

# The Determinant of Exclusive Breastfeeding among Female Worker in Indonesia

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## ABSTRACT

Previous studies have informed that female workers are a vulnerable group that can affect the failure to achieve exclusive breastfeeding (EBF). This study aims to analyze the determinants of EBF among female workers in Indonesia. The research used secondary data from the 2017 Indonesian Nutritional Status Monitoring as a material analysis. Apart from EBF, other variables analyzed include the type of place of residence, age group, marital status, education level, under-five's age, under-five's gender. The study employed 13,042 female workers as analysis material. Binary Logistic Regression was employed in the final stage. The results show female workers who live in urban areas have 1,144 times the probability of achieving EBF than female workers who live in rural areas. Female workers with high school senior education have 0.891 times the chance of achieving EBF compared to female workers with a college education. Under-five's age was found as a determinant of EBF among female workers in Indonesia. Female workers who have boys have 0.909 times the chance to reach EBF than female workers who have under five women. It was concluded that 4 variables proved to be determinants of EBF among female workers in Indonesia. The four determinants are the type of place of residence, education level, under-five's age and gender.

**Keywords:** Breastfeeding, exclusive breastfeeding, female worker, community nutrition.

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## INTRODUCTION

Exclusive breastfeeding (EBF) is an effort to achieve SDG goals. Breastfeeding behavior is more widely practiced in low and middle-income countries than in developed countries<sup>1</sup>. One reason for this practice is that EBF is an inexpensive type of health care. Savings from EBF are estimated to contribute around 302 billion USD annually, equivalent to 0.49% of the world's Gross National Income (GNI)<sup>1</sup>. On the other hand, EBF also benefits children in the long run. This is related to cognitive enhancement, which in turn produces superior human resources that are productive and beneficial to the country<sup>2</sup>.

The results of previous studies found that EBF benefits not only the child but also the mother. EBF can prevent morbidity from diarrhea and under-five respiratory infections<sup>3-5</sup> and cancer in mothers<sup>6,7</sup>. This increase in EBF could prevent 823,000 annual deaths in children under five and 20,000 annual deaths from breast cancer<sup>8</sup>. The long-term benefits of EBF practice can protect from chronic diseases in children such as obesity<sup>9</sup> and for mothers such as cancer, cardiovascular<sup>10</sup>, hypertension<sup>11,12</sup>, and diabetes<sup>13</sup>.

The practice of EBF became a world program after WHO and UNICEF launched the Global Strategy for Infant and Young Child Feeding in 2002<sup>14</sup>. Globally, the prevalence of EBF has increased from 34.5% in 1990 to 43.5% in 2019<sup>15</sup>. Indonesia provides support for the EBF policy with the issuance of a Government Regulation which states that every mother who gives birth must provide exclusive breastfeeding to the baby she is born with. The implementation of EBF in Indonesia has also shown significant progress. The 2010 Indonesia Basic Health Survey data reports EBF coverage of only 15.3%<sup>16</sup>. This coverage then experienced an upward trend in 2013 by 38%<sup>17</sup> and then decreased in 2018 to 37.3%<sup>16</sup>. However, all of these conditions have not met the achievement of the

global target for 2025 with an EBF coverage figure of at least 50%<sup>18</sup>.

Broadly speaking, obstacles to female workers related to EBF include parity, knowledge, economy, time, and place of work. A previous study in Ghana informed that although the level of awareness of EBF provision in Ghana was high (99%), there was a significant decrease from the IMD figure of 91% to EBF of 10.3%. Furthermore, they said that they did not perform EBF because they did not receive advice from health workers and had a shorter leave duration. Meanwhile, those who tend to practice EBF are caused by normal delivery<sup>19</sup>. Unlike in China, work benefits, travel time, work environment, and labor intensity are the things that influence breastfeeding practice<sup>20</sup>. Those who experience one or more of the above will decide to reduce the frequency or stop breastfeeding. Meanwhile, previous studies reported that in Indonesia the practice of EBF is controlled by age at birth, household welfare index, and frequency of antenatal care<sup>21</sup>. Based on the background description, this study aims to analyze the determinant of EBF among female workers in Indonesia.

## MATERIALS AND METHODS

### Data Source

The study uses secondary data from the 2017 Indonesian Nutritional Status Monitoring. The 2017 Indonesian Nutritional Status Monitoring is a national scale survey using the multi-stage cluster random sampling method conducted by the Directorate of Nutrition of the Indonesian Ministry of Health<sup>22</sup>. The population in this study were all female workers who have under five (7-60 months) in Indonesia. The sample size analyzed in this study was 13,042 respondents.

### Data Analysis

Exclusive Breastfeeding (EBF) was breastfeeding only for the first six months without drinks or other food

additives<sup>23</sup>. EBF was divided into 2 categories, namely achieving EBF (yes) and not reaching EBF (no). Variable selection was performed using the Chi-Square test to test the dichotomous variables, while the T-test was used for continuous variables. This statistical test is used to assess whether there is a statistically significant relationship between the EBF status variable as the dependent variable and the independent variable. Six variables will be tested as determinant candidates of EBF among female workers, namely the type of place of residence, age group, marital status, education level, under-five's age, and gender. In the final stage, the binary logistic regression test is used to determine the determinant of EBF among female workers in Indonesia.

#### Ethical Approval

The 2017 Indonesian Nutritional Status Monitoring has an ethics license approved by the national ethics committee (ethics number: LB.02.01/2/KE.244/2017). In this survey, informed consent was used during data collection, which took into account aspects of the procedure for data collection, voluntary, and confidentiality.

#### RESULTS AND DISCUSSION

Table 1 is a statistical description of EBF among female workers in Indonesia. Based on the type of place of residence, it can be seen that female workers who have under five are dominated by those who live in rural areas. Meanwhile, based on the age group, female workers who reached EBF or not were dominated by the 26-30 age group.

Table 2. Descriptive Statistics of EBF among Female Worker in Indonesia (n=13,042)

Variables	EBF				P
	No		Yes		
	n	%	n	%	
The type of place of residence					*0.002
• Urban	1796	20.7%	1011	23.1%	
• Rural	6864	79.3%	3371	76.9%	
Age group					*0.014
• < 21	474	5.5%	213	4.9%	
• 21-25	1686	19.5%	775	17.7%	
• 26-30	2598	30.0%	1320	30.1%	
• 31-35	2177	25.1%	1200	27.4%	
• 36-40	1174	13.6%	565	12.9%	
• 41-45	395	4.6%	217	5.0%	
• >45	156	1.8%	92	2.1%	
Marital status					0.102
• Never married	56	0.6%	28	0.6%	
• Married	8425	97.3%	4287	97.8%	
• Divorce/Widowed	179	2.1%	67	1.5%	
Education level					*0.030
• No education	426	4.9%	187	4.3%	
• Primary school	1853	21.4%	979	22.3%	
• Junior high school	1655	19.1%	811	18.5%	
• Senior high school	2758	31.8%	1329	30.3%	
• College	1968	22.7%	1076	24.6%	
Under-five's Age (in months; mean)	8660	(14.67)	4382	(15.25)	*0.000
Under-five's Gender					*0.012
• Male	4436	51.2%	2143	48.9%	
• Female	4224	48.8%	2239	51.1%	

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

Based on marital status, both categories of EBF achievement were dominated by married female workers. On the other hand, based on education level, the two categories of EBF achievement were dominated by female workers who graduated from senior high school. According to under-five's age, female workers who reach EBF have under-five's older average age. Meanwhile, based on under-five's gender, female workers who reach

EBF are dominated by those who have under-five's with gender girl. Moreover, female workers who do not reach EBF are dominated by those who have under five with the gender boy.

Table 2 shows the results of the binary logistic regression test to determine the determinant of EBF among female workers in Indonesia. In this binary logistic regression test, "No EBF" is used as the reference.

Table 2. The Results of Binary Logistic Regression of EBF among Female Worker in Indonesia (n=13,042)

Predictors	Sig.	EBF		
		OR	Lower Bound	Upper Bound
Type of place of residence: Urban	*0.003	1.144	1.045	1.251
Type of place of residence: Rural	-	-	-	-
Age group: < 21	0.122	0.785	0.578	1.067

Age group: 21-25	0.101	0.795	0.605	1.046
Age group: 26-30	0.244	0.852	0.652	1.115
Age group: 31-35	0.555	0.922	0.704	1.207
Age group: 36-40	0.138	0.810	0.614	1.070
Age group: 41-45	0.562	0.913	0.672	1.241
Age group: >45	-	-	-	-
Education level: No education	0.123	0.859	0.709	1.042
Education level: Primary school	0.833	0.988	0.884	1.105
Education level: Junior high school	0.163	0.921	0.821	1.034
Education level: Senior high school	*0.024	0.891	0.806	0.985
Education level: College	-	-	-	-
Under-five's Age (in months; mean)	*0.000	1.025	1.018	1.033
Under-five's Gender: Male	*0.010	0.909	0.845	0.977
Under-five's Gender: Female	-	-	-	-

Note: Reference category was "No EBF"; confidence interval of 95% for OR \*significant at 95% level.

Table 2 shows that female workers living in urban areas had 1.144 times the chance of achieving EBF than female workers living in rural areas (OR 1.144; 95% CI 1.045-1.251). The results of this analysis confirm the results of previous research on disparities between urban-rural areas in access to health information and access to health services. Often people who live in urban areas have better access than those who live in rural areas<sup>24,25</sup>. Meanwhile, other previous studies in Indonesia have shown the influence of culture which is often found as a barrier to EBF in rural areas. The practices of giving drinks or other food prematurely<sup>26,27</sup>, and even given sometime after the baby is born<sup>28-30</sup>. This is also related to health belief in certain religions, for example by applying honey to the lips of babies<sup>28</sup>, or provide a sugar solution because it is believed to provide strength<sup>26</sup>.

The results of the analysis found that the education level partially affects the achievement of EBF among female workers in Indonesia. Female workers with high school senior education have 0.891 times the likelihood of achieving EBF than female workers with a college education (OR 0.891; 95% CI 0.806-0.985). This means that female workers who graduate from college have a better chance of achieving EBF. Better education is assumed to have a relationship with a better understanding of receiving health information<sup>31-33</sup>. Education is a strong positive determinant that is most often found to affect performance in the health sector<sup>34-37</sup>. Under-five's age was found as a determinant of EBF among female workers in Indonesia. This finding information is in line with findings that were informed in several previous studies in Ethiopia<sup>38-40</sup>. Moreover, under-five's gender is also found as a determinant of EBF among female workers in Indonesia. Female workers who have under five men have a 0.909 times chance of achieving EBF than female workers who have under five women (OR 0.909; 95% CI 0.845-0.977). Under-five's gender as a determinant of EBF was also reported in previous studies with the same theme in Malawi and Somalia<sup>41,42</sup>.

The information generated in this study provides clear targets for policymakers if they wish to increase the coverage of EBF, especially among female workers. Policymakers can formulate specific policies targeting female workers who live in rural areas and have low levels of education. In addition to breastfeeding leave policies, policymakers can also release special policies at work, so

those female workers can receive guarantees to express breastmilk for their children.

## CONCLUSIONS

Based on the research results, it can be concluded that 4 variables were proven to be determinants of EBF among female workers in Indonesia. The four determinants were the type of place of residence, education level, under-five's age, and gender.

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## DECLARATION OF CONFLICTING INTERESTS

The authors declare no conflict of interest, financial or otherwise.

## REFERENCES

1. Rollins NC, Bhandari N, Hajeebhoy N, Horton S, Lutter CK, Martinez JC, et al. Why invest, and what it will take to improve breastfeeding practices? *Lancet*. 2016 Jan;387(10017):491-504.
2. Lee H, Park H, Ha E, Hong Y-C, Ha M, Park H, et al. Effect of Breastfeeding Duration on Cognitive Development in Infants: 3-Year Follow-up Study. *J Korean Med Sci*. 2016;31(4):579.
3. Raheem RA, Binns CW, Chih HJ. Protective effects of breastfeeding against acute respiratory tract infections and diarrhoea: Findings of a cohort study. *J Paediatr Child Health*. 2017 Mar;53(3):271-6.
4. Lee MK, Binns C. Breastfeeding and the Risk of Infant Illness in Asia: A Review. *Int J Environ Res Public Health*. 2019 Dec;17(1):186.
5. Frank NM, Lynch KF, Uusitalo U, Yang J, Lönnrot M, Virtanen SM, et al. The relationship between breastfeeding and reported respiratory and gastrointestinal infection rates in young children. *BMC Pediatr*. 2019 Dec;19(1):339.
6. Merritt MA, Riboli E, Murphy N, Kadi M, Tjønneland A, Olsen A, et al. Reproductive factors and risk of mortality in the European Prospective Investigation into Cancer and Nutrition; a cohort study. *BMC Med*. 2015 Dec;13(1):252.

7. Vieira Borba V, Sharif K, Shoenfeld Y. Breastfeeding and autoimmunity: Programing health from the beginning. *Am J Reprod Immunol*. 2018 Jan;79(1):e12778.
8. Victoria C, Adair L, Fall C, Hallal P, Martorell R, Richter L, et al. Maternal and Child Undernutrition 2 : Maternal and child ... *Lancet*. 2008;371:340–57.
9. Rito AI, Buoncristiano M, Spinelli A, Salanave B, Kunešová M, Hejgaard T, et al. Association between Characteristics at Birth, Breastfeeding and Obesity in 22 Countries: The WHO European Childhood Obesity Surveillance Initiative – COSI 2015/2017. *Obes Facts*. 2019;12(2):226–43.
10. Peters SAE, Yang L, Guo Y, Chen Y, Bian Z, Du J, et al. Breastfeeding and the Risk of Maternal Cardiovascular Disease: A Prospective Study of 300 000 Chinese Women. *J Am Heart Assoc*. 2017 Nov;6(6).
11. Park S, Choi N-K. Breastfeeding and Maternal Hypertension. *Am J Hypertens*. 2018 Apr;31(5):615–21.
12. Qu G, Wang L, Tang X, Wu W, Sun Y. Association Between Duration of Breastfeeding and Maternal Hypertension: A Systematic Review and Meta-Analysis. *Breastfeed Med*. 2018 Jun;13(5):318–26.
13. Yasuhi I, Soda T, Yamashita H, Urakawa A, Izumi M, Kugishima Y, et al. The effect of high-intensity breastfeeding on postpartum glucose tolerance in women with recent gestational diabetes. *Int Breastfeed J*. 2017 Dec;12(1):32.
14. WHO, UNFPA, Unicef, The World Bank. Integrated Management of Pregnancy and Childbirth, Pregnancy, Childbirth, Postpartum and newborn care. 2003.
15. Gardner W, Kassebaum N. Global, Regional, and National Prevalence and Trends in Infant Breastfeeding Status in 204 Countries and Territories, 1990–2019. *Curr Dev Nutr*. 2020 Jun;4(Supplement\_2):992–992.
16. National Institute Health Research And Development M of H. National Basic Health Research Survey Report (Riskesdas 2018). Jakarta, Indonesia: LBP Balitbangkes; 2019.
17. Health Research and Development Agency. Basic Health Research 2013. *Natl Rep 2013*. 2013;1–384.
18. Krentel A, Fischer PU, Weil GJ. A Review of Factors That Influence Individual Compliance with Mass Drug Administration for Elimination of Lymphatic Filariasis. *PLoS Negl Trop Dis*. 2013;7(11).
19. Dun-Dery EJ, Laar AK. Exclusive breastfeeding among city-dwelling professional working mothers in Ghana. *Int Breastfeed J*. 2016 Dec;11(1):23.
20. Chen J, Xin T, Gaoshan J, Li Q, Zou K, Tan S, et al. The association between work related factors and breastfeeding practices among Chinese working mothers: a mixed-method approach. *Int Breastfeed J*. 2019 Dec;14(1):28.
21. Sari Y. Lack of Exclusive Breastfeeding among Working Mothers in Indonesia. *Kemas Natl Public Heal J*. 2016 Nov;11(2).
22. Kusrini I, Laksono AD. Regional disparities of stunted toddler in indonesia. *Indian J Forensic Med Toxicol*. 2020;14(3):1685–91.
23. Wulandari RD, Laksono AD. Does the Place of Residence Affect the Achievement of Exclusive Breastfeeding? A Study in Eastern Indonesia. *Syst Rev Pharm*. 2020;11(9):872–6.
24. Chang P-C, Li S-F, Yang H-Y, Wang L-C, Weng C-Y, Chen K-F, et al. Factors associated with cessation of exclusive breastfeeding at 1 and 2 months postpartum in Taiwan. *Int Breastfeed J*. 2019;14(1):18.
25. Laksono AD, Wulandari RD, Soedirham O. Urban and Rural Disparities in Hospital Utilization among Indonesian Adults. *Iran J Public Health*. 2019;48(2):247–55.
26. Maghfiroh MS, Laksono AD. “Given sugar water ... at first the cry became silent, because it was full, not limp, its endurance increased”; Study of Patterns of Infant Intake (“Diberi air gula... awalnya nangis menjadi diam, karena kenyang, gak lemas, daya tahan tubuhnya meningkat”; S. Amerta Nutr. 2020;4(2):116–22.
27. Nggeolima RA, Indrayaningsih, Laksono AD. Ro’Hili leaf and metamphetamine sugar: Welcome newborn (Daun Ro’Hili & Air Gula Sabu: Penyambut Bayi Baru Lahir). Surabaya: Unesa University Press; 2016.
28. Pratiwi NL, Fitrianti Y, Nuraini S, Rachmawati T, Laksono AD, Afreni M, et al. Concealed Pregnant Women or Kemel of Gayo Ethnic in Blang Pegayon District, Gayo Lues District, Aceh. *Bull Heal Syst Res*. 2019;22(2):81–90.
29. Kusrini I, Ipa M, Laksono AD. “Is It true that the child is king?”: Qualitative Study of Factors Related to Nutritional Status of Children in West Lombok, Indonesia. *Indian J Public Heal Res Dev*. 2019;10(12):1729–33.
30. Laksono AD, Faizin K, Raunsay EM, Soerachman R. Muyu women in exile (Perempuan Muyu dalam Pengasingan) [Internet]. Jakarta: Lembaga Penerbitan Balitbangkes; 2014. Available from: <https://www.scribd.com/doc/261673624/Perempuan-Muyu-dalam-Pengasingan-Riset-Ethnografi-Kesehatan-2014-Boven-Digoel>
31. Wulandari RD, Laksono AD. Education as predictor of the knowledge of pregnancy danger signs in Rural Indonesia. *Int J Innov Creat Chang*. 2020;13(1):1037–51.
32. Asare BY-A, Preko JV, Baafi D, Dwumfour-Asare B. Breastfeeding practices and determinants of exclusive breastfeeding in a cross-sectional study at a child welfare clinic in Tema Manhean, Ghana. *Int Breastfeed J*. 2018;13(1):Article number 12.
33. Noh J-W, Kim Y-M, Akram N, Yoo K-B, Cheon J, Lee LJ, et al. Factors affecting breastfeeding practices in Sindh province, Pakistan: A secondary analysis of cross-sectional survey data. *Int J Environ Res Public Health*. 2019;16(10):Article number 1689.
34. Ipa M, Widawati M, Laksono AD, Kusrini I, Dhewantara PW. Variation of preventive practices and its association with malaria infection in eastern Indonesia: Findings from community-based survey. *PLoS One*. 2020;15(5):e0232909.
35. Rohmah N, Yusuf A, Hargono R, Laksono AD, Masrurroh, Ibrahim I, et al. Determinants of teenage pregnancy in Indonesia. *Indian J Forensic Med Toxicol*. 2020;14(3):2080–5.
36. Wulandari RD, Laksono AD. Determinants of knowledge of pregnancy danger signs in Indonesia. *PLoS One*. 2020;15(5):Article number e0232550.
37. Megatsari H, Laksono AD, Ibad M, Herwanto YT, Sarweni KP, Geno RAP, et al. The community psychosocial burden during the COVID-19 pandemic in Indonesia. *Heliyon*. 2020;6(10):Article number e05136.
38. Hagos D, Tadesse AW. Prevalence and factors associated with exclusive breastfeeding among rural mothers of infants less than six months of age in Southern Nations, Nationalities, Peoples (SNNP) and Tigray regions, Ethiopia: A cross-sectional study. *Int Breastfeed J*. 2020;15(1):Article number 25.

39. Tadesse F, Alemayehu Y, Shine S, Asresahegn H, Tadesse T. Exclusive breastfeeding and maternal employment among mothers of infants from three to five months old in the Fafan zone, Somali regional state of Ethiopia: A comparative cross-sectional study. *BMC Public Health*. 2019;19(1):Article number 1015.
40. Adugna B, Tadele H, Reta F, Berhan Y. Determinants of exclusive breastfeeding in infants less than six months of age in Hawassa, an urban setting, Ethiopia. *Int Breastfeed J*. 2017;12(1):Article number 45.
41. Salim YM, Stones W. Determinants of exclusive breastfeeding in infants of six months and below in Malawi: A cross sectional study. *BMC Pregnancy Childbirth*. 2020;20(1):Article number 472.
42. Jama A, Gebreyesus H, Wubayehu T, Gebregyorgis T, Teweldemedhin M, Berhe T, et al. Exclusive breastfeeding for the first six months of life and its associated factors among children age 6-24 months in Burao district, Somaliland. *Int Breastfeed J*. 2020;15(1):Article number 5.