# Determinants of Early Initiation of Breastfeeding among Mothers in a Tertiary Care Hospital

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**ABSTRACT**

**BACKGROUND**

Early initiation of breast feeding implies putting the newborn baby to the mother's breast as soon as possible after delivery, preferably within one hour. Colostrum or 'first milk' which is secreted soon after birth helps build nutrient stores in the child and is rich in protective immunoglobulins for the child. Early initiation helps the child to learn suckling fast leading to early secretion of breast milk. We intended to find out the determinants of early initiation of breast feeding.

**METHODS**

This is a cross-sectional study conducted from May to August 2019 in a tertiary care hospital. The sample size was 400. The study population consisted of mothers who delivered healthy term newborns in the obstetrics and gynaecology (O & G) ward of the hospital. Interview of the mothers was done using a predesigned and pretested questionnaire. Data entry was done on Microsoft Excel and analysis was done on Epi Info 7.

**RESULTS**

Mean age of the study participants was 25.66 ± 4.228. Majority of the respondents came from rural areas (61.25 %) and were homemakers (63.5 %). More than half the respondents had either middle or secondary school education. Previous information, mode of delivery, type of family, father's and mother's education and mother's occupation were significant determinants of early initiation of breastfeeding (EIBF).

**CONCLUSIONS**

The above study reveals some determinants of the practice of EIBF and efforts are needed in order to address these determinants, to improve this practice, especially in a tertiary care setup.

**KEYWORDS**

Breastfeeding, New-Born, Infant, Colostrum, Tertiary Healthcare

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## BACKGROUND

Provision of mother's breast milk to infants within one hour of birth is referred to as "early initiation of breastfeeding" and ensures that the infant receives the colostrum, or "first milk", which is rich in protective factors.[1] EIBF helps in secretion of oxytocin which helps in uterine contraction and prevention of postpartum haemorrhage and anaemia. Since the child remains very active during the first thirty minutes after birth, EIBF can help the child learn suckling fast. It also helps in early milk formation and secretion due to the hormones prolactin and oxytocin which are released because of suckling. Colostrum helps build nutrient stores and provides the child with essential antibodies.[2]

Although World Health Organization (WHO) guidelines recommend that all new-borns be breastfed within one hour of birth, less than 50 % of new-borns worldwide are breastfed in the first hour of life.[3]

Early initiation of breast feeding within one hour of delivery is one of the steps initiated by WHO \ UNICEF's Baby Friendly Hospital Initiative (BFHI) to achieve successful breastfeeding of the new-born baby because colostrum, the yellowish, sticky breast milk is formed immediately after delivery. Colostrum is recommended by WHO as the most appropriate food for the new-born. Additionally, early initiation of breastfeeding and continued exclusive breastfeeding for the first six months have been found to have beneficial effect in improving vaccine response.[4]

There are many determinants of breast feeding; these include young age of mothers, single mothers, lower income, full-time employment, Caesarean section and the infant having received supplementation during the first weeks of life.[5]

This study was undertaken with the objective of finding out the determinants of early initiation of breastfeeding.

## METHODS

A cross sectional study was conducted in a tertiary care hospital. The population under study were the mothers admitted to obstetrics and gynaecology department after delivery and the study was conducted from May to August 2019.

All the data was collected by personal interview of mothers. All the mothers admitted in the O & G ward during the data collection period, who had delivered a live child, were included in the study after obtaining verbal informed consent, till the sample size had reached. The only exclusion criterion was mothers who had delivered high risk babies (preterm, low birth weight etc.) and their babies were shifted to special neonatal care unit (SNCU). All the data was collected using a predesigned and pretested questionnaire.

The socio-demographic variables for the mothers include age, name, occupation, religion, socioeconomic status and history of any illness. The socio-demographic variables for the child are gender, age / date of birth (DOB), place of delivery, mode of delivery, complications at birth and birth order. The variables for evaluation of EIBF were time of breastfeeding initiation, pre-lacteal feeds, awareness about advantage of EIBF and benefits of colostrum.

The sample size was calculated using the formula,

$$N = \frac{(Z_{\alpha/2})^2 \, p \, (1-p)}{d^2}$$

Where, p is the prevalence of EIBF in Odisha (68.6 % as per National Family Health Survey-NFHS-4),

d is the allowable error (taken to be 5 % in this instance) and confidence interval is taken to be 95 per cent.[6]

Substituting these values, the total sample size was calculated to be 348. Allowing a 15 % non-response rate, the final sample size was calculated to be 400.

Ethical approval of the study was obtained from the institutional ethics committee.

### Statistical Analysis

The data was collected and analysed using appropriate statistical measures. The data was entered into Microsoft Excel followed by thorough data cleaning. The data were analysed on Epi Info 7. The variables were expressed in proportion or percentage. The significance of association was tested using chi square test in the preliminary stage, followed by logistic regression to control for any confounding effect between the determinants. Confidentiality of the study subjects was maintained.

## RESULTS

Most of the mothers in our study were found to be in the age group of 21 - 25 years (45 %) and were homemakers (61.25 %) from rural areas (63.5 %) with secondary school education (31.25 %) as shown in Table 1. The practice of early initiation of breastfeeding was seen among 304 (76 %) mothers out of a total of 400 in this study, as depicted in Figure 1.

| Sociodemographic Variables | Categories for Variables | Frequency (%) |
|---|---|---|
| Age (in years) | < 21 | 40 (10) |
| | 21 - 25 | 180 (45) |
| | 26 - 30 | 137 (34.25) |
| | 31 - 35 | 35 (8.75) |
| | 36 - 40 | 6 (1.5) |
| | 41 - 45 | 2 (0.5) |
| Place of residence | Rural | 245 (61.25) |
| | Urban | 155 (38.75) |
| Mother's occupation | Homemaker | 254 (63.5) |
| | Working | 146 (36.5) |
| Mother's education | Illiterate | 28 (7) |
| | Primary | 101 (25.25) |
| | Middle | 99 (24.75) |
| | Secondary | 125 (31.25) |
| | Graduate and above | 47 (11.75) |
| Father's education | Illiterate | 31 (7.75) |
| | Primary | 53 (13.25) |
| | Middle | 74 (18.5) |
| | Secondary | 147 (36.75) |
| | Graduate and above | 95 (23.75) |

***Table 1. Sociodemographic Profile of Study Participants***

The practice of EIBF was found to be significantly higher among extended families. Mothers who underwent normal vaginal delivery were more likely to practice EIBF compared

to those who underwent Caesarean section as shown in Table 2. Mothers educated till graduation or above and those employed in skilled work were more likely to practice EIBF. However, children whose fathers had higher education were less likely to receive breastfeeding early. Mothers who were previously informed about the practice of breastfeeding at Anganwadis or through mass media, adhered to the practice more often.

| Sociodemographic Variable | | Practiced EIBF Yes | No | Statistical Test, P-Value |
|---|---|---|---|---|
| Sex of infant | Male | 143 | 52 | $\chi^2$ = 1.483 |
| | Female | 161 | 44 | P = 0.223 |
| Type of residence | Urban | 113 | 42 | $\chi^2$ = 1.33 |
| | Rural | 191 | 54 | P = 0.248 |
| Previously informed | Yes | 274 | 76 | $\chi^2$ = 8.0201 |
| | No | 30 | 20 | P = 0.0046 |
| Mode of delivery | NVD | 182 | 34 | $\chi^2$ = 17.5616, |
| | LSCS | 118 | 60 | P = 0.0002 |
| | Assisted | 4 | 2 | |
| Type of family | Nuclear | 156 | 45 | $\chi^2$ = 8.7759, |
| | Joint | 112 | 28 | P = 0.0124 |
| | Extended | 36 | 23 | |
| Caste | General | 35 | 12 | $\chi^2$= 11.159 |
| | OBC | 234 | 60 | P = 0.0109 |
| | SC | 21 | 14 | |
| | ST | 14 | 10 | |
| Father's education | Illiterate | 29 | 2 | $\chi^2$= 7.051 |
| | Primary school | 41 | 12 | P = 0.1332 |
| | Middle school | 58 | 16 | |
| | Secondary school | 108 | 39 | |
| | Graduate and above | 68 | 27 | |
| Mother's education | Illiterate | 18 | 10 | $\chi^2$= 25.4113 |
| | Primary school | 29 | 18 | P = 0.0000 |
| | Middle school | 99 | 26 | |
| | Secondary school | 66 | 33 | |
| | Graduate and above | 92 | 9 | |
| Mother's occupation | Homemaker | 194 | 60 | $\chi^2$= 5.1357 |
| | Unskilled | 41 | 21 | P = 0.1621 |
| | Semi-skilled | 16 | 4 | |
| | Skilled | 53 | 11 | |

***Table 2. Association of Determinants with EIBF***

| Determinant | Categories | Adjusted Odds Ratio | 95 % C.I. | | P-Value |
|---|---|---|---|---|---|
| Sex of infant | Male / female | 0.9264 | 0.5301 | 1.6188 | 0.7883 |
| Type of residence | Urban / rural | 1.4278 | 0.7787 | 2.6181 | 0.2496 |
| Previously informed | Yes / no | 2.9898 | 1.3809 | 6.4732 | 0.0055 |
| Mode of delivery | NVD | 1 | | | |
| | CS | 0.3653 | 0.2038 | 0.6549 | 0.0007 |
| | Assisted | 0.2804 | 0.0336 | 2.3414 | 0.2403 |
| Type of family | Nuclear | 1 | | | |
| | Joint | 1.2313 | 0.6567 | 2.3085 | 0.5164 |
| | Extended | 0.2360 | 0.1108 | 0.5024 | 0.0002 |
| Caste | General | 1 | | | |
| | OBC | 2.0006 | 0.8243 | 4.8559 | 0.1253 |
| | SC | 0.5949 | 0.1877 | 1.8853 | 0.3775 |
| | ST | 0.9952 | 0.2846 | 3.4800 | 0.9940 |
| Father's education | Illiterate | 1 | | | |
| | Primary school | 0.1510 | 0.0239 | 0.9558 | 0.0446 |
| | Middle school | 0.0889 | 0.0133 | 0.5921 | 0.0124 |
| | Secondary school | 0.0729 | 0.0112 | 0.4745 | 0.0061 |
| | Graduate and above | 0.0716 | 0.0102 | 0.5000 | 0.0078 |
| Mother's education | Illiterate | 1 | | | |
| | Primary school | 0.9151 | 0.2052 | 4.0819 | 0.9075 |
| | Middle school | 5.9935 | 1.7057 | 21.0599 | 0.0052 |
| | Secondary school | 2.2206 | 0.6572 | 7.5029 | 0.1990 |
| | Graduate and above | 13.0324 | 3.5551 | 47.7748 | 0.0001 |
| Mother's occupation | Homemaker | 1 | | | |
| | Unskilled | 0.4850 | 0.2160 | 1.0889 | 0.0795 |
| | Semi-skilled | 1.8142 | 0.4842 | 6.7974 | 0.3768 |
| | Skilled | 3.3630 | 1.1256 | 10.0477 | 0.0299 |

***Table 3. Logistic Regression of Determinants of EIBF***

Variables that had significance of association quantified by P-value of 0.25 or lower in the chi-square test were followed up by logistic regression. Upon analysing the variables by the application of logistic regression, it was found that type of delivery, type of family, previous information regarding the practice, father's education, mother's education and mother's occupation were significantly associated with the practice of EIBF as illustrated in Table 3. None of the other variables that were examined in this study viz. sex of the infant, caste, place of residence, age at marriage, age at first pregnancy etc., were found to be significantly associated with the practice of early initiation of breastfeeding.

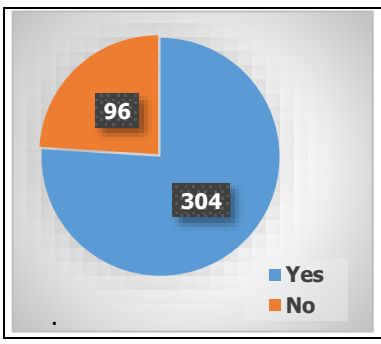


***Figure 1. Early Initiation of Breastfeeding (N = 400)***

## DISCUSSION

The practice of early initiation of breastfeeding was seen among 76 % of the mothers in this study. This is similar to the findings of Jennifer and Muthukumar (97.5 %) and Abie and Goshu (76.8 %).[7,8] This similarity may be because all these studies are based on rural populations. Even though the current study has been conducted in a tertiary care centre, the population included here is mainly rural. However, the findings are in contrast to the findings of Bagul and Supare (32.56 %) and Romola et al. (17.5 %), who found the practice to be quite low.[9,10] The urban rural divide may be because of the fact that the rural mothers might have limited access to alternatives of breast milk financially as well as with respect to availability.

There was a significant association between the type of family and EIBF. The practice was significantly lower among mothers in nuclear families as compared to extended families. This is in contrast to the findings of studies conducted by Romola et al. where the practice was more in nuclear families, and Islam et al. where there was no significant influence of type of family on the practice.[10,11] This difference may have arisen due to the difference in cultural practices prevalent in the communities which might influence the feeding practices in nuclear families. In fact, Romola et al. have highlighted the importance of counselling not only the mothers but all the other family members as well, regarding this practice.[10] Such counselling can help change the community attitudes towards early initiation of breastfeeding.

There was a significant association between mode of delivery and EIBF. Delivery by Caesarean section was associated with significantly lower prevalence of the practice of early initiation of breastfeeding. This is similar to the findings of Patel et al. Senanayake et al. and Sahu et al.[12,13,14] This reflects a tendency to delay initiation of breastfeeding among mothers who have undergone

Caesarean section owing to the residual effects of anaesthesia. However, it has been shown that, with proper training of health professionals and establishment of 'Baby Friendly Health Initiative' in the health facilities, adequate support for early initiation of breastfeeding can be provided to the mothers, even after delivery by Caesarean section.[15]

There was a significant association between father's education and EIBF. In this study, children of illiterate fathers were more likely to receive early breastfeeding. This is in contrast to the findings of Banu B and Khanom K, in whose study it was found that children of educated fathers were more likely to receive EIBF.[16] This difference probably arises due to the difference in the level of involvement of fathers in child care in different geographical regions. It may also reflect the fact that awareness regarding breastfeeding practice is lacking even in conventionally educated individuals. More research is needed to explore the implications of this aspect of EIBF.

There was a significant association between mother's education and EIBF. In this study, mothers who were educated up to graduation or above, were more likely to adopt the practice of early initiation of breastfeeding. This was similar to the findings of Bagul and Supare.[9] This indicates that education may be a driver to the adoption of healthier practices due to greater understanding of health-related information. It is in contrast to the findings of Islam et al. who found that mothers with higher education are less likely to adopt EIBF and Khanal et al. who found no significant association between mother's education and the practice of early initiation of breastfeeding.[12,17] Both of these studies were community-based studies which might have led to the difference of findings from the current study which is hospital based.

There was a significant association between mother's occupation and EIBF. In this study, mothers who were engaged in skilled work were more likely to adopt the practice of EIBF. This is similar to the findings of a study conducted by Patel et al.[18] This is in contrast to the findings of Sharma et al. in whose study mothers who were at home were more likely to initiate breastfeeding early.[19] This difference may be because skilled work entails greater exposure and broader outlook which might have had influence on the practice.

There was a significant association between previous information and EIBF. The mothers who were previously informed regarding the practice and benefits of early initiation of breastfeeding were more likely to embrace the practice. This was similar to the findings of Bagul and Supare.[9] This reflects a trend of positive impact of antenatal counselling through village health and nutrition day sessions and door to door visits conducted by the grassroot level health care workers, on the practice of early initiation of breastfeeding.

As our study is hospital based the results may not be generalised to the community. In fact, the figures may be higher in the study because in institutional delivery, promotion of the practice by the health care personnel at the hospital is robust and may motivate the mothers to adopt the practice and start early breastfeeding.

## CONCLUSIONS

With increase in government focus towards institutional deliveries, it is imperative to lay more stress on the nutrition of the child, in order to bring about holistic improvement in maternal and child health in our country. The above study reveals a few determinants of the practice of EIBF. Concerted effort is needed to improve this practice by emphasis on community information, education and communication (IEC) activities regarding importance of EIBF especially among the family members of the pregnant women. Health care personnel need to motivate mothers for EIBF, especially among those undergoing Caesarean section. This can be facilitated by rigorous training and widespread implementation of the baby friendly hospital initiative. There is also a need for more studies to look for determinants that affect this practice, in order to uncover other hitherto unexplored factors involved in its adoption.

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