| Knowledge (EBF) | 0.416 | 0.433 | 0.730 | 0.007* |

***Nagelkerke R Square 0.394 * significant***

## V. Discussion

Breastfeeding is of considerable importance in the context of childhood nutrition. Nutritional requirements of an infant can be obtained solely from breast milk for the first six months of life (FNRI 2002). Rapid growth of infants during the first year of life and specifically the first six months requires an adequate supply of nutrients. This critical transition period is associated with a dramatic increase in malnutrition among infants (Mamiro 2005). The present study was conducted in a case control setting and on babies aged between 4 - 6 months with an average age 4.5±1.24 months. In the study reason for not taking babies aged below to avoid potential of breach of EBF. The distribution of sex of babies, place of residence, mother's age and type of family were similar in two groups. Determinant of exclusive breastfeeding were assessed through binary logistic regression using exclusive breastfeeding as dependent variable, and all factors found to have association in Uni-variate analysis. Mother's occupational status, mode of delivery, husbands' liking as to feeding practice, place of delivery and knowledge about exclusive breastfeeding were found to be independent determinant of exclusive breastfeeding practice.In the current study, EBF was not related to the mother's age (P>.05) and parity (P>.05) (Table 2 and 4) rather it's the place and mode of delivery (P<.05) (Table 8 and 9) that shows the difference. However published evidence showed that mothers > 18 years of age were more likely to initiate and continue BF in comparison with those who are younger (Dennis 2000). In the present study none of place of residence (P>.05) (Fig 1), maternal education (P>.05) (Fig 2) and family income (P>.05) (Table 6) showed to have any net impact on EBF practice. A Study done in mid nineties in rural Bangladesh underlined two socioeconomic factors to be associated with differences in breastfeeding patterns. They are urban residence and maternal education (Huffman 1995). However in the Huffman study (1995), family income didn't show any difference in breast feeding practice in Bangladesh. One implication of non association in the present study might be due to the time passed (fifteen years) since the Hoffman study was done. Breastfeeding is positively related to the socioeconomic status in most developed countries, but there is an inverse relation in developing countries (Dennis 2000). In the present research, EBF was not related to the parents' socioeconomic status. In many less-industrialized countries, women with more formal schooling are less likely to exclusively breast-feed (Haggerty 1999).Caesarian section as well as delivery at private clinic (P< .05) as shown in present study is a significant determinant of EBF in Bangladesh. Mode of delivery to some extent is dependent on its place as cesarean section or any instrumental delivery is done in facilities. Hence, women particularly those who delivered at home had NVD and more likely to initiate breast feeding. Similar to present study Daglas et al (2005) showed that normal deliveries had a positive effect on the breastfeeding practice and duration of Breast feeding as well.Further, the result of the present study showed that, babies who were delivered by C/S were found to be less like to exclusively breast fed. Hruschka et al (2003) describes that in developing countries, caesarean deliveries had a negative effect on exclusive breastfeeding practice. Study by dennis (2000) also supported the fact in their result. Another striking and obvious finding current study showed that, among the babies born at term, in comparison to those born at preterm, are more likely to receive exclusive breast feeding. Contradictory to our study, a significantly higher proportion of preterm babies have been exclusively breastfed in the Tiwari (2005) study. These preterm babies in Tiwari study would have attended a number of consultations with the doctors at the health facilities, and have been counseled about EBF. In another study by Tiwari (2009) in the urban slum showed no difference in EBF practices of the mothers, who had utilized any health facility. Current study result revealed the contrary as those who delivered at private clinic were less likely to practice EBF than those delivered at public hospital or even at home. This may indicate that contact of the care giver at public health care delivery centres are being utilized for the promotion of EBF amongst lactating mothers as most of the public hospitals are Baby Friendly Hospitals. Present study investigated for possible relation of level of knowledge with exclusive breast feeding (EBF) practice. And data showed a high prevalence of EBF among the babies whose parents had knowledge about EBF before and just after delivery than those didn't know even later. Hence Counseling during ANC would be beneficial; However low ANC coverage is a hindrance to the approach. One of the major issues the study aimed to address was initiation of breastfeeding, As failure in initiation may result a reduction of the opportunity of providing EBF to a large number of babies. In EBF group most (90.3%) of the babies started Breast feeding within 24 hours. In NEBF the percentage is 62.3% (P<.05). In

many parts of the world, the rates of early initiation of breastfeeding are extremely low: 17% in Eastern Europe and Central Asian countries, and 33% in Asia-Pacific (BBF 2009). The highest rates (about 50%) are in Latin America, the Caribbean, East and North Africa. However, for many countries no data are available. In South Asia, 24%–26% of babies born in Bangladesh, India and Pakistan are breastfed within the first hour of birth, whereas the corresponding rate for Sri Lanka is 75% (SWBF 2000).

Prelacteal feeding is concern in our population, among the mothers used prelacteal feeding majority gave honey, misree water, sugar water etc. Such practice is still prevalent in Bangladesh. Many women are breast feed almost exclusively, but due prelacteal feeding they couldn't be regarded as having EBF. Surveillance on breast feeding and weaning situation and child and maternal health in Bangladesh by Hannan et al al (2005) at their round 12 report they reported 61.1% of pre-lacteal feeding. Mothers in the present study were asked about the reason of not exclusive breast feeding most replied that, baby did not get sufficient breast milk among other reason revealed were 'followed breastfeeding practice of previous children', 'mother did not have enough time for breastfeeding ' and 'Influenced by feeding practice of peers'. Hannan et al (2005) also found similar reasons. Although many women may breast feed initially, the proportion continuing afterwards may fall for several factors which might influence the initial choice of feeding. Not exclusively breast feeding by women in a resource limited country like Bangladesh has definitely inherent reason. A number of studies have been done on breastfeeding in Bangladesh; so far none unveiled the precise mechanism as well as determinant of such practice.

**Limitations of the study**

Small number of sample size can't avoid biasness of the study. The present study also conducted in a single hospital which can't reflect the scenarios of whole country.

## VI. Recommendations and Conclusion

Based on the study finding the following recommendations were made EBF campaign should be strengthened among people of all socioeconomic and socio demographic strata Private facility where delivery facility is available advocacy should be made to encourage them to act pro-EBF. Necessary counseling to mothers having C/S should be made by treating physician about possible initiation unless there is a valid reason EBF campaign should be initiated toward educating mothers about EBF even before delivery. The campaign should also target counseling husband about EBF. Campaign against pre-lacteal feed should be made. Further research on "insufficient breast milk" (whether real or conceptual of mother) should be done. Based on the study findings the following conclusions are made even mother's characteristics like age and parity was also not found to be related EBF practice Normal vaginal delivery, not being delivered at private clinic is significantly related to high EBF practice. Knowledge about EBF before delivery and husband's liking is found to be independent determinant of exclusive breastfeeding practice. Among EBF babies' initiation within 24 hours is more. Most important reason appeared as non exclusive breast feeding is the 'insufficiency of breast milk' which should be observed in depth.

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