Prevalence of exclusive breastfeeding practice and associated factors among mothers having infants less than 6 months old, in Bahir Dar, Northwest, Ethiopia: a community based cross sectional study, 2017

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Abstract
Background: Breast milk provides all the energy and nutrients that the infant needs for the first 6 months of life. Sub-optimal breastfeeding especially lacks exclusive breastfeeding increase risk of severe acute malnutrition by 3.2-fold and major contributory factor for infant child mortality. Therefore, the objective of this study was to assess the prevalence of exclusive breastfeeding practice and associated factors among mothers having infants less than 6 months old in Bahir Dar city, Northwest, Ethiopia, 2017.

Result: The prevalence of exclusive breastfeeding practice 1 day before the survey was 86.4%. Mothers who; have young infant aged 0–1 month old [AOR = 5.702 (1.747, 18.613)], house wife [AOR = 2.995 (1.557, 5.690)] and are not influenced by culture [AOR = 11 (3.449, 35.165)] were more likely to practice exclusive breastfeeding than their counterparts.

Keywords: Exclusive breastfeeding practice, Prevalence, Bahir Dar, Northwest Ethiopia

Background
Exclusive breastfeeding means giving infants only breast milk and no other liquids or foods with the exception of vitamins, minerals, and medicines for the first 6 months of infant’s life [1]. Breast milk is a natural food that serves as a complete source of infant nutrition for the first 6 months of life. It has all components of nutrients and minerals which protects both the mothers and the child against illnesses and diseases with its immunological property [2].

Exclusive breastfeeding for the first 6 months of life can reduce around 13% of infant mortality [2]. Breastfeeding and exclusive breastfeeding in a particular, is one of the measurement strategies to improve infant’s nutritional status and survival. Every year, around 10 million deaths of children younger than 5 years old are caused by due to the direct or indirect consequence of the malnutrition [3]. Moreover, a 3.2-fold increased risk of severe acute malnutrition is observed in non exclusively breastfed children compared to those who are exclusive breastfeeding. This is the reason why WHO and UNICEF have formulated the global recommendation of optimal breastfeeding for infants less than 6 months old and continued up to 2 years of age [2, 4, 5]. In the developing world, more than 40% of the infants under 6 months old are benefited from the practice of exclusive breastfeeding and these is particularly low in Africa, where less than one third of the infants under 6 months of age are exclusively breastfeeding [6].

In Ethiopia, nearly 321,000 under five children died in each year from which malnutrition is the cause for 57% deaths primarily through the exacerbation of other
major causes, such as diarrhea and pneumonia, which can be easily prevented through exclusive breastfeeding [7, 8]. Currently, the practice of exclusive breastfeeding in Ethiopia is low, and according to EDHS, 2016 report, only 58% of mothers with infants less than 6 months old breastfeed them exclusively [9]. Unfortunately, for all the recognized advantages and efforts deployed to promote exclusive breastfeeding; the practice of exclusive breastfeeding among 2–3 months old infants were 64% and it decreased to 36% when infant’s age increased to 4–5 months [9].

Even though the government of Ethiopia developed the infant and young child feeding guideline, there is the varying level of intervention were being given both at the community level and health institutions. The efforts were not organized at the level of practice and this is due low number of studies to explore exclusive breastfeeding in Ethiopia. Therefore, the aim of this study was to assess the prevalence of exclusive breastfeeding practice and associated factors among mother having infants less than 6 months old in Bahir Dar city, Ethiopia.

**Methods**

**Study setting and period**

A community based cross sectional study was conducted in Bahir Dar city from April 15 to May 3, 2017. Bahir Dar is the capital city of Amhara regional state. It is 565 km away from Addis Ababa which is the capital city of Ethiopia. The estimated population of the city is 221,991 among them 49% were males and 51% were females. The city has nine sub cities, one public specialized referral hospital, one district hospitals, two private hospitals, ten health centers, nine health posts, private clinics, and private pharmacy which gives serves to the town and the surrounding people.

**Sample size and sampling techniques**

The sample size was determined by using single population proportion formula with considering the following assumptions: prevalence (P) = 82% proportion of exclusive breastfeeding practice in Ambo [10], confidence level (CI) = 95%, margin of error (W) = 5%, and by using design effect of two (Bahir Dar city—sub cities—kebeles-households) and after adding 10% non response rate the final sample size was 499. Bahir Dar city has nine sub cities and out of them three sub cities were selected by using a lottery method. In the selected sub cities, nine kebeles with a total of 1497 households having less than 6 months old infants were taken from local health extension workers. Finally, 499 households were selected by simple random sampling technique i.e. lottery method. Reviewing the birth date certificate and asking the mothers were used to determine the actual age of infants.

**Measurement**

Data were collected using an interviewer administered questionnaire. The questionnaire was adopted from previous researches done on similar topics [9, 11, 12] and modifying accordingly. A 1 day (24 h) infant diet recall method was used to assess exclusive breastfeeding. Training was given for data collectors and supervisors for 2 days on methods of extracting the information through interviewing, how to fill the information on a structured questionnaire and the ways of approaching to the respondents.

**Statistical analysis**

The data was cleaned, coded, entered into Epi Data software version 3.5.4 and transferred into SPSS version 20 for analysis. Descriptive statistics were used to describe the distributions of variables. Logistic regression was used to assess the relation between dependent and predictor variables. First bivariate analysis was done to examine the associations of single independent variable with exclusive breastfeeding practice. Independent variables with a P-value ≤ 0.05 in bivariate analysis were entered into the multivariate analysis. Association between dependent and predictor variables was assessed using AOR and 95% CI. Statistical significance was declared when the P-value was less than 0.05.

**Operational definition**

Exclusive breastfeeding practice: If a mother feed only breast milk to her infant 1 day (24 h) before the survey conducted [9, 11].

**Result**

**Socio-demographic characteristics**

From all 499 eligible mothers, 472 were participated in this study which made a response rate of 94.6%. One hundred sixty eight (34.5%) mothers were between the age of 25–29 years, 96.4% were Amhara by ethnicity, 75.2% were orthodox Christian, 22.9% attend primary education, 53.45% were house wives by occupation and 40.5% mothers earn greater than 300 ETB per month. More than a half (63.1%) of mothers lived in a nuclear family. More than half (59.3%) of children were between 91–180 days of age. Regards infant sex, 54.7% were females (Table 1).

**Exclusive breast feeding practice**

About 86.4% of mothers exclusively breastfeed their infant 1 day before the survey. Majority of mothers (75.4%) initiated breastfeeding within 1 h. Three hundred ninety six (83.9%) infants fed colostrum and 74.6% infants were not fed prelacteal feeding. The main
reasons of mothers for not practicing exclusive breastfeeding were; shortage of time to practice EBF (15.6%) and perceived as human milk is not sufficient for their infant (27%) (Table 2).

Majority of mothers (89.4%) know as the infant should be put on breastfeeding immediately within 1 h, 89.6% know as breast milk is enough without water and other liquids for the first 6 months (Table 2).

Factors associated with exclusive breastfeeding practice

In bivariate analysis, the factors found to be significantly associated with exclusive breastfeeding practice were; Infant age, occupational status of mother, colostrums feeding, maternal age and cultural influences.

Finally, mother of infant age 0–1 month old, unemployed mother and mothers who are not influenced by culture was the predictor of exclusive breastfeeding. Age of infant was significantly associated with exclusive breastfeeding practice. Mothers with young infant (aged 0–1 month old) were 5.7 times more likely to practice exclusive breastfeeding than mothers with infant aged 4–6 months old [AOR = 5.702 (1.747, 18.613)].

Mother’s occupational status was a determinant factor for exclusive breastfeeding practice. House wife mothers were around three times more likely to practice exclusive breastfeeding than mothers having additional duties or jobs [AOR = 2.995 (1.557, 5.690)].

Mother’s traditional or cultural belief towards initiation of first breast milk was a significant factor for exclusive breastfeeding practice. Mothers who were not influenced by culture/belief towards breast milk were 11 times more likely to practice exclusive breastfeeding than mother influenced by culture/belief [AOR = 11 (3.449, 35.165)] (Table 3).

| Variable                      | Category (n = 472) | Frequency | Percent (%) |
|-------------------------------|-------------------|-----------|-------------|
| Infant sex                    | Male              | 214       | 45.3        |
|                               | Female            | 258       | 54.7        |
| Infant age                    | 0–30 days         | 71        | 15          |
|                               | 31–90 days        | 140       | 29.7        |
|                               | 91–180 days       | 261       | 55.3        |
| Age of mothers                | 15–19             | 30        | 6.4         |
|                               | 20–24             | 119       | 25.2        |
|                               | 25–29             | 163       | 34.5        |
|                               | 30–34             | 98        | 20.8        |
|                               | 35 and above      | 62        | 13.1        |
| Religion                      | Orthodox          | 355       | 75.2        |
|                               | Muslim            | 94        | 20          |
|                               | Protestant        | 12        | 2.5         |
|                               | Catholic          | 11        | 2.3         |
| Ethnicity                     | Amhara            | 455       | 96.4        |
|                               | Tigre             | 6         | 1.3         |
|                               | Oromo             | 6         | 1.3         |
|                               | Others            | 5         | 1           |
| Level of education of mothers | No education      | 86        | 18.2        |
|                               | Able to read and write | 55 | 11.7 |
|                               | Primary school (1–8) | 108     | 22.9        |
|                               | Secondary         | 86        | 18.2        |
|                               | Higher            | 137       | 29          |
| Occupational status of mother’s | Housewife       | 252       | 53.4        |
|                               | Governmental employee | 108     | 22.9        |
|                               | Private employee  | 46        | 9.7         |
|                               | Merchant          | 38        | 8.1         |
|                               | Daily labor       | 28        | 5.9         |
| Marital status of mother      | Single            | 36        | 7.6         |
|                               | Married           | 409       | 86.7        |
|                               | Widowed           | 6         | 1.3         |
|                               | Divorced          | 21        | 4.4         |
| Husband educational level (409) | No education   | 30        | 7.3         |
|                               | Able to read and write | 51 | 12.5 |
|                               | Primary school (1–8) | 103     | 25.1        |
|                               | Secondary         | 85        | 20.80       |
|                               | Higher            | 140       | 34.3        |
| Husband occupation (409)      | Govt employee    | 118       | 28.9        |
|                               | Private employee  | 77        | 18.8        |
|                               | Merchant          | 116       | 28.4        |
|                               | Daily labor       | 64        | 15.6        |
|                               | Farmer and driver | 34        | 8.3         |
| Type of family                | Nuclear family    | 298       | 63.1        |
|                               | Extended family   | 174       | 36.9        |
Discussion

EBF is recommended in the first 6 months of infant’s life. The prevalence of exclusive breastfeeding practice 1 day before the survey conducted in the study area was 86.4%. This result is comparable with studies done in Ambo 82.2% [10], Sri Lanka 85% [13], Dubti town, afar regional state 81.1% [14], and near to WHO recommendations 90% by 2020. This finding is greater than studies done in; Motta 50.1% [11], 2011 Ethiopian EDHS report 52% [9], East Gojjam, Gozamin district 74.1% [15], Debremarkos 60.8% [16], SNNPR 64.8% [17] and Goba district 71.3% [12]. This may be due to differences in maternal socio demographic characteristics like educational status of mothers and house hold income, culture/belief, awareness of mother and commitments of community health extension workers in the study area and other studies.

Mother with young infant aged 0–1 month old was 5.7 times more likely to practice exclusive breastfeeding than mother with infant aged 4–6 months old. This result is consistent with finding in; Motta [11], Debre Markos [16], Gozamin District [15], Debre Tabor [18], Bale Goba [12] and Djibouti [14]. This may be due to mother perception that; breast milk is not sufficient as age of the infant increases makes the infant thirsty of water and they perceived that giving water or other liquids in addition to breast milk alleviates abdominal cramps of the infant.

Occupational status of mother was associated with exclusive breastfeeding practice. House wife mothers were around three times more likely to practice exclusive breastfeeding than mother with additional jobs outside the home. This result is consistent with finding in; Motta [11], Debre Markos [16], Gozamin District [15], Debre Tabor [18], Bale Goba [12] and Djibouti [14]. This may be due to mother perception that; breast milk is not sufficient as age of the infant increases makes the infant thirsty of water and they perceived that giving water or other liquids in addition to breast milk alleviates abdominal cramps of the infant.

Mother’s traditional or cultural belief was the determinant factor for exclusive breastfeeding practice. Mothers who were not influenced by culture/tradition were 11
times more likely to practice exclusive breastfeeding than those mothers who were influenced by culture/tradition. This finding is consistent with studies done in Kenya [23] and Hindus [24]. This is may be due to the false perception of mother’s i.e. first milk as dirty milk and transmit abdominal cramps to their infants. Additionally, mother of the infant may believe that they inherently unable to produce enough milk when their ancestors were not produce enough milk.

**Conclusion**

Majority of mothers practiced exclusive breastfeeding. Infant age, mother occupation, and traditional or cultural influences were the determinant factors for exclusive breastfeeding practice. Recommendations to increase EBF were: health extension workers who are working, participating and educating the community should change the false perception of mothers, family, and the community as a whole on breastfeeding and related traditional practices like milking and throwing colostrums, giving water to relieve thirsty and abdominal cramp and early introduction of complementary feeding.

**Limitations**

The study did not assessed qualitative aspects of exclusive breastfeeding. Using a 24 h diet recall method may overestimated the magnitude of exclusive breastfeeding.

**Abbreviations**

BFHI: Babies Friendly Hospital Initiative; DHS: Demographic Health Survey; EBF: exclusive breast feeding; ICMBMS: International Code of Marketing Breast Milk Substitute; IYCF: infant and young child feeding; UNICEF: United Nation International; WHO: World Health Organization.

**Authors’ contributions**

AB, TT, AA, DH, BZ, and DM, contributed to the design of this study. Authors conceived and designed study, collected, analyzed and interpreted data. AB drafted the manuscript for important intellectual content. All authors read and approved the final manuscript.

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**Competing interests**

The author declared that there is no any competing interest.

**Availability of data and materials**

The date of this study will not be shared publically due to the presence of sensitive (confidential) participants’ information.

**Consent to publish**

Not applicable.

**Ethics approval and consent to participate**

Ethical approval of the study was obtained from Bahir Dar University, college of medicine and health science department of nursing ethical review committee. The ethical letter was submitted to Bahir Dar health bureau and permission was obtained to conduct the study. To ensure confidentiality of patient’s information was kept and was not exposed to third body. Verbal consent was taken and it was approved by ethical review committee.

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**Table 3 Factors that affect EBF practice among mothers of infants age less than 6 months using bivariate and multivariate logistic regression analysis model, Bahir dar, Ethiopia, 2017**

| Variables                  | EBF practice |          |          |          |          |
|----------------------------|--------------|----------|----------|----------|----------|
|                            | Yes (n & %)  | No (N & %) | COR (95% CL) | AOR (95% CL) |
| Age of child in months     |              |          |          |          |          |
| 0–1                        | 67 (94.4)    | 4 (5.6)  | 3.679 (1.278, 10.58) | 5.702 (1.747, 18.613)* |
| 2–3                        | 127 (90.7)   | 13 (9.3) | 2.146 (1.118, 4.119) | 2.778 (1.279, 6.032)* |
| 4–6                        | 214 (82)     | 47 (18)  | 1        | 1        |
| Occupational status        |              |          |          |          |          |
| Unemployed                 | 229 (90.9)   | 23 (9.1) | 2.281 (1.321, 3.940) | 2.995 (1.557, 5.690)* |
| Employed                   | 179 (81.4)   | 41 (18.6) | 1        | 1        |
| Colostrums feeding         |              |          |          |          |          |
| Yes                        | 345 (88.5)   | 45 (11.5) | 2.706 (1.455, 5.033) | .899 (0.379, 2.133) |
| No                         | 51 (73.9)    | 18 (26.1) | 1        | 1        |
| Maternal age               |              |          |          |          |          |
| 15–29 years                | 262 (84)     | 50 (16)  | 1        | 1        |
| ≥ 30 years                 | 146 (91.2)   | 14 (8.8) | 1.99 (1.064, 3.723) | 1.664 (0.833, 3.323) |
| Cultural influence         |              |          |          |          |          |
| Yes                        | 10 (58.8)    | 7 (41.2) | 1        | 1        |
| No                         | 398 (87.5)   | 57 (12.5) | 4.88 (1.789, 13.352) | 11.01 (3.449, 35.16)* |

1 = reference, * = p value less than 0.05, N = number, % = percent
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