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# Factors contributing to inadequate exclusive breastfeeding among children 0-6 months in developing countries. A review

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**Abstract**

Exclusive breastfeeding for the first six months of life is essential for optimal infant health and development, yet its practice remains inadequate in many developing countries. Appropriate exclusive breastfeeding practices are important in reducing the incidence of malnutrition and improving the health and growth outcome of children. However, a few children receive exclusive breastfeeding hence low prevalence of exclusive breastfeeding practices in developing countries.

The objective of this review is to review and integrate findings from different studies to determine factors contributing to inadequate exclusive breastfeeding practices of children aged 0-6 months in developing countries. A literature search on factors contributing to inadequate exclusive breastfeeding practices in developing countries was undertaken in PubMed, Cochrane, Elsevier, PLOS One, EMBASE and web of science to identify relevant studies between 2015 and 2025. Twenty-nine studies were initially retrieved, with ten studies that met the study inclusion criteria chosen for data synthesis. Factors found to contribute to the inadequate exclusive breastfeeding were: age and gender of the child, occupation of the mother, age of the mother, education level of the mother, marital status of the mother, mode of delivery, family size, antenatal visits, place of residence, household income, and exclusive breastfeeding intention during pregnancy. Exclusive breastfeeding practices for children 0-6 months are influenced by multifaceted factors that should be considered when developing strategies to improve nutrition and prevent diseases associated with poor nutrition, thus boosting children's chances of survival.

**Keywords :** Inadequate exclusive breastfeeding, breastfeeding rate, exclusive breastfeeding (EBF)

## Introduction

Breastfeeding is essential for child survival and optimum growth. Breast milk is safe, natural, nutritious and sustainable food for babies. Breast milk contains antibiotic that help protect against many common childhood illness such as diarrhea and respiratory diseases. In addition, breastfed children perform better on intelligence test and are less likely to be overweight or obese later in life, and women who breastfed also have a reduced risk of cancer and type II diabetes (WHO, 2024).

Despite the importance of exclusive breastfeeding, a few children are exclusively breastfed in many countries, with less than a fourth of infants 0-6 months of age exclusively breastfed (WHO, 2023). The global rate of exclusive breastfeeding is at 41% and 43% in Africa. In East and Southern Africa, the rate of exclusive breastfeeding is at 56%. In West and Central Africa, it is at 33%, while in Middle East and North Africa it is at 33% (UNICEF, 2023b). The rate of exclusive breastfeeding is ten percentage points higher than a decade earlier showing that significant progress is possible and has occurred across regions and countries (WHO, 2023).

Low rate of exclusive breastfeeding of children 0-6 months is one of the contributing factors to malnutrition and early child mortality. It is estimated that inadequate breastfeeding is responsible for 16% of child deaths each year (UNICEF, 2023a). In developing countries, the malnutrition situation is worse with very high levels of childhood underweight found in 12 African countries and 13 Asian countries (Kassa et al., 2016). More than 30 million children in the 15 worst-affected countries suffer from wasting or acute malnutrition and 8 million of these children are severely wasted (UNICEF, 2023a). An analysis of Demographic and Health Surveys (DHS) data from twenty-one countries revealed that suboptimal infant feeding practices contribute to nutrition deficiencies, impaired growth, and

deaths observed among children aged 0-6 months in developing countries (Mekonen et al., 2024).

The promotion of exclusive breastfeeding practices has been viewed as an important approach to reducing the incidence of malnutrition and improves the health and growth outcome of children. . Thus, programs and strategies have been developed focusing on breastfeeding. For instance, the Baby-Friendly Hospital Initiative and the Baby-Friendly Community Initiative were launched by UNICEF and WHO to encourage better breastfeeding support when the mother is at the health facility and upon facility discharge after birth (WHO & UNICEF, 2009).

Several factors influence exclusive breastfeeding practices. These include individual factors of the infant such as age, gender, and health status (Awoke & Mulatu, 2021; Shi et al., 2021); maternal factors such as age, marital status, number of children, influence of postnatal care; socioeconomic factors such as level of education, employment status, place of residence, household income (Mohammed et al., 2023; Moshi et al., 2021); and socio-cultural factors such as cultural norms, mother's beliefs, the social network, and lack of decision-making power in the household (Shirima et al., 2021; Tulelo & Mulaudzi, 2021). Despite this, there is contradictory data on the specific factors that influence exclusive breastfeeding practices of children aged 0-6 months in developing countries.

Better knowledge and understanding of the factors influencing exclusive breastfeeding practices is crucial for creating targeted, caregiver-friendly and effective interventions that can help address the high prevalence of malnutrition and improve the health of children. Therefore, the purpose of this study is to review the literature and determine the factors contributing to inadequate exclusive breastfeeding practices of children aged 0-6 months in developing countries.

## Methods

Literature search was conducted using online databases, PubMed, Cochrane, Elsevier, PLOS One, EMBASE and Web of science to identify studies related to factors contributing to inadequate exclusive breastfeeding. The search terms included exclusive breastfeeding practice, inadequate exclusive breastfeeding, exclusive breastfeeding, breastfeeding practices, and breastfeeding. Relevant studies were selected based on predefined inclusion and exclusion criteria, and 29 studies were initially retrieved for data synthesis.

The inclusion criteria:

- Original articles
- Studies written in English
- Research completed within the past ten years

Exclusion criteria

- Full document not accessible.
- Ethical consideration not observed.

## Result

The database search yielded a total of 29 articles. Following the initial search, seven duplicate articles were removed, resulting in 22 unique articles. Next, articles underwent screening based on their titles and abstracts to assess their relevance to the subject matter. Six articles that did not focus on factors contributing to inadequate exclusive breastfeeding were excluded. Additionally, two studies that did not report original research findings and two that were not written in English were also excluded. During the full-text review, articles were further assessed for their suitability based on inclusion criteria, encompassing original research articles. Two studies that did not meet the inclusion criteria were excluded from the review.

After full-text review, ten articles met the inclusion criteria and were thus incorporated into the review. These articles provided comprehensive insights on factors contributing to inadequate exclusive breastfeeding among infants 0-6 months. The selection process ensured the inclusion of high-quality studies that contributed significantly to the synthesis of evidence in this review.

Details and characteristics of the ten included studies are summarized in the table below:

| SNo | Title | Study Description | Findings | Reference |
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| 1. | Determinants of Exclusive Breastfeeding | A cross-sectional descriptive study that involved 271 | The EBF rate in this study was 46.1%. Factors associated with EBF included mothers' age > 30 years (OR 2.080, 95% | (Olasinde et al., 2021) |

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| | Practices Among Mothers of Infants Less Than Six Months Attending an Immunization Clinic in Southwestern Nigeria | mothers of infants aged less than six months attending the immunization clinic of the Bowen University Teaching Hospital, Ogbomoso, Nigeria. | CI 1.2743.395). After controlling for potential confounders, family size > 4, (adjusted OR 2.053, 95% CI 1.120-3.762) and having vaginal delivery (adjusted OR 2.769, 95% CI 1.585-4.829) were the significant determinants of EBF practices among the study participants. | |
| 2. | Exclusive breastfeeding patterns in Tanzania: Do individual, household, or community factors matter? | A cross-sectional analysis was carried out using a nationally representative sample from the 2015/16 Tanzanian Demographic and Health Survey. | The rate of EBF was 59%. Mothers aged between 15 and 19 years of age (95% CI AOR 0.36, 0.93), the average size of infants at birth (95% CI AOR 0.38, 0.80), whether postnatal check-up was attended by a doctor (95% CI AOR 0.06, 0.46), and the infant's age above 2 months (95% CI AOR 0.23, 0.53) were associated with lower odds of practicing exclusive breastfeeding. There was weak evidence (95% CI AOR 0.48, 1.05) that living in an urban area was associated with a reduced practice of exclusive breastfeeding. | (Dede & Bras, 2020) |
| 3. | Factors associated with exclusive breastfeeding of children under six months of age in Cote d'Ivoire | A secondary analysis of data from the 2016 Cote d'Ivoire Fifth Multi Indicator Cluster Survey (MICS5) of 980 children under six months of age was conducted in this study. | Health status and sex of the child were significantly associated ($P < 0.001$) with exclusive breastfeeding. Children who were sick were more likely to remain exclusive breastfeeding (adjusted OR 1.80; 95% CI 1.452, 2.234). Girls are less likely to be exclusively breastfed than boys (adjusted OR 1.48; 95% CI 1.22, 1.798). Low standard of living was associated with early cessation of EBF (adjusted OR 2.15; CI 1.325, 3.499). The duration of the exclusive breastfeeding was significantly longer among mothers with high exposure to medical discourse (adjusted OR 0.74; CI 0.595, 0.91). | (Koffi et al., 2023) |
| 4. | Factors influencing exclusive breastfeeding practice among under-six months infants in Ethiopia | This study used data drawn from the 2019 Ethiopian Mini Demographic and Health Survey (2019 EMDHS) data. A multivariable logistic regression model was employed to investigate factors significantly associated with | The prevalence EBF was 83%. Urban residences (AOR: 0.40, 95% CI: 0.22–0.73), mothers having secondary education (AOR: 1.54, 95% CI: 1.29–1.84) and higher education (AOR: 3.18, 95% CI: 0.68–15.02), mothers having ANC visits of 1 to 3 times (AOR: 1.52, 95% CI: 1.24–1.88) and ANC visits of 4 and more times (AOR: 4.27, 95% CI: 1.06–17.25), family size of more than 5 (AOR: 0.45, 95% CI: 0.26–0.88), caesarean births (AOR: 0.63, 95% CI: 0.42–0.95), and deliveries at health facilities (AOR: 2.51, 95% CI: 1.12– | (Mekebo et al., 2022) |

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| | | EBF practice among under-6 month infants in Ethiopia. | 5.63) were factors significantly associated with EBF practice among under-6 month infants. | |
| 5. | Prevalence of exclusive breastfeeding for the first six months of an infant's life and associated factors in a low–middle income country | A cross-sectional study utilized a self-administered maternal questionnaire to collect data on 1072 Vietnamese mothers who brought infants to a community health centre (CHC) for routine vaccination. | Rate of EBF was 14.2%. There was significant association between exclusive infant breastfeeding and the highest maternal education level (university or postgraduate) (aOR 2.55; 95% CI 1.10, 5.91); male infants (aOR 1.72; 95% CI 1.11, 2.68); and exclusive breastfeeding intention during pregnancy (aOR 2.48; 95% CI 1.53, 4.00). When compared with mothers who were prenatally exposed to infant formula advertising classified as "often", the prevalence of exclusive infant breastfeeding was higher in mothers who classified their prenatal exposure to infant formula advertising as "sometimes" (aOR 2.15; 95% CI 1.13, 4.10), and "seldom" (aOR 2.58; 95% CI 1.25, 5.36) | (Giang et al., 2023) |
| 6. | Prevalence of exclusive breastfeeding among mothers in the informal sector, Kampala Uganda | A community based cross-sectional study targeting 428 interviews with mothers with children aged 0–5 months was conducted. | The prevalence of EBF was 42.8%. The factors associated with exclusive breastfeeding included: attending antenatal care at least 4 times (APR = 1.24; 95% CI: 1.01–1.51), intention to exclusively breastfeed for 6 months (APR = 1.26; 95% CI: 1.01–1.57) or longer (APR = 1.38; 95% CI: 1.06–1.76), proper breastfeeding practices (APR = 4.12; 95% CI: 2.88–5.90), age of the infant (APR = 0.78; 95% CI: 0.65–0.94) and (APR = 0.48; 95% CI: 0.39–0.60) for children aged 2–3 and 4–5 months respectively and working in a lower position (APR = 0.68; 95% CI: 0.55–0.83). | (Nabunya et al., 2020) |
| 7. | Determinants of exclusive breastfeeding among infants under six months in Nepal: multilevel analysis of nationally representative household survey data | Determinants of exclusive breastfeeding among infants under six months in Nepal: multilevel analysis of nationally representative household survey data | The prevalence of EBF was 57.46%. The infant's age was inversely associated with EBF prevalence at the individual level. Compared with infants aged $< 1$ month, infants aged three months (adjusted odds ratio (AOR): 0.14, 95% CI: 0.05, 0.40), four months (AOR: 0.11, 95% CI: 0.04, 0.28), and five months (AOR: 0.07, 95% CI: 0.03, 0.20) were less likely to receive EBF. Mothers from communities with moderate $\geq 3$ ANC visits (AOR: 3.30, 95% CI: 1.65, 6.57) and high $\geq 4$ ANC visits (AOR: 2.70, 95% CI: 1.40, 5.22) coverage had higher | (Singh et al., 2024) |

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| | | | odds of EBF practices than did those from communities with low < 3 ANC visits coverage. Similarly, communities with moderate (AOR: 2.67, 95% CI: 1.34, 5.30) and high (AOR: 2.34, 95% CI: 1.10, 4.99) levels of maternal employment status and moderate levels of poverty (AOR: 2.20, 95% CI: 1.13, 4.28) were associated with a higher likelihood of EBF practices. | |
| 8. | Determinants of exclusive breastfeeding in infants of six months and below in Malawi: a cross sectional study | Data from the Malawi Demographic and Health Survey (MDHS) 2015–2016 was used. Survey records for 2059 mothers of children aged 6 months and below were identified and potential factors influencing infant feeding were examined. | EBF declined in proportion to the age of the infant. Significant associations with continuing EBF were age of the mother, ethnicity of the mother, sex of infant and number of siblings. Members of the Tumbuka (OR = 1.71, CI. 1.13–2.59) and Ngoni (OR = 2.05, CI. 1.38–3.05) communities were more likely to practice EBF. In addition, mothers aged 35 and above (OR = 1.63, CI. 0.98–2.71) mothers with female babies (OR = 1.35, CI. 1.08–1.70) and those with 3–4 children (OR = 1.47, CI. 1.04–2.08) were more likely to engage in EBF. | (Salim & Stones, 2020) |
| 9. | Determinants of exclusive breastfeeding practice in Bangladesh: Evidence from nationally representative survey data | A total of 1,440 women-child pairs data were analysed extracted from 2011 and 2014 Bangladesh Demographic and Health Survey. | Higher likelihoods of not practising EBF were found among secondary (aOR,0.659, 95% CI, 0.441–0.987, p<0.05) and higher educated mothers (aOR 0.520, 95% CI, 0.280–0.966, p<0.05) than illiterate mothers. Higher use of EBF practice were found among the mothers' who had 1–3 (aOR, 1.386, 95% CI, 1.027–1.872, p<0.05) and ≥4 ANC visits (aOR, 1.581, 95% CI, 1.066–2.345, p<0.05) than mothers' who did not use ANC visit. We found the higher likelihoods of EBF practice for the children aged 0–2 months (aOR, 10.828, 95% CI, 7.750–15.185, p<0.05) and 3–4 months (aOR, 2.472, 95% CI, 1.748–3.413, p<0.05) than children aged 4–6 months. Lower likelihood of EBF practice was found among mothers engaged in any form of formal work (aOR, 0.698, 95% CI, 0.482–0.989, p<0.05) compared to mothers who were not involved in any formal work. | (Rahman et al., 2020) |
| 10. | Factors associated with low adherence to exclusive | A cross-sectional analytical study was carried out among 200 women | The rate of adherence to the EBF was 12.1%. Mother's occupation (p=0.031), marital status (p=0.006, place of residence (p=0.001), information | (Mbuyi et al., 2023) |

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| | breastfeeding in the Dibaya health zone, Democratic Republic of Congo. | breastfeeding children aged 6-23 months. | received on exclusive breastfeeding (p=0.049), and the existence of rules/prohibitions in the tribe (p=0.045) are associated with adherence to the EBF | |

## Discussion

The results from the table above show several factors contribute to inadequate exclusive breastfeeding practices of children 0-6 months in Developing countries. A compiled and more detailed analysis is discussed below.

### Age of the child

The age of the child is a factor associated with EBF of infants aged 0-6 months. Findings from the reviewed studies found that the odds of practicing exclusive breastfeeding decreased as the child grew older. Those older than 2 months were less likely to be exclusively breastfed when compared to those aged below 2 months (Rahman et al., 2020; Salim & Stones, 2020 Nabunya et al., 2020; Singh et al., 2024). Another study in Tanzania also found that infant's aged above 2 months was associated with lower odds of practicing exclusive breastfeeding (Dede & Bras, 2020). This could be attributed to the perception that older children get hungrier more often and also require more energy, thus need to be introduced to complementary feeding. Another aspect is that employed mothers who are given maternity leaves often return to work when the child is about 2 months thus reducing the number of times a child is breastfed.

### Sex of the child

Another factor associated with inadequate exclusive breastfeeding is the sex of the child. Studies by Koffi et al., 2023 and Giang et al., 2023, observed that girls are less likely to be exclusively breastfed than boys. The possible explanation could be that mothers perceived a male child to need more breast milk than girls. Moreover, a mother who prefers a male child but has a female child, may limit breastfeeding them to try and conceive again. However, this finding disagrees with results from a study in Malawi that found mothers with female babies have higher odds of engaging in EBF than those with male babies (Salim & Stones, 2020).

### Occupation of mothers

The occupation of the mother is a factor associated with EBF of infants aged 0-6 months. Studies by Rahman et al., 2020 and Mbuyi et al., 2023, established that mothers who engaged in formal jobs were less likely to engage in EBF. Another study by Nabunya et al., 2020, observed that working in a lower position was associated with higher EBF. Mothers who are unemployed are close to their child while those in lower positions have lesser responsibilities and able to continuously breastfeed. Moreover, mothers who work away from home are more likely to introduce formula milk and start complementary feeding before the infant attains six months of age due to their inability to breastfeed during working hours.

### Education level of mothers

This review identified the education level of mothers as a significant factor influencing exclusive breastfeeding practices. In some countries, higher level of education was positively associated with appropriate exclusive breastfeeding practices, while in others it was associated with not practicing EBF. Findings obtained in studies by Mekebo et al., 2022 and Giang et al., 2023, indicated that children of mothers who had a secondary level of education and above were highly likely to be exclusively breastfed. This could be because educated mothers are likely to access and read books and online materials with useful information about exclusive breastfeeding practices which improves their ability to make decisions on their children's nutritional needs. However, a study by Rahman et al., 2020 observed that mother's higher education was found to be negatively associated with EBF practice. Mothers with higher education levels are highly likely to secure employment limiting their time with their children thus lowering odds of practicing exclusive breastfeeding.

### Age of the mother

The findings of this review indicate that the age of the mother is also a factor in inadequate exclusive breastfeeding practices. Reviewed studies report a

link between maternal age and exclusive breastfeeding, indicating a lower rate among younger mothers as compared to those who were older (Olasinde et al., 2021; Salim & Stones, 2020). Mothers aged above 30 years are more likely to practice exclusive breastfeeding, while those who are aged between 15 and 19 years of age had lower odds of practicing exclusive breastfeeding (Dede & Bras, 2020). This could be due to older mothers knowing the benefits of breastfeeding, having stronger support systems, and more experience with breastfeeding practices, either from previous pregnancies or from observing other women breastfeed.

**Marital status of the mother**

Another factor contributing to inadequate exclusive breastfeeding practices is the marital status of the mother. This study established that children whose mothers were married had a higher probability of adequate exclusive breastfeeding than those whose mothers were single. This finding is consistent with that from a study by Mbuyi et al., (2023), which found that married women have higher odds of appropriate exclusive breastfeeding practices compared to those who were not married. The association between marital status and breastfeeding cessation may be due to the presence or absence of social, emotional, and economic support from a partner. The father may also be engaged in activities such as purchasing nutritious food to improve breast milk production and encourage the mother to exclusively breastfeed the child.

**Mode of delivery**

The review established that the mode of delivery is one of the factors influencing exclusive breastfeeding. Lower odds of exclusive infant breastfeeding were found among women who had a caesarian section than those who had vaginal delivery (Olasinde et al., 2021, Mekebo et al., 2022). This could be because mothers who undergo a caesarian section may experience delayed initiation and potential milk production issues. Additionally, they may experience post-surgery problems, take more time to heal, thus feel unwell or be in pain, hence unable to exclusively breastfeed their child.

**Family size**

This review found that family size was significantly associated with inadequate exclusive breastfeeding of children aged 0-6 months. Mothers with larger family sizes have lower odds of exclusively breastfeeding their child, than those with smaller family sizes. Studies by Mekebo et al., (2022) and Olasinde et al., (2021) found that mothers with more than 4 children were more likely to engage in EBF. Similar findings were observed in a study by Salim & Stones (2020), where having a family size of 3 or more was significantly associated with adequate EBF. The possible explanation to this is that mothers with more children know the importance of breastfeeding, feel more confident about their ability to breastfeed, and have more experience with breastfeeding practices such as best positions for latching and sucking. Additionally, a mother with few children may stop breastfeeding early to prepare for future pregnancies.

**Antenatal visits**

Another factor associated with inadequate EBF was antenatal visits. An increase in antenatal care visits was positively associated with exclusive breastfeeding of children aged 0-6 months. Exclusive breastfeeding in the first six months was highly likely among women who had at least one antenatal visits (Rahman et al., 2020, Nabunya et al., 2020). Similar findings were reported in a study by Singh et al., 2024 where mothers from communities with more than 3 antenatal clinic visits coverage had higher odds of EBF practices than did those from communities with low than 3 antenatal clinic visits coverage. This could be due to the mother's knowledge being enhanced during the visits as they are taught how to take care of the children, the importance of nutrition, and exclusive breastfeeding practices. Unfavorable beliefs and attitudes towards exclusive breastfeeding can also be addressed and changed during these visits.

**Place of residence**

Place of residence is another factor that affects exclusive breastfeeding. Living in rural areas was found to be positively associated with exclusive breastfeeding (Mbuyi et al., 2023; Mekebo et al., 2022). This could be due to mothers living in rural areas being unemployed or having jobs that allow them to spend more time with their children, compared to those in urban areas who have formal employment and spend more time at work. However, this finding differs from that reported in

a study in Tanzania, which established weak evidence that living in an urban area was associated with reduced exclusive breastfeeding practice (Dede & Bras, 2020).

**Household income**

Household income is also a factor of exclusive breastfeeding of infants aged 0-6 months. Low household income was associated with early cessation of EBF, with mothers living in poor households less likely to breastfeed their child exclusively than those with moderate levels of poverty (Koffi et al., 2023; Singh et al., 2024). The possible explanation is that mothers from low-income households were unable to access nutritious foods to support milk production, spend more time trying to fend for their families, lack social support systems, and are susceptible to misconceptions about exclusive breastfeeding.

**Exclusive breastfeeding intention during pregnancy**

The review also established that another factor influencing exclusive breastfeeding is the intention to do so during pregnancy. Women with a stronger intention to exclusively breastfeed their child up to six months are more likely to do so than those without intention or those with intention of less than six months (Giang et al., 2023; Nabunya et al., 2020). This could be attributed to those with the intention being aware of the benefits of EBF, having more confidence in their ability to breastfeed, and having a positive attitude towards breastfeeding.

**Conclusion & recommendation**

Several factors affect the exclusive breastfeeding practices of children 0-6 months in the developing countries. These factors include age and gender of the child, occupation of mothers, age of the mother, education level of the mother, marital status of the mother, mode of delivery, family size, antenatal visits, place of residence, household income, and exclusive breastfeeding intention during pregnancy.

Thus, achieving appropriate exclusive breastfeeding practices requires several interventions involving various stakeholders. The identified factors should be put into consideration when developing strategies to deal with the challenges of inadequate exclusive breastfeeding of children aged 0-6 months. This will ensure children get adequate breastfeeding that will help prevent and eliminate diseases associated with poor nutrition, thus boosting their chances of survival.

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