

Factors Related to Exclusive Breastfeeding in East Java – Indonesia

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Abstract

Exclusive Breast Feeding (EBF) is very crucial for the growth and development of toddlers in the future, both physically and mentally. The study aims to analyze factors related to EBF in East Java, Indonesia. The analysis material for the study was the 2017 Indonesian Nutritional Status Monitoring, a cross-sectional survey. In East Java, the study obtained 3977 toddlers using the multi-stage cluster random sampling process. The study used binary Logistic Regression tests to interpret the data. The results show for toddlers living in cities have a 0.951 times lower probability of experiencing EBF than toddlers residing in rural areas. Toddler age (in months) is one of the determinants of EBF. All categories of maternal marital status are more likely than mothers who are never married to having an EBF toddler. All maternal education levels have a better chance than mothers who have no education to have EBF children. Except for mothers in the senior high school category, which has no significant relationship with the incidence of EBF in children under five in East Java, Indonesia. The study also found toddler's age associated with the incidence of EBF in children under five in East Java, Indonesia. Finally, the toddler boy has a probability of 0.943 times compared to the toddler girl to experience EBF in East Java in Indonesia. The study concluded that six variables were related to the incidence of EBF in East Java - Indonesia, namely residence, mother's age, mother's marital, mother's education, toddler's age, and toddler's gender.

Keywords: *breastfeeding, exclusive breastfeeding, toddler's nutrition, public health.*

Background

Exclusive breastfeeding is the gold standard in infant nutrition¹ Exclusive breastfeeding means that the infant receives only breast milk without other liquids or solids are given with exception of oral rehydration solution or drops of vitamins, minerals or medicine². Exclusive breastfeeding is one of essential factor for infant development and survival³. Globally,

only 23 countries currently have met the 2030 global goal for exclusive breastfeeding at six months⁴. CDC survey showed that most infants in United States born in 2017 started breastfeeding (84.1%), only 58.3% of infants were breastfeeding at 6 months⁵. In Indonesia, Exclusive breastfeeding coverage in 2017 was 35.7%. This results was higher than in 2016 which was 29.5%⁶.

Breastfeeding offers benefits to both mother and child. Breastfeeding is fundamental importance for the survival and quality of life of the baby during its first years of life. For mother, breastfeeding can

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reduce many health diseases such as bleeding, infection, depression, stress and anxiety, cancer, endometriosis, diabetes, osteoporosis, blood pressure and cardiovascular diseases, metabolic syndrome, rheumatic arthritis, Alzheimer disease and multiple sclerosis⁷. Being breastfed is associated with general ability of children⁸. Infants should be exclusively breastfed for the first six months of life for optimal growth, development and health². Evidence on the importance of breastfeeding continues to increase. A series of systematic reviews have shown the effect of breastfeeding in decreasing child infections and dental malocclusion and increasing intelligence. Breastfeeding decreases the risk of breast cancer for mother. Improving breastfeeding rates globally can prevent over 800 000 deaths in children under 5 years of age and 20.000 deaths from breast cancer annually⁹.

Exclusive breastfeeding can affect the illness frequency of infant¹⁰. Breastmilk has many immunological properties that are likely to protect against infection in infancy¹¹. Children who did not receive exclusive breastfeeding had a chance to get several health problems, such as stunting, acute respiratory tract infection (ARI) and diarrhoea. Research stated that the risk of stunting of children who did not receive exclusive breastfeeding was 2.451 times higher than children who received exclusive breastfeeding¹². Relation was found between the lack of exclusive breastfeeding and occurrence of acute respiratory tract infection and diarrhoea¹³. Another research showed that there was an increased risk of chest infection and diarrhoea in infants with exclusive breastfeeding for less than 4 months or 2 – 4 months compared with infants who were fed according to the pre 2001 WHO policy (exclusive breastfeeding for 4 – 6 months, introduced solid but no formula before 6 months). Infection may occurred due to contamination of bottles, teats, milk, and food in infants who were not exclusively breastfed¹¹.

Based on East Java Health Profile, exclusive breastfeeding coverage in East Java Province in 2017 was 74.3%. Districts with lowest percentage

of exclusive breastfeeding coverage were Bangkalan (55.2%) and Sampang (59.6%). The highest percentage of exclusive breastfeeding coverage was Bojonegoro (88.2%)¹⁴.

The Indonesia government recommends infant aged 0-6 months to only be given breast milk (exclusive breastfeeding). Empirically, infant aged 0-6 months in Indonesia are not only given breast milk. A lot of infant at that age have received formula milk, sugar water, and occasionally given bananas. Various reasons and backgrounds were obtained regarding the intake pattern such as close pregnancies and cultural intake patterns¹⁵. Based on the background description, the study aims to analyse factors related to EBF in East Java in Indonesia.

Materials and Methods

Data Source

The study used secondary data from the 2017 Nutritional Status Monitoring Survey. The Directorate of Nutrition of the Ministry of Health of Indonesia performed the national scale survey using a multi-stage cluster random sampling¹⁶. The participants in this sample were all toddlers in East Java, Indonesia, ranging in age from 7 to 60 months. The study employed toddlers as the study's analysis unit. The sample size for this study was 3977 toddlers.

Variables

The dependent variable in the sample was selective breastfeeding (EBF). EBF exclusively breastfeeds for the first six months, without the use of all other dietary additives¹⁷. The study employed seven variables as independent variables. The seven were the type of residence, mother's age, mother's marital status, mother's education level, mother's employment status, toddler's age, and toddler's gender.

Data Analysis

The study used the Chi-Square test to test

dichotomous variables while employed the T-test to test constant variables. The research used the statistical test to see whether the dependent variable (EBF status) and the independent variables have a statistically meaningful relationship. Moreover, the study used the binary logistic regression test to evaluate multivariable data at the end of the process.

Ethical Approval

The national ethics committee has granted the 2017 Nutritional Status Monitoring Survey an ethical license (number: LB.02.01 / 2 / KE.244 / 2017). In this survey, the researcher used informed consent to gather data, which considers elements of the data collection process and voluntariness and secrecy.

Results and Discussion

The analysis results found that the percentage of toddlers who experienced EBF in East Java was 35.8%. This achievement figure is slightly above the national average of 35.7%¹⁶.

Table 1 describes the EBF statistics and variables related to East Java, Indonesia. Based on the residence type, the toddler who lives in rural areas occupied the two categories of EBF in East Java. Meanwhile, based on mother's age, mothers who had EBF babies had an average age slightly older than mothers who had non-EBF babies.

Table 1. Descriptive Statistics of EBF and Variables Related in East Java, Indonesia (n=3977)

Variables	Exclusive Breastfeeding		p-value
	No (n=2558)	Yes (n=1419)	
Type of residence			0.000*
• Urban	17.7%	16.6%	
• Rural	82.3%	83.4%	
Mother's Age (in years; mean)	(29.85)	(30.04)	0.000*
Mother's Marital status			0.000*
• Never married	0.3%	0.2%	
• Married	98.8%	99.1%	
• Divorce/Widowed	0.9%	0.7%	
Mother's Education level			0.000*
• No Education	1.1%	1.1%	
• Primary	22.1%	22.8%	
• Junior High School	25.4%	27.5%	
• Senior High School	43.9%	40.5%	
• College	7.5%	8.0%	
Mother's Employment Status			0.000*

Cont... Table 1. Descriptive Statistics of EBF and Variables Related in East Java, Indonesia (n=3977)

• Unemployed	70.7%	70.2%	
• Employed	29.3%	29.8%	
Toddler’s Age (in months; mean)	(14.43)	(14.68)	0.000*
Toddler’s Gender			0.000*
• Boy	51.5%	50.0%	
• Girl	48.5%	50.0%	

Note: Chi-Square used for dichotomous variables and T-test used for continuous variables. *Significant at the 95% level.

According to the mother’s marital status, married mothers dominate both categories of EBF in East Java. Meanwhile, based on the mother’s education level, the mother who passed senior high school ruled both EBF categories. Moreover, based on the mother’s employment status, the unemployed mother represented all EBF types.

Regarding toddler’s age, toddlers with EBF have an average age slightly older than toddlers without EBF. Finally, based on the toddler’s gender, the EBF boys and girls category has a balanced proportion.

Table 2 shows the binary logistic regression test results to determine factors related to EBF in East Java, Indonesia. In this binary logistic regression test, the study used “Non-EBF” as a reference.

Table 2. Binary Logistic Regression of EBF in East Java, Indonesia (n=3977)

Predictors	p-value	Exclusive Breast Feeding		
		AOR	95% CI	
			LB	UB
Type of Residence: Urban	***0.000	0.951	0.940	0.961
Type of Residence: Rural	-	-	-	-
Mother’s Age	***0.000	1.004	1.003	1.005
Mother’s Marital Status: never married	-	-	-	-
Mother’s Marital Status: married	***0.000	1.544	1.403	1.700
Mother’s Marital Status: divorced/widowed	*0.027	1.128	1.014	1.255
Mother’s education: no education	-	-	-	-
Mother’s Education: primary school	***0.000	1.120	1.076	1.166
Mother’s Education: junior high school	***0.000	1.171	1.125	1.219
Mother’s Education: senior high school	0.604	1.011	.971	1.052
Mother’s Education: college	***0.000	1.167	1.119	1.217
Mother’s Employment Status: Unemployed	-	-	-	-
Mother’s Employment Status: Employed	0.422	0.996	0.987	10.006
Toddler’s Age	***0.000	1.013	1.012	1.014
Toddler’s gender: boy	***0.000	0.943	0.935	0.950
Toddler’s gender: girl	-	-	-	-

Note: * p < 0.05; ** p < 0.01; *** p < 0.001; AOR: adjusted odds ratio; LB: lower bound; UB: upper bound.

Table 2 shows that children who live in cities are 0.951 times less likely than children who live in rural areas to experience EBF (AOR 0.951; 95% CI 0.940-0.961). The situation means that toddlers in rural areas in East Java have a higher chance of experiencing EBF. This finding is different from previous studies, which found that toddlers in urban have a higher likelihood of experiencing EBF¹⁸.

According to the study's findings, maternal age (in years) is one of the determinants of EBF in East Java, Indonesia. The condition is consistent with the results of another European multiregional review, which showed that younger, less trained mothers of toddlers were more likely to abandon breastfeeding before six months, indicating that the mother not achieved EBF. The level of schooling, parity, and social status of mothers under the age of five are all markers of high-risk under-five children who do not have EBF, according to these results¹⁸⁻²⁰.

The study results found that all categories of maternal marital status were more likely than mothers who were never married to have EBF under five in East Java, Indonesia. In Vietnam, a study on EBF performed another report with a slightly different theme. The findings of this study revealed that working together as a parenting team would help EBF succeed. The husband's function was also identified as a predictor of EBF performance in this analysis²¹. According to the findings of a study conducted in Canada, parental collaboration affects awareness, attitudes, and behaviors of exclusive breastfeeding and the length of breastfeeding²².

Table 2 reveals that all maternal education levels have a higher risk of having EBF children than mothers with no education. Except for mothers who have completed senior high school, there is no connection between the incidences of EBF in children under the age of five in East Java, Indonesia. Another study reached the same conclusion in another analysis conducted in Eastern Indonesia, which studied data from the Indonesian Family Life Survey East 2012.

With a smaller sample size (1138 toddlers), the report discovered that maternal schooling positively impacted success rates²³.

The findings of this analysis are consistent with those of many other studies. Better schooling led favourably and played an essential role in the breastfeeding process and the success rate of EBF, according to the findings of a survey of postnatal mothers in Nigeria and China^{24,25}. Another study conducted in the United States used the factor self-efficacy score as an indicator of the relationship between maternal schooling and the performance of EBF delivery. An adult with a high level of education has an advantage in self-efficacy and has a positive relationship with the EBF practice^{26,27}.

Better education provides a better understanding of everything a baby needs. Several studies found that education is often a positive factor in health outcomes²⁸⁻³⁰. On the other hand, poor education is a barrier to achieving better performance in the health sector³¹⁻³³.

The study also discovered the toddler's age (in months) was linked to the occurrence of EBF in children under the age of five in East Java, Indonesia. The findings of this study backed up previous research that showed that a toddler's age was a factor in reaching EBF³⁴⁻³⁶.

Finally, Tabel 2 informs toddler boy has chance about 0.943 times compare to toddler girl to experience EBF in East Java in Indonesia. Two previous studies in Malawi and Somalia with a related theme also identified toddler's gender as a determinant of EBF^{34,37}.

Conclusions

The study concluded six variables related to the EBF incidence in East Java, Indonesia. The six variables are the type of residence, mother's age, mother's marital status, mother's education level, toddler's age, and toddler's gender.

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