

Original Research Article

Exclusive Breastfeeding Practice and Associated Factors among mothers in Iringa and Njombe regions in Tanzania

Comment [s1]: Please write: Exclusive Breastfeeding Practice with Associated Factors among mothers in Iringa and Njombe in Tanzania

Abstract

Aims: The aim of this study was to assess factors linked to EBF among mothers with children aged 0 to 5 months in the Iringa and Njombe regions, Tanzania.

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Study design: This was a descriptive cross-section study conducted among mothers with children aged 0 to 5 months.

Methodology: The standard questionnaire was used to collect information regarding EBF practice among selected mothers. The descriptive statistics were done for the social and demographic characteristics of the study participants. Bivariate and multivariate logistic regressions were performed to predict the association of independent variables on the study outcome. Statistical significance was defined as a p-value of less than 0.05.

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Results: The multivariate analysis found a significant positive association between female children (AOR = 4.969, 95% CI = 1.691–14.608, $p < 0.05$) and EBF practice. Also, though not statistically significant ($p > 0.05$), there was a positive association between children aged 2 to 3 months (AOR = 1.656, 95% CI = 0.577–4.757) and mothers' knowledge of the appropriate age for infants (AOR = 2.354, 95% CI = 0.186–29.728) and EBF practices. Furthermore, this study found a non-significant positive association between EBF practice and mothers who talked with CHWs about breastfeeding during pregnancy and or after birth (AOR = 2.473, 95% CI = 0.844–7.243, $p > 0.05$).

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Conclusion: Exclusive breastfeeding is crucial to ensure the proper growth and development of infants to their fullest potential. Therefore, multiple efforts are highly recommended to promote EBF to all lactating mothers in the country, including improvement and strengthening of the ongoing EBF counseling within the health system.

Keywords: Exclusive Breastfeeding, Nutrition, Infants growth, children aged 0 – 5 months, Tanzania.

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Introduction

Exclusive breastfeeding (EBF) is feeding a child with breast milk only, without giving the child any other food or liquid, except drops or syrup of medicines prescribed by medical personnel. EBF is strongly recommended by the World Health Organization and UNICEF for infants aged from 0 up to six months [1] [2]. Globally, the promotion of EBF practice is recognized as an

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effective nutrition intervention to prevent childhood morbidity and mortality. EBF improves infant growth and cognitive development [2] [3]. EBF has the potential to prevent 13.8 percent of all deaths in children under the age of two years and 11.6% of deaths in children under the age of five years [4]. Exclusively breastfed children have been shown to have a lower risk of gastrointestinal infections and acute respiratory infections compared to children who were not exclusively breastfed [5][6] [7] [8][9].

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Despite the well-documented advantages of EBF, millions of infants are missing this potential life-saving initiative. Globally, only 39% of infants under the age of 6 months were exclusively breastfed, and many countries still experience a lower prevalence of EBF than the recommended international standards by WHO (90%) [10]. In Tanzania, the Demographic and Health Survey (TDHS, 2015-2016) reported only 59% of mothers practicing EBF and 51% initiating breastfeeding (IBF) within one hour after delivery [11].

Many studies have examined several factors associated with insufficient EBF. In a study conducted in China [12], education level and early breastfeeding initiation were found to be positive factors associated with EBF [13]. Also, other studies showed good knowledge, mode of delivery, family monthly income, age of a mother, postal natal visits, residence, birth weight, and delivery season were significantly associated with EBF practices [13][14][15][16].

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Tanzania's government, in collaboration with development partners, has been using different strategies to promote EBF. Among the many strategies commonly advocated are the Baby-Friendly Hospital Initiative (BFHI), the Infant and Young Child Feeding (IYCF) Initiative, World Breastfeeding Week Commemorations, and providing training to health facility service providers (HSP) and community health workers (CHWs) who provide education, counseling, and support on EBF to pregnant and lactating mothers.

Iringa and Njombe are privileged to be among the regions supported by UNICEF, USAID, and other development partners on different programs promoting IYCF, including EBF promotion. Despite all the efforts deployed to promote EBF in the area, the practice has not reached the WHO recommendation. According to the Tanzania National Nutrition Survey (TNNS, 2018), the prevalence of EBF for Iringa and Njombe is 66.2% and 70%, respectively. However, limited research data exists on factors influencing mothers to practice EBF in these two regions. Therefore, this study aimed to assess the prevalence of EBF and associated factors among mothers with children aged 0 to 6 months in the Iringa and Njombe regions. ...

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Materials and methods

Study setting and design

This was a cross-sectional study design conducted in two regions; Njombe and Iringa. The selection of regions was based on the high prevalence of stunting, with 42% and 49% for Iringa and Njombe, respectively, according to data from the Tanzania Demographic and Health Survey [11]. The number of stunted children in the Iringa and Njombe regions is 161,369 and 118,350 under-five age children, respectively [17]. Two districts were randomly selected in each region;

Iringa and Kilolo districts in the Iringa region, Njombe and Wanging'ombe districts in the Njombe region.

Study population and sampling procedures.

The study population consisted of mothers with children aged between 0 and 5 months during data collection. All mothers who attended the postnatal clinic during the day of data collection and gave consent to participate in the study were eligible to be included. Exclusion criteria were Mothers with children beyond the age of 5 months, those with mental illness and those who attended postnatal clinics but were not willing to sign consent forms were excluded from participating in this study. At each healthcare center, participants were briefly introduced to the purpose, benefit, risk, confidentiality of information and voluntary nature of participation in the study. Those who were willing to participate were provided with a consent form to sign before participation. Participants were also informed of the right to withdraw from the study at any time.

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A total of 128 mothers with children aged between 0 and 5 months from health care centers located in the four districts in the Iringa and Njombe regions were recruited to participate in this study. The sample size was obtained by this formula:

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$N=2 \times 7.85 \times (\sigma/\delta)^2$ where 7.85 is the multiplication factor for a power of 80% and a significance level of 0.05 with two study groups, $\sigma=130$ and $\delta=100$

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Therefore, $N = 2 \times 7.85 \times (130/100)^2 = 27$.

The sample size of 128 was obtained by multiplying 27 by 4 plus 18.5 percent to account for the missing value.

Data collection; tools and procedures

Well-structured questionnaires with both closed and open-ended questions were used for data collection. The questionnaire had two sections. The first section contained questions concerning social demographic characteristics such as age, education level, marital status, and occupation. The second section of the questionnaire consists of questions regarding information about EBF, including knowledge, practices, and attitudes. Both the questionnaires and the informed consent forms were drafted in English and then translated into the Kiswahili language for easy understanding by study participants. Six nutrition officers, four nurses working at reproductive child healthy sections, and one researcher (MSc.) working at the Tanzania Food and Nutrition Center (TFNC) were involved in data collection. The whole process was supervised by one principal researcher (PhD) from TFNC. One-day orientations and training on how to interview and record the data were given to all data collectors and supervisors before the start of the study. The one-day pilot study was done to pre-test and validate the tool.

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Study variables

EBF practice was considered as the dependent variable and it was coded as "1" while non-EBF was coded as "0" in the regression analysis. Mothers' demographic characteristics (age, marital status, education, and occupation status) and knowledge of EBF were regarded as independent variables. The child's age was categorized into two groups; 2–3 and 4–5 months, while the age of the mother was categorized into three groups; 15–24, 25–34, and 35–45 years. Marital status was categorized into two groups: single and married; education level was categorized into three groups: no education, primary education, and secondary and higher education; and occupation status was categorized into two groups: unemployed and employed.

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Data analysis

The data analysis was done using the statistical social package (SPSS) version [25]. All filled questionnaires were checked for completeness before entering the data into SPSS. The dataset was cleaned, coded and transformed into the recommended format before analysis. Descriptive statistics were done to find frequencies for demographic characteristics, prevalence and practice of EBF. The chi-square was also done to find an association between EBF and the mother's characteristics. Both bivariate and multivariable logistic regression models were done to predict factors associated with exclusive breastfeeding. In bivariate logistic regression, all variables significantly associated with EBF at less than or equal to top-value 0.2 were fitted into the multivariable logistic regression model to control for confounding variables. Odds ratios and their 95% CIs were computed, and variables with a p-value less than 0.05 were considered statistically significant. A prior analysis of the multicollinearity of independent variables was conducted to test if they correlate with each other.

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Ethical clearance

Ethical clearance was sought from National Institute for Medical Research (NIMR) ..and all participants were required to read and sign informed consent papers attached to all questionnaires if they wished to participate in the study.

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Results

Demographic characteristics of participants

About 14.8% of the mothers aged between 35 to 45 years. The majority of them (77.3%) were married, 65.9% had primary education, and 99% were employed (Table 1).

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Table 1: Demographic characteristics of study participants.

Variables	Number	Percentage
Children's characteristics		
Sex		
Female	78	60.9
Male	50	39.1
Age group(month)		

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2 – 3	52	42.6
4 – 5	70	57.4
Mothers' characteristics		
Age group		
15 – 24	55	43
25 – 34	54	42.2
35 – 45	19	14.8
Marital status		
Single	29	22.7
Married	99	77.3
Education level		
No education	8	6.3
Primary education	84	65.6
Secondary & higher education	36	28.1
Occupation		
Unemployed	29	22.7
Employed	99	77.3

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Exclusive breastfeeding practice

About 79% of mothers exclusively breastfed their infants one day before the survey. The majority of the mothers (67.5%) reported initiating breastfeeding their infants within 1 hour after birth; one hundred and eighteen (97.7%) infants were fed colostrum.

Table 2: Exclusive Breastfeeding practices (N=128)

Variable	Frequency	Percent
Practice Exclusive Breastfeeding		
Yes	101	79.5
No	26	20.5
Initiation of breastfeeding		
Within 1 hour	85	67.5
More than 1 hour	41	32.5
Still, breastfeeding?		
Yes	126	98.4
No	2	1.6
Colostrum feeding		
Yes	118	97.7
No	8	6.3

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Knowledge of mothers regarding exclusive breastfeeding

The majority of mothers, 67.2%, had received information about EBF from a community health worker, and about 99.9% understood that the child should be on EBF for six months. The

majority of mothers never receive any breastfeeding advertisement messages from the media (Table 3).

Table 3: Knowledge of mothers regarding EBF (N = 128)

Variable	Frequency	Percentage
CHW stalked to mother about breastfeeding during pregnancy and or after birth?		
Yes	86	67.2
No	42	32.8
Mother knew correct age a baby to receive only breast milk (6 months of EBF)		
Yes	124	99.9
No	4	3.1
Have you ever seen/hear about breastfeeding in an advertisement on television, radio, or in a magazine (any media)		
Yes	12	9.6
No	116	90.4

Factors associated with EBF practice

In bivariate analysis, the following variables were found to be significantly associated with EBF at $p=0.2$: child's sex and age, mother's education status, having talked to CHWs during pregnancy or after birth, knowing the correct age of EBF, and seeing an advertisement about EBF on television, radio, and magazines. All these values were fitted into the multivariable logistic regression model to control for the effect of confounding variables. Multivariate analysis found the odds of EBF practices increased for mothers with children aged 2 to 3 months (AOR = 1.656, 95% CI = 0.577–4.757, $p > 0.05$) and female children (AOR = 4.969, 95% CI = 1.691–14.608, $p > 0.05$) compared to their counterparts. Also, the odds of EBF practices were higher for the mothers who knew the correct age of EBF (AOR = 2.354, 95% CI = 0.186–29.728, $p > 0.05$) and those who talked with CHWs about breastfeeding during pregnancy and or after birth (AOR = 2.473, 95% CI = 0.844–7.243, $p > 0.05$) compared with their counterparts. When compared to their counterparts, mothers who see any EBF advertisement or announcement on television, radio, or in a magazine have a lower chance of EBF (AOR = 0.357, 95% CI = 0.07–1.811, $p > 0.05$).

Table 4: Bivariate and multivariate logistic regression results on factors associated with EBF practice among mothers who had 0-5 months' infants.

Variables	Crude OR (95 CI)	p-value	Adjusted OR (95% CI)	p-value
Child's age				
2 – 3	1.764(0.697 – 4.474)	– 0.232	1.656(0.577 – 4.757)	0.349
4 – 5	1	0.232	1	

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Child's sex					
Female	2 (1.114 – 6.483)	0.028	4.969(1.691 -14.608)	0.04	
Male	1		1		
Mother's age					
15 –24	1.042(0.288 3.774)	– 0.95			
25 - 34	1.042(0.288 3.774)	– 0.95			
35 - 45	1				
Marital status					
Single	1.309(0.0446 3.846)	– 0.624			
Married	1				
Education status					
No education	0.097(0.017 .538)	– 0 0.008	0.091(0.1 – 0.815)	0.032	
Primary education	0.675(0.227 2.010)	– 0.481	1.036(0.315 – 3.409)	0.953	
Secondary education	1		1		
Occupation					
Unemployed	1.809(0.569–5.755)	0.315			
Employed	1				
CHWs ever talked to mother about breastfeeding during pregnancy and or after birth					
Yes	2.128 (0.880 5.148)	– 0.094	2.473 (0.844–7.243)	0.09	
No	1				
Knew correct age a baby to receive only breast milk i.e.EBF for 6 months					
Yes	4.125 (0.553– 30.788)	0.167	2.354(0.186–29.728)	0.508	
No	1		1		
Initiation of breastfeeding					
Within 1 hour	0.97 (0.38 – 2.476)	0.949			
More than 1 hour	1				
Have you ever seen an advertisement on television, radio, or in a magazine for breastfeeding?					
Yes	0.41(0.11-1.523)	0.183	0.357 (0.07 –1.811)	0.214	
No	1		1		
Feed colostrum					
Yes	0.56 (0.66 – 4.768)	0.595			

Discussion

The multivariate analysis found that a child's age, sex, knowledge of mothers on the right age for infants to EBF, and whether CHWs ever talked to mothers about breastfeeding during pregnancy and or after birth were positively associated with EBF practice in this study.

The prevalence of EBF practice reported in this study was higher compared with the national EBF status revealed by the Tanzania Demographic and Health Survey (TDHS, 2015–16) [11] and the National Nutrition Survey (TNNS, 2018) [17] but lower than the prevalence of EBF recommended by the World Health Organization (90%) [18]. The higher prevalence reported in these two regions might be contributed by nutrition initiatives promoting optimal infant and young child feeding implemented in the areas by different development partners. Since 2004, UNICEF and other stakeholders have been implementing nutrition programs like the use of the Social Behavioral Change Communication (SBCC) Kit in promoting EBF practice, complementary feeding, and the use of maternal and child health services. This result is comparable with studies done in Ethiopia [19], Nigeria [20] and India [21].

Mothers with young infants aged 2 to 3 months were nearly two times more likely to practice EBF compared with their counterparts. Similarly, findings were also found in Kenya [22] and Ethiopia [23]. This could be explained by the fact that most mothers were not yet back at work and hence devoted more time to their newborns, including practicing EBF.

Mothers with female children were nearly five times more likely to practice EBF than those with male children. The finding goes in line with the studies conducted in the Arab Emirates [24]. This might be explained by the false perception of mothers and the entire community to believe that male infants need to be masculine as early as possible, leading them to assume that other foods other than breast milk are crucial as early as possible. Conversely, a study conducted in Egypt [25] found a higher likelihood of EBF practices for male infants compared with female children.

Mothers with knowledge of the correct age of EBF for the infant were two times more likely to practice exclusive breastfeeding compared to mothers without knowledge. Similarly, studies from different countries also found a positive association between knowledge of the mother and EBF practices, including Ethiopia [10], Rwanda [27], Ghana [28] and Bangladesh [13]. The optimal functioning of government initiatives promoting EBF such as infant and young child feeding (IYCF) and baby-friendly hospital initiatives (BFHI) in these two regions, which are facilitated by national and international organizations such as UNICEF, WHO, and USAID, may have contributed to the reported knowledge of mothers on EBF in this study. Therefore, there is a need for the government to ensure consistent implementation of these initiatives and call upon other nutrition stakeholders residing in the country to complement the government's effort in promoting EBF in other regions. In contrast, studies in Kenya [29], China [30] and Indonesia [31] found no link between EBF practices and mothers' knowledge on appropriate age for EBF.

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A higher likelihood of practicing EBF was observed for mothers who had ever talked to CHWs about EBF during pregnancy or after birth. The influence of CHWs on EBF was also reported in studies conducted in Kenya [22], Ethiopia [23], and Tanga [26].

The study setting and criteria for selecting study participants are considered the strength of this study as it includes mothers who are continuing breastfeeding. The small sample used in this study is considered a limitation of this study as it made it difficult to generalize the obtained findings to the whole country. A large study to address the mentioned limitation is highly encouraged.

Conclusion and recommendations

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The majority of mothers practiced exclusive breastfeeding, although the EBF prevalence is lower according to WHO recommendations on infant and young child feeding. The sex and age of a child, the mother's knowledge of EBF, and the mothers' talk to CHWs on EBF during and/or after birth were positively associated with EBF practice. Despite the majority of mothers' practices EBF, future interventions may still need to focus on the use of CHW who are working on educating and counseling mothers, families, and the community as a whole on optimal breastfeeding and complementary feeding basing on locally available foods. In addition to districts and development partners should emphasize on improvement and strengthening of the ongoing EBF counseling within the health system.

Ethics approval and consent to participate:

The permission to do this study was given by National Institute for Medical Research (NIMR).

Comment [s33]: Write Ethics approval number

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