

Exclusive Breastfeeding Practices among Mothers with Children Aged 0-6 Months in the Southern Highlands Zone of Tanzania

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Abstract

Exclusive breastfeeding offers short- and long-term benefits to both the child and mother. Breast milk contains all the nutrients an infant needs in the first six months of life. This study examines determinants of exclusive breastfeeding among mothers with children aged 0-6 months in the Southern highlands zone of Tanzania. Tanzania Demographic and Health Survey data from 2015–16 were used for this cross-sectional investigation (2015–2016 TDHS-MIS). The study includes 122 mothers with children aged 0-6 months who practiced EBF. Data were analyzed using Stata statistical software, and provide descriptive statistics. Univariate and multivariate logistic regression was carried out to identify the significant effect of an independent variable on the dependent variables. The prevalence of exclusive breastfeeding for infants up to six months in all regions was 58.2%. Factors associated with low odds of exclusive breastfeeding were; mothers with children aged 2-3 months (adjusted odds ratio (AOR) = 0.061; (95% CI: 0.01 – 0.83), those with children aged 4-6 months (AOR) = 0.01; (95% CI: 0.001-0.21) compared to children less than two months, and employed mothers (AOR = 0.21; (95% CI: 0.1–14.6). Prevalence of EBF up to six months is still low in the Southern Highlands; more effort is necessary to meet World Health Organization (WHO) recommendations.

Keywords: Exclusive breastfeeding practices, infants aged 0-6 months old, southern highlands zone, Tanzania

1.0 Background information

Exclusive breastfeeding (EBF) means an infant receives breast milk from their mother or expressed breast milk or a wet nurse for the first six months of life, and no other solids/semi-solids are given except vitamins, mineral supplements, or medicine (TFNC, 2013). UNICEF and WHO recommended that children should be exclusively breastfed for the first six months to achieve optimal growth, development, and health (WHO, UNICEF, USAID, 2010). In low-income countries, EBF is a simple, cheap, and cost-effective intervention in reducing child mortality and morbidity (Mgongo et al., 2013). EBF coverage of 90% is estimated to help improve child survival and is recommended for the first six months of infant's life as it provides all nutrients that the infants need. It is the most ideal, safe, and complete food a mother can provide for the newborn. EBF for the first six months of life improves newborns' growth, health, and survival status and is one of the most natural and best forms of preventive medicine. EBF for the first six months could reduce more than 800,000 infant mortality (Moment et al., n.d.). In addition, EBF plays a pivotal role in determining the optimal health and development of infants and is associated with a decreased risk for many early-life diseases and conditions, including respiratory tract infection, diarrhea, and early childhood obesity (Agho et al., 2011). EBF improves cognitive development and is considered an unequalled way of providing ideal food for infants' healthy growth and development. Also, EBF stands out as the single most effective intervention for child survival and tops the table of life-saving interventions for newborns (Azeze et al., 2019).

Globally, the exclusive breastfeeding (EBF) rate was 43% in 2015 (UNICEF 2016). Only one in six children in low- and lower-middle-income countries receives a minimum acceptable diet. Approximately 42% of babies were introduced to breastfeeding during the first hour of birth, while 41% of infants aged 0 to 5 months are exclusively breastfed (Black et al., 2013). Tanzania is one of the countries that have been implementing programs to promote proper breastfeeding practices. The programs include the Baby Friendly Hospital Initiative adopted in 1992, the Prevention of Mother-to-Child Transmission of HIV (PMCTC) adopted in 2004, and the National Strategy for Infant and Young Child Feeding since 2004. Despite these efforts, EBF is

not widely practiced; only 59% of infants were exclusively breastfed for six months (MoHCDGEC, 2016).

In Tanzania, information factors influencing EBF are essential for guiding strategies to improve EBF trends. The determinant of EBF varies countrywide and within countries. These include employment status, urban/rural, marital status, knowledge of breastfeeding, level of education, and place of delivery influence EBF (Adugna et al., 2017; Asimire, 2016; Asimire&Katushabe, 2016; Kinabo et al., 2017). In Southern Highlands, Tanzania regions have shown a low prevalence of EBF compared to the majority (TFNC, 2018). Therefore this paper aims to determine the factors associated with EBF in the Southern highlands zone of Tanzania.

2.0 Research Methods

The eighth Tanzania Demographic and Health Survey (TDHS) released in 2015/2016 was used to analyze factors influencing EBF patterns in Tanzania. The survey provides estimates of various health indicators, including fertility behavior and preferences, marriage, sexual activities, family planning, and breastfeeding status. The 2015/2016 DHS is a national representative survey collected by the MACRO (USAID) program. The survey employed a national representative cross sectional study design using two-stage random sampling.

In the first stage, about 608 clusters from nine different zones per delineated enumeration area of about 13,000 households were selected, with about 12,800 households having adult females. Of the occupied households, close to 12,600 were successfully interviewed, yielding a response rate of 98%. About 13,600 mothers of childbearing age (15–49 years) were interviewed and 13,300 mothers completed the interviews.

The present analysis was restricted to mothers having a single child aged 0-6 months and excluded mothers with more than one child (twins etc) and yielding a sample of 122 women aged 15-49 years. The dependent variable in this study was exclusive breastfeeding (EBF), defined as the proportion of infants from birth up to 6 months of age who were exclusively breastfed in the last 24 hours. No other liquids, or even water, should be provided. However, drops and syrups consisting of vitamins, mineral supplements, or medicines, with a prescription by a medical specialist, can be given to the infant.

Independent variables were the child's age, mother's age, child's sex, marital status, place of residence, wealth index, mother's education, birth order, antenatal care visits, and postnatal check-up.

Data processing and analysis were analyzed using STATA software Version 16. Exclusive breastfeeding was measured using the mother's report of exclusive breastfeeding (duration of EBF) and the introduction of liquids/semi solids food. Mothers who did not introduce liquids/semi solids foods to their infants up to six months were categorized as practicing exclusive breastfeeding. Descriptive statistics were used to summarize the data and difference between groups was compared using Chi squared test and Fishers exact test as appropriate. The odds ratio (OR) and their 95% confidence interval (CI) were obtained to assess the strength of association between several independent predictors and EBF (dependent variable). Predictors with $p < 0.05$ in the univariate logistic regression were included in the multivariable analysis model. The multivariable logistic regression using forward selection of variables was performed to get the independent predictors of EBF.

3.0 Results

A total of 122 mother-infant pairs who met inclusion criteria were included in the analysis. Of these about 73% ($n = 90$) were from rural areas. The mother's age ranged from 15-49 years majority (57%) with an age group ranging from 20-29 years. About 58% of infants' mothers were married and had completed primary education; 69% and 27% were head of the house. Table 1 summarizes the socio-demographic characteristics of the respondent.

Table 1: Social demographic Characteristics of respondent N=122

Variable	Frequency	Percentages
Regions		
Rukwa	45	36.9
Iringa	29	23.8
Mbeya	25	20.5
Njombe	23	18.9
Residence		
Urban	33	27.1
Rural	89	72.9
Mother's age		

15- 19 Years	17	13.9
20-29 Years	70	57.4
30-39 Years	31	25.4
40-49 Years	4	3.3
Marital Status		
Single	27	22.1
Married	95	77.9
Divorced	27	22.1
Employment status		
Employed	24	54.6
Not employed	20	45.5
Mothers education level		
No formal education	19	15.6
Primary	75	69.7
Secondary	15	12.3
Higher	3	2.5
Head of the household		
Mother	33	27.1
Husband/Partner	15	12.3
Joint decision	69	56.6
Someone else	5	4.1

3.1 ASSOCIATION OF EBF AND SOCIO-DEMOGRAPHIC INFORMATION

In regions (Iringa, Rukwa, Njombe, Mbeya) prevalence of EBF for infants up to six months was 58.2% (n = 71). At less than two month the prevalence of EBF was 93%; at 2-3 months, the prevalence of EBF was 54% (n = 17). At 4-6 months, the prevalence was 24% (n = 31). There is a significant difference in prevalence of EBF among children age less than two months 93% and 24% between 4-6 months; the p-value is <0.001. Employed mother practice EBF more compared to unemployed 45%. There was an association (p = 0.02) of the prevalence of EBF and wealth index where about 67% are from wealthy families and 48% from low-income families. There was a significant prevalence of EBF between urban 73% and rural areas, 53% (p = 0.04). Mothers who received postnatal care are more likely to practice EBF 67% than those who have not received 65%, p-value = 0.02 (Table 2).

Table2. Prevalence of EBF by socio-demographic characteristics among children aged between 0-6 months

Variables	Exclusive Breastfeeding			p-value
	No	Yes	%	
Age of child				<0.01
< 2 months	3	41	93.18	
2-3 months	17	20	54.05	
4-6 months	31	10	24.39	
Child sex				0.66
Male	30	39	56.52	
Female	21	32	60.38	
Mother's age				0.20
15- 19 Years	10	7	41.18	
20-29 Years	26	44	62.86	
30-39 Years	12	19	61.29	
40-49 Years	3	1	25.00	
Marital Status				0.31
Not living with spouse	9	18	66.63	
Married	42	53	55.79	
Current working status				0.01
No	11	9	22.00	
Yes	5	19	81.97	
Residence				0.04
Urban	33	24	72.73	
Rural	89	47	52.81	
Wealth index				0.02
Poorest	28	26	48.15	
Middle	12	12	50.00	
Rich	11	22	66.67	
Mother education level				0.51
No formal education	8	11	57.89	
Primary education	36	49	57.65	
Secondary	7	8	53.33	
Received postnatal care				0.01
No	27	51	65.38	
Yes	24	48	66.67	
Region				0.26
Rukwa	20	25	55.56	
Iringa	13	16	55.17	
Mbeya	9	16	64.00	
Njombe	9	14	60.87	

3.2 DETERMINANTS OF EXCLUSIVE BREASTFEEDING (EBF) AMONG INFANTS

Table 3 shows the determinants of EBF among children aged 0 - 6 months. Children aged 2 to 3 months had lower odds of being exclusively breastfed than children <2 months [adjusted odds ratio (AOR) = 0.06; (95% CI: 0.01 - 0.83)], 4-6 months [AOR = 0.01 (95% CI: 0.001- 0.21)], and being employed [AOR = 0.22 (95% CI: 0.1- 14.6)] after adjusting for other factors.

Table3. Predictors of exclusive breastfeeding in infants 0 –6 months of age

Variable	COR (95% CI)	P value	AOR (95% CI)	P value
Age group of child (months)				
<2	Reference		Reference	
2-3	0.08 (0.02 - 0.32)	< 0.01	0.061(0.05 - 0.82)	0.03
4-6	0.02 (0.01 - 0.09)	< 0.01	0.01 (0.01 - 0.20)	< 0.01
Child sex				
Male	Reference		-	-
Female	1.17 (0.56 - 2.42)	0.66		
Mother's age				
15-19years	Reference			
20-29years	2.41 (0.82 - 7.12)	0.10	-	-
30-39years	2.26 (0.67 - 7.55)	0.18		
40-49years	0.47 (0.04 -5.57)	0.55		
Birth order				
1 st born	Reference			
2 nd -3 rd	2.42 (0.98 - 6.0)	0.05	-	-
4 th -6 th	1.29 (0.49 - 3.39)	0.59		
7 th born and above	1.26 (0.33 - 4.83)	0.73		
Employment				
Unemployment	Reference		Reference	
Employment	1.17 (0.56 - 2.42)	0.66	0.22 (0.1 - 14.62)	0.04
Residence				
Urban	Reference		Reference	
Rural	0.42 (0.17 - 1.0)	0.05	2.82 (0.09 - 86.75)	0.55
Postnatal checkup within 2 months				
Yes	Reference	0.01	Reference	
No	0.39 (0.18 - 0.85)		0.72 (0.05 - 9.49)	0.80
Wealth index				
Poor	Reference		Reference	
Middle	1.27 (0.414-3.91)	0.67	1.73 (0.14 - 21.24)	0.66
Rich	4.58 (1.29 - 16.27)	0.01	14.96 (0.56 - 40.40)	0.11

4.0 Discussions

The study was designed to assess determinants of exclusive breastfeeding practices in children of 6 months of age in Southern highland regions of Tanzania using cross-sectional household TDHS data collected in 2015-2016. Results showed low (58%) prevalence of EBF practice in Southern highlands (Iringa, Rukwa, Njombe, Mbeya) that needs improvement to increase the health benefit of breastfeeding. In addition, there was a significant difference in EBF rates between urban and rural areas. Child age and being employed were associated with EBF in Southern highlands.

Optimal breastfeeding practices are estimated to reduce child deaths by 11.6% (Black et al., 2013). Exclusive breastfeeding is a cost-effective intervention in saving infants' lives. However, the coverage of 90% has to be reached as recommended by WHO (WHO,2003;Cai,Wardlaw &,Brown, 2012 & Jones, et al, 2003). The findings suggested that the prevalence of EBF decreases with age. Higher prevalence was found to be 93% at 2 -3 months while 54% at the age of 4-6 months.Others have also shown a declining trend in EBF prevalence(Mgongo et al., 2013, Adugna et al., 2017). Despite the low rates of EBF in the current study,Tanzania is progressing in improving exclusive breastfeeding rates as determined by demographic and health indicators. For example, over 13 years, EBF has increased from 23% in 1992 to 59% in 2015/16.

This progress is a result of establishment and implementation since 1974 of several nutritional and health interventions for mothers and newborns. Examples of such interventions are World Breastfeeding Week (WBW), Baby-Friendly Hospital Initiatives (BFHI), and national strategies on Infant and Young Child Feeding (IYCF). Examples of the new approach include Health Support Program III (2008–2012), Primary Health Service Development Program (2007–2017), and the National Road Map Strategic Plan I(2008–2018) and Plan II(2016-2020) and National Multisectoral Nutrition Action Plan I (2016-2021) and II(2022-2026). They all focus on accelerating the reduction of maternal and newborn mortality through improved nutrition.

Mothers with infants aged 2-3 months and 4-6 months had lower odds of exclusive breastfeeding than those mothers with children aged < 2 months. Although exclusive breastfeeding and age are inversely related, breastfeeding has significantly decreased as the child

age increases, and mothers tend to cease exclusive breastfeeding before six months, a minimum period recommended by WHO. Although this trend has been consistent in different studies in Ethiopia, Nigeria, Malawi, Tanzania, and Iran, the prevalence of EBF decreased with age increase (Adugna et al., 2017; Agho et al., 2011; Ali et al., 2021). As the infant's age increases, mothers initiate other food due to the perception that breast milk alone is insufficient to meet their infants' water and nutritional demands. Mothers' perception that breast milk production decreases with time and is insufficient for the infant's growth could be another reason for the reduction of breastfeeding frequency. In addition, it could be related to poor knowledge of mothers about the importance of exclusive breastfeeding and the adverse consequences of initiation of complementary feeding before six months of age. Furthermore, employed mothers returned to work as the infant's age increased, and they do not have enough time to breastfeed their infants exclusively (Lanigan, 2018).

The present study found that employed women in the Southern highland zone of Tanzania had low odds of practicing EBF than unemployed women. This could be because the employed community was at a higher educational level, which led them to have a good information exchange about benefits of EBF through different media. The reason may be the promotion and implementation of maternity leave according to international labor organization conventions and support of working mothers to exclusively breastfeed until six months of age (Shi et al., 2021; Tsegaw et al., 2021).

Also, other reasons could be the implementation of Employment and Labor Relations Act No.6 women are entitled to 84 (100 days for multiple births) paid maternity leave plus the usual 28 days paid annual leave every 3 (TFNC, 2013). But this finding is opposing to studies done in Ethiopia (Adugna et al., 2017), Tanzania (Hussein et al., 2019), and Australia (Ogbo, 2019), unemployed women have higher odds of practicing EBF up to 6 months than women who are employed. This may be because mothers may use breast milk substitutes before six months to compensate for infant feeding during work.

5.0 Conclusions and Recommendations

The study examined the determinants of exclusive breastfeeding practices among mothers with children aged 0 to 6 months in the Southern Highland of Tanzania. Two determinants associated with EBF were identified; age of the child and employment.

Therefore, we recommend the following interventions: Sharing breastfeeding messages with mothers that emphasize the breastfeeding benefits as maternal and child morbidity influenced the practice of EBF and correct knowledge on breastfeeding issues, particularly the health benefits of exclusive breastfeeding. There is a need for the government to improve workplace environments such as infant nurseries, where women with infants can leave their children and come to breastfeed their infants without any problems. More research is needed on women's knowledge and attitudes regarding EBF and cultural factors that can influence EBF practice in the southern highlands zone of Tanzania.

6.0 Limitation of the Study

The use of cross-sectional data only allows associations to be established and it was difficult to conclude causality and brought recall bias.

DATA AVAILABILITY STATEMENT

Data for this study are available upon request from the Demographic and Health Survey (DHS) portal (www.dhsprogram.com).

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The permission to do this study was given by the demographic and health surveys (DHS) program.

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