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Breastfeeding Trends and it's Related Factors in Indonesia: A National Survey

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ABSTRACT

This cross-sectional study aimed to examine breastfeeding trends and factors in Indonesia using Demographic Health Survey (DHS) data from 2007 to 2017. The research data were obtained from three Indonesia Demographic Health Surveys. The data covered households and women aged 15–49 years old, including 40,701 households and 32,895 women in 2007; 43,852 households and 45,607 women in 2012; and 47,963 households and 49,627 women in 2017. Descriptive statistics was deployed to analyze the sociodemographic factors of the respondents. A questionnaire was employed to obtain data on the mothers' age, residence, education, economic status, mother working, marital status, literacy, place of delivery, first Antenatal Care (ANC) place, child size at birth, and gender of the child. Multinomial logistic regression analysis was used to analyze factors related to breastfeeding and how big the impact is. The findings indicate that the trend of breastfeeding in Indonesia significantly decreased based on the characteristics of mothers and children. The rates of breastfeeding (exclusive breastfeeding infants aged 0–5 months who received only breast milk) among mothers living in urban areas decreased significantly from 41.6% in 2012 to 38.4% in 2017. In 2017, children with normal birth weight (OR=0.87, 95% CI:0.53–1.45), boys (OR=1.01, 95% CI:0.92–1.10), and non-illiterate mothers (OR=0.50, 95% CI:0.46–0.55) had higher odds of breastfeeding compared to children with small birth weight, girls, and illiterate mothers. Factors associated with breastfeeding also change every year. In 2012, breastfeeding was related to marital status and delivery, but in 2017 it was not associated with those factors. Factors related to breastfeeding in Indonesia are age, residence, education, weight index, size of child at birth, mother's occupation, marital status, literacy, place of delivery, and first ANC place. These results are important for developing policies to improve maternal and child health in Indonesia by increasing education and mother training for early initiation of breastfeeding.

Keywords: breastfeeding, demographic health survey, Indonesia, trends, under five children

INTRODUCTION

Breastfeeding is one of the foundations of child health (World Health Organization (WHO) 2018). Breastfeeding is essential for a child's survival, nutrition, and development, as well as maternal health (WHO 2017). It is also the best way to build a bonding between mother and baby (Piro & Ahmed 2020). Around 800,000 neonatal deaths are generally associated with delayed breastfeeding initiation and a lack of exclusive breastfeeding. Breastfeeding should begin immediately after birth to reduce the risk of neonatal death in the first week of life by 22% (Woldeamanuel 2020). In 2017, the infant mortality rate in Indonesia was 21.4 per 1,000 live births, higher than in other Southeast Asian Low and Middle-Income Countries (LMIC), including Vietnam (17 per 1,000 live births), Thailand (8 per 1,000 live births), and Malaysia (7 per 1,000 live births) (Saputri *et al.* 2020). LMICs are facing a lack of access to clean water, low levels of adequate sanitation, low levels of adequate sanitation, and limited essential health and social services resulting in a lack of breastfeeding (Woldeamanuel 2020).

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Only about 41% of infants aged less than six months were exclusively breastfed in 2017, with 45% continuing breastfeeding until two years (WHO 2018). Meanwhile, in Indonesia in 2018, the percentage of early initiation breastfeeding was 71.17%, which exceeded the national target (45%). However, there are provinces in Indonesia that have yet to reach the target: Maluku (23.18%), Central Sulawesi (30.37%), and North Sulawesi (37.70%). Meanwhile, limited data was found in the West Papua province (Ministry of Health Republic of Indonesia (MoH RI) 2019). The breastfeeding trend in Asian countries tends to decrease drastically yearly due to the promotion of the formula milk industry. Millions of babies, two-thirds of the worldwide population now consume formula milk, with breastfeeding falling in Asia (Smith 2019).

The Indonesian government's policy regarding breastfeeding is stated in the decree of the Minister of Health of the Republic of Indonesia No. 450/2004, regarding the provision of exclusive breast milk to babies in Indonesia with ten steps towards successful breastfeeding, one of which is helping mothers breastfeed correctly (MoH RI 2004). The Indonesian government's policy regarding the restriction of formula milk is contained in the Regulation of the Minister of Health of the Republic of Indonesia Number 14 of 2014 concerning the imposition of sanctions on health officers and institutions, as well as manufacturers of formula milk, which can hinder the success of the exclusive breastfeeding program. The sanctions may be in the form of a verbal or written warning and revocation of business licenses (MoH RI 2014). The decreasing trend in breastfeeding in Indonesia and the lack of evidence about changes over time in factors associated with breastfeeding require further investigation using national data. This study examines trends and characteristics associated with breastfeeding in Indonesia from 2007 to 2017.

METHODS

Design, location, and time

The study employed cross-sectional research design with a national dataset of children from Indonesia Demographic and Health Surveys (IDHS) in 2007, 2012, and 2017. The Ministry of Health Republic of Indonesia provided ethical clearance for this study, and permission to utilize the data was obtained from Inner City Fund (ICF) International.

Sampling

The surveys employed a two-stage stratified cluster design based on administrative regions and locations. The first step was to identify primary sampling units, and the second was to select households.

Data collection

Data were collected from the three national surveys using the Woman's Questionnaire. The validity and reliability are very satisfactory, as evidenced by the questionnaire from Demographic Health Survey (DHS) that has been used globally and has officially obtained permission from the state. Questionnaires have also been modified using local languages to ensure validity and reliability (Mohammadi *et al.* 2020; Prasetyo *et al.* 2022). The woman's questionnaire contains information on the following topics: mother's age, residence, education, economic status, mother's occupation status, marital status, literacy, place of delivery, first ANC place, child size at birth, and sex of the child. This study used data of households and women aged 15–49 from three surveys: 40,701 households and 32,895 women in 2007; 43,852 households and 45,607 women in 2012; and 47,963 households and 49,627 women in 2017.

The dependent variable in this research is the provision of breastfeeding. The provision of breastfeeding was defined when a through a survet on whether was carried out on whether the mother was breastfeeding. The questionnaire assesses breastfeeding by asking respondents, "Are you currently giving breastfeeding children?". The responses from respondents were categorized into two categories: yes and no.

The independent variable in this study is eleven factor that affects the provision of breastfeeding, including age (15–19 years, 20–34 years, and 35–49 years), residence (urban and rural), education (no education, primary, secondary, higher education), wealth quintiles (poorest, poorer, average, richer, richest), baby birth size (very large, large than average, average, smaller than average, very small, do not known), working mother (no, yes), sex of child (boys, girls), marital status (never married, married/ cohabiting, divorced/separated / widow), literacy

(no, yes), place of delivery (health facility, home/other), and place of first ANC (health facility, home/other).

Data analysis

Data analysis used Statistical Package for Social Science version 21 (IBM USA). We used frequencies and percentages to report sample characteristics and breastfeeding trends and a chi-square test to examine the relationship between the independent variable and breastfeeding in each survey (the Fisher's Exact test is an alternative test for the Chi-Square test which does not meet the requirements for use). Multinomial logistic regression was used to identify odds ratios and 95% Confidence Intervals (CI) of the factors influencing the breastfeeding description. P-value<0.05 means a significant influence exists between the provision of breastfeeding and the independent variable. Ethical clearance was obtained from ICF International, headquartered in Rockville, Maryland, United States, with Authletter number 142047.

RESULTS AND DISCUSSION

Respondents' characteristics

Table 1 shows the characteristics of the mothers and children. Data from 2007–2017 shows that the number of mothers aged 20–34 years old has decreased, while the number of mothers aged 35–49 years old has increased by 4%. Respondents in rural areas have decreased, while those in urban areas have increased by around 11%. The proportion of mothers' education has increased by up to 10% at the higher education level.

Trends and factors associated with breastfeeding administration in Indonesia

Table 2 shows breastfeeding rates by mothers' and children's characteristics. Overall, breastfeeding trends in Indonesia from the three surveys show an undesirable decrease based on the factors of mothers and children. The breastfeeding rates among mothers in urban areas decreased significantly from 41.6% in 2012 to 38.4% in 2017. Similarly, breastfeeding among mothers without education decreased from 58.6% in 2012 to 46.7% in 2017. It reduced breastfeeding in boys from 44.9% in 2012 to 41.4% in 2017. Breastfeeding also decreased significantly in mothers who used health facilities for the first time of ANC, from 40.9% in 2012 to 39.8% in 2017.

Factors related to breastfeeding in Indonesia are age ($p<0.001$), residence ($p<0.001$), education ($p<0.001$), weight index ($p<0.001$), size of child at birth ($p<0.05$), mother occupation ($p<0.001$), marital status (2007 and 2012) ($p<0.05$), literacy ($p<0.05$), place of delivery (2007 and 2012) ($p<0.05$), and first ANC place (2007 and 2017) ($p<0.001$). Breastfeeding in Indonesia is not related to the factors of sex of children, marital status (2017), place of delivery (2017), and first ANC place (2012) ($p>0.05$).

The multivariate analysis in Table 3 showed that in 2007, the odds of breastfeeding were 27% higher among teenage mothers than older mothers (OR=0.27, 95% CI:0.22–0.33). Mothers living in urban areas have a higher odds ratio for practicing breastfeeding compared to mothers living in rural areas (OR=1.15, 95% CI:1.04–1.26 in 2007; OR=1.09, 95% CI:0.98–1.22 in 2012; OR=1.15, 95% CI:1.03–1.27 in 2017). In 2007, the odds of breastfeeding were 79% higher for mothers with no education compared to mothers with higher education, 71% for the poor compared to wealthy families, 61% for mothers who were not working compared to working mothers, and 81% of mothers who were married compared to unmarried/divorced mothers. In 2017, children with normal birth weight (OR=0.87, 95% CI:0.53–1.45), boys (OR=1.01, 95% CI:0.92–1.10), and non-illiterate mothers (OR=0.50, 95% CI:0.46–0.55) had higher odds of breastfeeding compared with children at birth, girls, and illiterate mothers. In 2012, mothers who gave birth in a health facility were 73% more likely to perform breastfeeding compared to mothers who gave birth at home (OR=0.73, 95% CI:0.63–0.85), and mothers who served ANC at a health facility had higher odds to provide breastfeeding compared to mothers who did ANC at home (OR=1.03, 95% CI:0.89–1.19) (Table 3).

The conditions in Indonesia regarding early breastfeeding have reached the national target. However, provinces in eastern Indonesia need attention in this regard. Several provinces have not yet achieved the national target, such as Maluku, Central Sulawesi, North Sulawesi, and Papua (Sugawara & Nikaido 2014). This trend is similar to that of middle-income countries such as Vietnam and Haiti (Kavle *et al.* 2019; Ndirangu

Table 1. Respondents' characteristic

Characteristic	2007 (n=18,645)		2012 (n=18,021)		2017 (n=17,848)	
	n	%	n	%	n	%
Age, years old						
15–19	565	3.0	586	3.3	440	2.5
20–34	13,588	72.9	12,901	71.6	12,098	67.8
35–49	4,492	24.1	4,534	25.2	5,310	29.8
Residence						
Urban	7,013	37.6	8,170	45.3	8,760	49.1
Rural	11,632	62.4	9,851	54.7	9,088	50.9
Education						
No education	797	4.3	584	3.1	270	1.5
Primary	7,361	39.5	5,550	29.8	4,455	25.0
Secondary	9,046	48.5	9,489	50.9	9,920	55.6
Higher	1,439	7.7	2,398	12.9	3,203	17.9
Wealth index						
Poorest	5,747	30.8	5,477	30.4	4,963	27.8
Poorer	3,722	20.0	3,591	19.9	3,483	19.5
Middle	3,229	17.3	3,249	18.0	3,257	18.2
Richer	3,033	16.3	3,010	16.7	3,138	17.6
Richest	2,914	15.6	2,694	14.9	3,007	16.8
Size child at birth						
Very large	1,156	6.3	744	4.2	892	5.0
Larger than average	4,406	23.9	4,707	26.4	4,795	27.0
Average	9,078	49.3	9,404	52.6	9,383	52.9
Smaller than average	2,312	12.6	2,101	11.8	1,993	11.2
Very small	542	2.9	337	1.9	380	2.1
Don't know	906	4.9	570	3.2	298	1.7
Working mother						
No	10,007	53.9	9,229	51.2	9,511	53.3
Yes	8,573	46.1	8,783	48.8	8,324	46.7
Sex of child						
Boys	9,834	52.7	9,358	51.9	9,202	51.6
Girls	8,811	47.3	8,663	48.1	8,646	48.4
Marital status						
Never married	30	0.2	13	0.1	0	0.0
Married	17,287	96.9	17,542	97.3	18,183	97.5
Divorced	531	3.0	466	2.6	462	2.5
Literacy						
No	1,508	8.1	1,099	6.1	645	3.6
Yes	17,007	91.9	16,781	93.9	17,158	96.4
Place of delivery						
Health facility	6,844	38.3	9,225	53.5	13,104	73.7
Home/Other	11,031	61.7	8,030	46.5	4,665	26.3
First ANC, place						
Health facility	3,973	33.4	4,353	57.5	4,531	51.1
Home/Other	7,921	66.6	3,218	42.5	4,338	48.9

ANC:Antenatal Care

Table 2. Rates of breastfeeding in Indonesia (2007, 2012, 2017) by demographic and socioeconomic characteristics

Characteristic	Breastfeeding (2007)			Breastfeeding (2012)			Breastfeeding (2017)		
	No (n/%)	Yes (n/%)	*P*	No (n/%)	Yes (n/%)	*P*	No (n/%)	Yes (n/%)	*P*
Age									
15–19	163/28.8	402/71.2	0.000	182/31.1	404/68.9	0.000	162/36.8	278/63.2	0.000
20–34	7,009/51.6	6,579/48.4		6,976/54.1	5,925/45.9		6,761/55.9	53,378/44.1	
35–49	2,671/59.5	1,821/40.5		2,751/60.7	1,783/39.3		3,469/65.3	1,841/34.7	
Residence									
Urban	4,125/58.8	2,888/41.2	0.000	4,769/58.4	3,401/41.6	0.000*	5,397/61.6	3,363/38.4	0.000*
Rural	5,718/49.2	5,914/50.8		5,140/52.2	4,711/47.8		4,995/55	4,098/45	
Education									
No education	397/49.8	400/50.2	0.000	242/41.4	342/58.6	0.000	144/53.3	126/46.7	0.020
Primary	3,628/49.3	3,733/50.7		2,939/53	2,611/47		2,535/56.9	1,920/43.1	
Secondary	4,947/54.7	4,099/45.3		5,323/56.1	4166/43.9		5,793/58.4	4,127/41.6	
Higher	871/60.5	568/39.5		1,405/58.6	993/41.4		1,920/59.9	1,283/40.1	
Wealth index									
Poorest	2,597/45.2	3,150/54.8	0.000	2,674/48.8	2,803/51.2	0.000	2,586/52.1	2,377/47.9	0.000
Poorer	1,944/52.2	1,778/47.8		1,871/52.1	1,720/47.9		1,995/57.3	1488/42.7	
Middle	1,706/52.8	1,523/47.2		1,896/58.4	1,353/41.6		1,943/59.7	1,314/40.3	
Richer	1,766/58.2	1,267/41.8		1,794/59.6	1,216/40.4		1,928/61.4	1,210/38.6	
Richest	1,830/62.8	1,084/37.2		1,674/62.1	1,020/37.9		1,940/64.5	1,067/35.5	
Size child at birth									
Very large	588/50.9	568/49.1	0.000	419/56.3	325/43.7	0.000	534/59.9	358/40.1	0.014
Larger than average	2,318/52.6	2,088/47.4		2,632/55.9	2,075/44.1		2,769/57.7	2,028/42.3	
Average	4,911/54.1	4,167/45.9		5,120/54.4	4,284/45.6		5,410/57.7	3,973/42.3	
Smaller than average	1,170/50.6	1,142/49.4		1,161/55.3	940/44.7		1,190/59.7	803/40.3	
Very small	301/55.5	241/44.5		211/62.6	126/37.4		249/65.6	131/34.5	
Don't know	408/45.0	498/55.0		266/46.7	304/53.3		163/54.7	135/45.3	
Working mother									
No	4,715/47.1	5,292/52.9	0.000*	4,348/47.1	4,881/52.9	0.000*	4,829/50.8	4,682/49.2	0.000*
Yes	5,098/59.5	3,475/40.5		5,554/63.2	3,229/36.8		5,555/56.7	2,769/33.3	
Sex of child									
Boys	5,184/52.7	4,650/47.3	0.418*	5,160/55.1	4,198/44.9	0.338*	5,395/58.6	3,807/41.4	0.133*
Girls	4,659/52.9	4,152/47.1		4,749/54.8	3,914/45.2		4,997/57.8	3,649/42.2	

Continue from Table 2

Characteristic	Breastfeeding (2007)			Breastfeeding (2012)			Breastfeeding (2017)		
	No (n/%)	Yes (n/%)	*P*	No (n/%)	Yes (n/%)	*P*	No (n/%)	Yes (n/%)	*P*
Marital status									
Never married	11/36.7	19/63.3	0.020	5/38.5	8/61.5	0.000	-	-	0.259*
Married	9,111/52.7	8,176/47.3		9,571/54.6	7,971/45.4		10,124/58.2	7,276/41.8	
Divorced	305/57.4	226/42.6		333/71.5	133/28.5		268/59.8	180/40.2	
Literacy									
No	726/48.1	782/51.9	0.000*	507/46.1	592/53.9	0.000*	346/53.6	299/46.4	0.009*
Yes	9,048/53.2	7,959/46.8		9,325/55.6	7,456/44.4		10,018/58.4	7,140/41.6	
Place of delivery									
Health facility	3,956/57.8	2,888/42.2	0.000*	5,169/56	4,056/44	0.002*	7,638/58.3	5,466/41.7	0.275*
Home/Other	5,482/49.7	5,549/50.3		4,322/53.8	3,708/46.2		2,695/57.8	1,970/42.2	
First ANC, place									
Health facility	2,291/57.7	1,682/42.3	0.000*	2,574/59.1	1,779/40.9	0.329*	2,908/64.2	1,623/35.8	0.000*
Home/Other	3,935/49.7	3,986/50.3		1,920/59.7	1,298/40.3		2,616/60.3	1,722/39.7	

ANC: Antenatal Care
Chi-square test

et al. 2018). This condition is due to structural, individual, and environmental factors such as lack of access to health services, insufficient knowledge, socioeconomic conditions, and family support (Blackwell & Morrell 2021; Hauck *et al.* 2020; Horwood *et al*. 2020).

The results showed that mothers living in urban areas have a higher odds ratio of practicing breastfeeding than those living in rural areas. This also relates to working mothers. In urban areas, some mothers who provide breastfeeding are working mothers. The proportion of children aged 0–23 months who have been breastfed among homemakers is lower than in mothers who work. *Riset Kesehatan Dasar*/ RISKESDAS (Basic Health Research) results in 2013 showed that 90.8% of mothers who did not work breastfeed compared to 93.2% of working mothers who breastfeed. Mothers, who work extra hours or mothers who work, practice breastfeeding better than those who do not work (MoH RI 2019). Mothers occupation will have access to information, economic capabilities and knowledge that is more supportive of breastfeeding than mothers who were housewives (Horwood *et al.* 2020; Rujumba *et al*. 2020).

The results showed that 81% of married mothers breastfed more than unmarried/ divorced mothers. Family support is an essential factor for married mothers. Family support can provide knowledge, motivation, and experience to continue breastfeeding (Anstey *et al.* 2018; Gharaei *et al.* 2020). Support from family can also increase mothers' self-efficacy in facing difficulties while breastfeeding (Gharaei *et al.* 2020; Piro & Ahmed 2020). A variety of factors contribute to the creation of a suitable environment for breastfeeding. At the national level, policies guaranteeing maternity leave and the right to breastfeed in the workplace are critical, as are restrictions on sales of infant formula. Mothers need information and support in health facilities to breastfeed immediately after birth. Breastfeeding mothers are motivated by positive social norms that support and encourage breastfeeding, including in public places (Pangestuti 2018). Support from trained counselors and peers, such as other mothers and

Table 3. Multivariate logistic regression analyzes factors associated with breastfeeding

Characteristic	2007 (n=18,645)	2012 (n=18,021)	2017 (n=17,848)
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age, years old			
15–19	0.27 (0.22–0.33)	0.29 (0.24–0.35)	0.30 (0.25–0.37)
20–34	0.72(0.67–0.77)	0.76 (0.71–0.81)	0.67 (0.62–0.71)
35–49	Ref	Ref	Ref
Residence			
Urban	1.15 (1.04–1.26)	1.09 (0.98–1.22)	1.15(1.03–1.27)
Rural	Ref	Ref	Ref
Education			
No education	0.79 (0.55–1.02)	1.12 (0.68–1.86)	1.08 (0.61–1.91)
Primary	0.96 (0.82–1.13)	1.16 (0.98–1.39)	1.17 (1.00–1.37)
Secondary	1.04 (0.89–1.21)	1.28 (1.10–1.48)	1.26 (1.11–1.44)
Higher	Ref	Ref	Ref
Wealth index			
Poorest	0.71 (0.60–0.83)	0.63 (0.53–0.76)	0.65 (0.55–0.78)
Poorer	0.87 (0.74–1.01)	0.68 (0.57–0.81)	0.78 (0.66–0.92)
Middle	0.80 (0.69–0.93)	0.85 (0.71–1.02)	0.85 (0.72–0.99)
Richer	0.95 (0.82–1.09)	0.82 (0.69–0.98)	0.87 (0.75–1.01)
Richest	Ref	Ref	Ref
Size child at birth			
Very large	1.33 (1.03–1.71)	1.07 (0.70–1.63)	0.94 (0.54–1.61)
Larger than average	1.41 (1.14–1.75)	1.06 (0.74–1.54)	0.84 (0.51–1.40)
Average	1.57 (1.28–1.93)	1.02 (0.71–1.47)	0.87 (0.53–1.45)
Smaller than average	1.40 (1.12–1.75)	1.10 (0.75–1.61)	0.98 (0.58–1.64]
Very small	2.14 (1.59–2.87)	1.51 (0.90–2.52)	1.46 (0.79–2.70)
Don't know	Ref	Ref	Ref
Working mother			
No	0.61 (0.56–0.68)	0.54 (0.49–0.59)	0.50 (0.46–0.55)
Yes	Ref	Ref	Ref
Sex of child			
Boys	1.00 (0.93–1.08)	1.00 (0.90–1.10]	1.01 (0.92–1.10)
Girls	Ref	Ref	Ref
Marital status			
Never married	0.29 (0.10–0.78)	0.46 (0.10–2.00)	0.48 (0.48–0.49)
Married	0.81 (0.65–1.02)	0.49 (0.35–0.68)	0.45 (0.45–0.46)
Divorced	Ref	Ref	Ref
Literacy			
No	1.04 (0.86–1.25)	0.76 (0.56–1.02)	0.81 (0.58–1.13)
Yes	Ref	Ref	Ref
Place of delivery			
Health facility	0.85 (0.70–1.02)	0.73 (0.63–0.85)	0.69 (0.61–0.78)
Home/Other	Ref	Ref	Ref
First ANC, place			
Health facility	1.27 (1.06–1.53)	1.03 (0.89–1.19)	1.13 (1.02–1.25)
Home/Other	Ref	Ref	Ref

ANC: Antenatal Care

OR: Odds Ratio; CI: Confidence Interval

Regression logistic multinominal test

family members, is vital in communities. Support from husbands and partners can also motivate mothers to breastfeed their children (UNICEF 2018).

The study found that mothers who gave birth in a health facility were 73% more likely to breastfeed than mothers who gave birth at home (OR=0.73, 95% CI:0.63–0.85) and mothers who served ANC at a health facility had higher odds to give breastfeeding compared to mothers who did ANC at home/other (OR=1.03, 95% CI:0.89–1.19). This is because mothers who get services in health service facilities will gain knowledge from health workers and therefore have better self-efficacy, knowledge, and attitudes toward breastfeeding (Piro & Ahmed 2020). Good antenatal care increases the mothers' ability to benefit from breastfeeding for the growth and development of children. Breastfeeding is the best food for children and is more economical than formula milk (McNellan *et al.* 2019; Piro & Ahmed 2020). As the advantages of exclusive breastfeeding, the baby will be sick less often and the expenses for going to the doctor or hospital will also be reduced (Horwood *et al.* 2020; Mallick *et al.* 2020; Woollard 2019)

CONCLUSION

Factors related to breastfeeding in Indonesia are age, residence, education, weight index, size of child at birth, mother working, marital status, literacy, place of delivery, and first ANC place. The findings of this research are important for developing policies to improve maternal and child health in Indonesia by increasing health promotion, education, and trainings for mothers. Further research can analyze the obstacles to giving breastfeeding to working mothers or developing learning methods about giving breastfeeding to children for mothers who experience problems with access to education and health services

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DECLARATION OF INTERESTS

The authors have no conflict of interest.

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