

DETERMINANTS OF EXCLUSIVE BREASTFEEDING CESSATION IN INDONESIA

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ABSTRACT

Background: Exclusive breastfeeding is one of the essential things in the early life of a baby. Historical, socio-economic, cultural, and individual factors influenced the decision of initiation and behavior of breastfeeding. This study aimed to examine the determinants of cessation of exclusive breastfeeding in Indonesia.

Subjects and Method: This was a cross-sectional study conducted by using secondary data from the Indonesian Demographic and Health Survey (IDHS) 2017. A total of 1,497 mothers aged 15-49 years old with infants aged 0-5 month was selected by total sampling. The dependent variable was the cessation of exclusive breastfeeding. The independent variables were maternal age, living place, level of maternal education, work status, wealth index, number of live births, and infant age. The data were analyzed using multiple logistic regression.

Results: Maternal age (cOR= 1.27; 95% CI= 0.81 to 1.98; p= 0.293), residence (aOR= 1.98; 95% CI= 1.36 to 2.91; p= 0.008), number of live births (aOR= 1.82; 95% CI= 1.06 to 3.12; p= 0.036), and work status (cOR= 1.18; 95% CI= 0.80 to 1.74; p= 0.417) increased the cessation of exclusive breastfeeding, and it was statistically significant except for maternal age and work status. Maternal education (cOR= 0.76; 95% CI= 0.46 to 1.24; p= 0.266), wealth index (cOR= 0.92; 95% CI= 0.58 to 1.47; p= 0.728), and infant age (aOR= 0.88; 95% CI= 0.79 to 0.99; p= 0.033) decreased the cessation of exclusive breastfeeding, it was statistically insignificant except for infant age.

Conclusion: Residence, number of live births increase the cessation of exclusive breastfeeding. Maternal education and wealth index decrease the cessation of exclusive breastfeeding.

Keywords: cessation, exclusive breastfeeding, determinants, IDHS

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BACKGROUND

Exclusive breastfeeding is the most important part of a baby's life at an early age. With optimal breastfeeding, it can reduce new born mortality and prevent infant pain such as diarrhoea, pneumonia, infections, and reduce the risk of future degenerative diseases such as obesity and diabetes (Edmond et al., 2006; Gilmour and Shibuya, 2013; Jones et al., 2003; Victora et al., 2016). The study results stated that babies aged 0-5 months who were not breastfed had a risk of death 14.40 times compared to infants who

were exclusively breastfed (Black et al., 2008).

Global data calculated that 11.6% of child deaths under 5 years were caused by not optimal lactation process (Black et al., 2013). In 2001, World Health Organization began recommending exclusive breastfeeding for 6 months and continued for 2 years or more (WHO, 2003). However, data from the World Health Statistics in 2013 reported that the global prevalence of breastfeeding under 6 months was around 38% (WHO, 2013). This was in line with the national report in Indonesia that the rate of exclu-

sive breastfeeding for infants aged 4-5 months still reached 38.2% while non-breastfeeding children were 14.7% (BKKBN et al., 2018).

Consistent research evidence showed that non-exclusive breastfeeding and early cessation of breastfeeding during the first 6 months, low socioeconomic status, preterm birth, short birth length, low maternal height, and education are determinants of stunting in children under 5 years in Indonesia (Beal et al., 2018). This statement is reinforced by the stunting rate in Indonesia, which still reaches 17.1% and 7.2% for wasting rates at 0-23 months in Indonesia (Ministry of Health, 2018).

Various historical, socioeconomic, cultural, and individual factors have a role in initiating and behaving in breastfeeding (Rollins et al., 2016). Many women face various obstacles in breastfeeding, such as a lack of care room facilities in public places and a lack of tolerance to work in breastfeeding (Balogun et al., 2016; Rollins et al., 2016). However, the determining factor in breastfeeding is the mother's awareness in breastfeeding, so in this case, the role of family, community and health workers is important in providing advocacy and support for mothers in breastfeeding. Other medical factors associated with stopping breastfeeding include difficulty breastfeeding, concerns about infant weight gain, illness in the mother or baby, taking medication, and problems with milk production (Odom et al., 2013). Besides, individual factors associated with cessation of exclusive breastfeeding were younger maternal age (Whalen and Cramton, 2010), lower levels of maternal education (Hamade et al., 2013), unplanned pregnancy (Hamade et al., 2013), mothers worked outside the home (Kools et al., 2006; Racine et al., 2009), and the lack of emotional support, especially from the baby's father (Mueffelmann et al., 2015).

Despite the literature, there was a growing lack of information regarding the factors associated with early breastfeeding termination in Indonesia. Therefore, this study investigated the determinants of cessation of exclusive breastfeeding during the first 6 months life of infants in Indonesia.

SUBJECTS AND METHODS

1. Study Design

This study was conducted using a cross-sectional design from the Indonesian Demographic and Health Survey (IDHS). Population based data collection was conducted between 24 July to 30 September 2017.

2. Population and Sample

The population in this study were mothers aged 15-49 years and infants aged 0-5 months. The 2017 IDHS sampling design used two-stage stratified sampling. Regarding the data, this study used total sampling to select the sample inclusion criteria, namely women 15-49 years old who had the smallest children 0-5 months during the interview with the 2017 IDHS.

3. Study Variables

The dependent variable in this study was the cessation of breastfeeding, which were babies aged 0-5 months from Child's birth date to time and not breastfed at all within the last 24 hours (yesterday and last night) of breastfeeding status. The independent variables were potential factors for cessation of breastfeeding including wealth index, mother's place of residence, mother's age, mother's education level, mother's working status, number of children, weight of newborns, frequency of antenatal care visits, status of postpartum care visits, and status of breastfeeding counseling.

4. Study Instruments

The observation status of breastfeeding, the status of early breastfeeding initiation, and the status of the last desired child, were evaluated in this study using secondary data from the results of the 2017 IDHS question-

naire interviews.

5. Data analysis

Univariate, bivariate (crosstab), and multivariate (logistic regression) analyses were carried out in this study. Statistical analysis was performed using statistical software.

RESULTS

A. Sample Characteristics

The sample that met the requirements of this study was 1,497 mother-child pairs. Most of the mothers aged 20-35 years (79.3%) and had completed higher education (77.7%). Half of the mothers (51.6%) live in rural areas, most of which had a high wealth index (60.4%). Almost all mothers had 1 to 3 children (90%) and most children (81.1%) were wanted at that time. However, many mothers

did not work (70.2%). The proportion of mothers who received at least three antenatal care visits was 91.7%, while only 71.2% of mothers received postnatal care. Most of the mothers used contraception (54.1%). The prevalence of higher birth weight being in the normal weight range (2,500-4,000 grams) and initiating early breastfeeding (91.8% respectively) and their breastfeeding by health personnel (61% and 53.3% respectively), mothers who breastfeed higher (86.9%) than stop breastfeeding (13.1%) for children aged 0-5 months with an average baby aged 2.8 months. The results of the sample characteristics were shown in Table 1.

Table 1. Sample Characteristics (categorical data)

Variables	Categories	Frequency (n)	Percentage (%)
Mother age (Year)	20-35	1,182	79.2
	<20 and > 35	315	20.8
Residential	City	771	51.6
	Village	726	48.4
Education Level	High	1,178	77.7
	Secondary	319	22.3
Wealth Index	High	818	60.4
	Low	679	39.6
Number of Children Alive	1-3	1,305	90
	>3	192	10
Wanted Child Birth	Wanted currently	1,226	81.1
	Want then / don't want	271	18.9
Work Status	NO	468	29.8
	YES	1,029	70.2
ANC Frequency	>3	141	8.3
	1-3	1,356	91.7
Birth Weight	2,500-4,000 gr	1,358	91.8
	<2,500 or >4,000 gr	139	8.2
PNC Care	NO	1,032	71.2
	YES	465	28.8
Early Breastfeeding Status	YES	843	60.8
	NO	654	39.2
Breastfeeding Counseling Status	NO	901	61
	YES	596	39
Breastfeeding Observation Status	NO	787	53.3
	YES	710	46.7
Contraceptive Consumption	Not Use	726	45.9
	Use	771	54.1
Breastfeeding Cessation	NO	1,288	86.9
	YES	209	13.1
Infant Age (Month)	4-5	574	37.9
	0-3	923	62.1

Table 2. Bivariate analysis of determinants of breastfeeding cessation (Chi-square)

Variables	Categories	Breastfeeding Cessation				OR	p
		NO		YES			
		n	%	n	%		
Mother age (Year)	20–35	979	87.7	137	12.3	1.37	0.144
	<20 and > 35	245	83.9	47	16.1		
Residential	City	659	90.6	68	9.4	2.00	<0.001
	Village	565	82.9	117	17.1		
Education Level	High	943	86.2	151	13.8	0.742	0.208
	Secondary	281	89.4	34	10.6		
Wealth Index	High	726	85.3	125	14.7	0.696	0.073
	Low	499	89.3	60	10.7		
Number of Children Alive	1-3	1112	87.7	156	12.3	1.809	0.029
	>3	112	79.8	29	20.2		
Wanted Child Birth	Wanted currently	991	86.7	151	13.3	0.928	0.744
	Want then / don't want	234	87.6	33	12.4		
Work Status	NO	870	87.9	120	12.1	1.332	0.141
	YES	354	84.5	65	15.5		
ANC Frequency	>3	1127	87.2	165	12.8	1.378	0.281
	1-3	98	83.2	20	16.8		
Birth Weight	2,500-4,000 gr	1128	87.2	166	12.8	1.314	0.380
	<2,500 or >4,000 gr	97	83.8	19	16.2		
PNC Care	NO	347	85.3	60	14.7	0.822	0.293
	YES	878	87.6	125	12.4		
Early Breastfeeding Status	YES	747	87.3	109	12.7	1.084	0.665
	NO	477	86.3	76	13.7		
Breastfeeding Counseling Status	NO	479	87.1	71	12.9	1.027	0.892
	YES	746	86.8	114	13.2		
Breastfeeding Observation Status	NO	566	86	92	14	0.858	0.411
	YES	659	87.7	92	12.3		
Contraceptive Consumption	Not Use	569	88	78	12	1.196	0.351
	Use	655	86	107	14		

Table 3. Multiple logistic regression

Variables	Crude OR	95% CI		Adjusted OR (aOR)	95% CI		p
		Lower Limit	Upper Limit		Lower Limit	Upper Limit	
Mother Age	1.27	0.81	1.98	-	-	-	0.293
Residential	1.81	1.17	2.81	1.99	1.36	2.91	0.008
Education Level	0.75	0.46	1.24	-	-	-	0.266
Total Children Alive	1.85	1.04	3.26	1.82	1.06	3.12	0.036
Work Status	1.18	0.80	1.74	-	-	-	0.417
Wealth Index	0.92	0.58	1.47	-	-	-	0.728
Age of Infants	0.88	0.79	0.99	0.88	0.79	0.99	0.033

B. Determinant Relationship of Cessation of Breastfeeding

Based on bivariate analysis in Table 2, cessation of breastfeeding was found to be asso-

ciated with the variables where mother aged <20 and ≥ 35 years (OR= 1.99; p= 0.144), place of residence (OR= 2.00; p <0.001), education level (OR= 0.74; p= 0.208), wealth

index (OR= 0.70; p= 0.073), number of children alive (OR= 1.81; p= 0.029), wanted child birth (OR= 0.93; p= 0.744), work status (OR= 1.33; p= 0.141), ANC frequency (OR= 1.38; p= 0.281), birth weight (OR= 1.31; p= 0.380), ANC status (OR= 0.82; p= 0.293), early breastfeeding (OR= 1.08; p= 0.665), breastfeeding counseling status (OR= 1.03; p= 0.892), breastfeeding observation status (OR= 0.86; p= 0.411), and contraceptive consumption (OR= 1.20; p= 0.351).

Table 3 showed the final model of multivariate logistic regression analysis. This analysis revealed that place of residence, number of living children, and age of infants were associated with cessation of breastfeeding. Mothers living in urban areas were more likely to stop breastfeeding compared to mothers living in rural areas. In addition, mothers who had more than three children were more likely to stop breastfeeding at 0-5 months of age. Cessation of breastfeeding also occurred in nearly all 3-month-old babies.

DISCUSSION

Based on the final model of analysis multivariate, most of the breastfeeding cessation incidence in this study occurred in infants aged 3 months. This indicated that mothers were not breastfeeding and were starting to provide additional food, including fluids, semi-solid or solid foods for their babies. Too early introduction of supplementary foods can trigger early cessation of exclusive breastfeeding or shorten breastfeeding duration. Five studies reported that the cessation of exclusive breastfeeding occurred more frequently in infants aged under 6 months (Orr et al., 2018; Islam et al., 2017; Silva et al., 2017; Cato et al., 2019; Feldens et al., 2012) and it was related to the introduction of solid food too early (Rogers and Blissett, 2019; Mathisen et al., 2013), so it can be included in partial or dominant breastfeeding.

WHO recommended the practice of exclusive breastfeeding for the first six months of life. After this period, adequate and healthy complementary foods can be introduced by breastfeeding for up to two years or more (WHO et al., 2008). This recommendation applies to all countries and populations, regardless of the country's economic status or level of progress (Kramer and Kakuma, 2012). Exclusive breastfeeding is defined as an infant receiving only breast milk without supplementing water, juice, formula or other liquids and foods, except for vitamins or minerals, oral rehydration salts and medications. While dominant breastfeeding means that the baby's main food source comes from breast milk (including donor's milk as the main food source), babies also receive fluids (water-based fluids, drinks, and fruit juices) and ORS, drops or syrup (vitamins, minerals, and drugs) (WHO et al., 2008). However, complementary feeding should not be given before the baby is 17 weeks (4 months) old and no later than 26 weeks (6 months) (Agostoni et al., 2008).

The study also reported that mothers who had more than three children were significantly more likely to stop breastfeeding their babies before six months of life. The same result was also reported by Velusamy et al (2017) that mothers who had more than two children are more likely to stop exclusively breastfeeding their babies during the first six months. More children can influence mothers to become more tired, so mothers with multiple children are more targeted for speech and in breastfeeding promotion and support programs.

Residence was also found to be a significant factor in stopping breastfeeding. Mothers living in urban areas were more likely to stop breastfeeding in babies under six months. Another study in China reported that the common factors associated with breast-

feeding duration were the location of the mother's residence and the return of the mother to work. Most of the infants who live in cities (99.8%), suburbs (99.5%), and rural areas (92.8%) consume some formula milk until the age of six months old (Qiu et al., 2010).

Consuming formula milk can affect the continuity of breastfeeding before six months of age. To support breastfeeding, mothers should be provided with more time to be near their babies than to work on breastfeeding and feeding the babies, even though the jobs provided more time for mothers to be close to their babies. Therefore, health promotion interventions should be targeted to educate and assist mothers directly during breastfeeding or postpartum. Besides, provide adequate time for mothers who work outside the home to accompany their children in the postpartum period.

Increasing counselling on infant feeding at the community and institutional levels, encouraging people to give birth in health facilities, and educating mothers about the importance of early initiation of breastfeeding and increasing the duration of exclusive breastfeeding in Indonesia. Support from the father or family to the mother in breastfeeding also has a big role in reducing the mother's burden in caring for her other children to help the mother get closer to her youngest baby.

This study had advantages and limitations. This study's advantage was that this study used consecutive survey data to obtain a nationally representative sample. While the limitations were, the IDHS assesses feeding children's practice using a single 24-hour recall method. So, using these data to measure exclusive breastfeeding may not represent the correct practice of feeding the infant between exclusive breastfeeding and supplementary feeding over time.

This study's main limitation was that the variables studied were not broad enough as potential factors for stopping breastfeeding. There were missing data on several independent variables. Besides, this study did not collect information on formula feeding, animal (cow/goat) feeding, family and health workers' support, and reasons for stopping exclusive breastfeeding.

The study reported that place of residence, number of living children and age of infants are significant determinants of the incidence of cessation of exclusive breastfeeding in infants under six months of age. This study's results were expected to provide an overview of the need for increased education, counselling, and more routine and intensive observation regarding exclusive breastfeeding during pregnancy and the breastfeeding period or postpartum. Besides, routine early detection, follow-up, and support related to psychosocial problems such as support from family or loved ones by competent personnel and breastfeeding by breastfeeding counsellors need to be encouraged for pregnant and lactating women to support exclusive breastfeeding.

Further research is needed to clarify other dominant factors for breastfeeding cessation in a wider area and a larger sample with a longitudinal design.

AUTHOR CONTRIBUTION

ENI contributed to writing the entire script including preparing the data set, analyzing the data, interpreting the results of the analysis to writing the discussion on the discussion of the results and conclusions. TE contributed to evaluating and guiding writings to be worthy of publication.

FUNDING AND SPONSORSHIP

The author would like to thank the Indonesian Financial Fund Management Institute for financing this paper.

CONFLICT OF INTEREST

There was no conflict interest.

ACKNOWLEDGMENTS

The author would like to thank Mr. Tris. Eryando for his guidance support for research, authorship and/ or publication of this article.

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