

Education, contraceptive use in women and the chance of six months exclusive breastfeeding in Indonesia

Ummi Kalsum,^{1,2} Bastaman Basuki³

¹Health District Office of Sarolangun, Jambi Province, Indonesia

²Faculty of Public Health, Universitas Indonesia, Jakarta

³Department of Community Medicine, Faculty of Medicine, Universitas Indonesia, Jakarta

Corresponding author: Ummi Kalsum

E-mail: my_kukuh@yahoo.com or ummi2103@gmail.com

Received: April 25, 2014; Revised: May 20, 2014; Accepted: May 23, 2014

Abstrak

Latar belakang: Di Indonesia proporsi ibu-ibu yang melaksanakan pemberian air susu ibu (ASI) eksklusif selama enam bulan masih rendah. Pada tulisan ini disajikan beberapa faktor risiko yang berkaitan dengan pemberian ASI eksklusif 6 bulan.

Metode: Analisis naskah ini memakai sebagian data Survei Demografi Kesehatan Indonesia (SDKI) 2012 di 33 provinsi di Indonesia berdasarkan desain stratified sampling. Pada analisis ini sub-sampel ialah wanita berumur 15-49 tahun yang mempunyai bayi lahir tunggal hidup berumur 6 bulan, mempunyai bayi hidup bersama ibunya, dan mempunyai data lengkap untuk keperluan analisis ini. Jumlah ibu yang mempunyai anak ≤ 2 tahun serta hidup bersama anaknya sebanyak 1040, dan 325 di antaranya yang mempunyai anak 6 bulan serta lengkap datanya.

Hasil: Ibu-ibu yang memberi ASI eksklusif hingga 6 bulan sebanyak 3,7%. Pemakaian kontrasepsi serta pendidikan merupakan dua faktor dominan terhadap kemungkinan pemberian ASI eksklusif. Dibandingkan dengan ibu yang memakai kontrasepsi hormonal, ibu yang tidak memakai kontrasepsi non hormonal serta yang tidak memakai kontrasepsi 7,3 kali lipat dan 9,1 kali lipat lebih tinggi memberikan ASI eksklusif [masing-masing risiko relatif (RRa) = 7,25; P = 0,031; dan RRa = 9,08; P = 0,004]. Ditinjau dari segi pendidikan ibu, ibu yang berpendidikan rendah dibandingkan dengan ibu berpendidikan tinggi/menengah 4.2 kali lipat memberikan ASI eksklusif (RRa = 4,19; P = 0,027).

Kesimpulan: Ibu-ibu yang memberikan ASI eksklusif hingga 6 bulan lebih sering terdapat di antara ibu-ibu yang tidak memakai kontrasepsi serta yang berpendidikan rendah. (*Health Science Indones 2014;1:17-22*)

Kata kunci: ASI eksklusif, pendidikan ibu, kontrasepsi

Abstract

Background: Exclusive breastfeeding for 6 months among Indonesian women is very low. This paper aimed to assess several factors related to exclusive breastfeeding for 6 months in Indonesia.

Methods: This paper used part of the data from National Indonesian Demographic and Health Survey (IDHS) 2012 from all (33) provinces in Indonesia based on stratified sampling design. The sub-sample included in this analysis were women aged 15-49 years who had a live last child aged 6 months at the time of interview, single birth, the baby lived with the mother, and had complete data for this analysis. The number women who with 2 year-old or less children and living with their mothers were 1040. For this analysis there were 325 women with 6 month-old babies.

Results: The proportion of those with exclusive breastfeeding for 6 months was 3.7%. The final model revealed that contraception use and mother's education were dominant risk factors for exclusive breastfeeding for 6 months. Compared to those who used hormonal contraception, those with non-hormonal as well as those who did not use any contraception had 7.3-fold and 9.1-fold, respectively, chance of practising exclusive breastfeeding for 6 months [adjusted relative risk (RRa) = 7.25; P = 0.031; and RRa = 9.08; P = 0.004 respectively]. Furthermore, in term of mother's education, those who had low education compare with middle/higher education had 4.2-fold chance of practicing exclusive breastfeeding for six months (RRa = 4.19; P = 0.027).

Conclusion: Exclusive breastfeeding for 6 months were more common among women who did not use any contraception as well as who had low education. (*Health Science Indones 2014;1:17-22*)

Key words: exclusive breastfeeding, education of mothers, contraceptive use

WHO has recommended exclusive breastfeeding up to 6 months without any additional food, followed by the addition of complementary foods to children aged 2 years.¹ The Indonesian government has also changed the duration of exclusive breastfeeding recommendations from 4 months to 6 months by a Ministry of Health decree.² Exclusive breastfeeding may prolong postpartum amenorrhea which is one option for pregnancy prevention known as Lactation Amenorrhea Method (LAM).

On the other hand, in Indonesia there are still many lactating women who continued using other contraceptive methods.³ Hormonal contraceptives have an impact on the reduction in breast-milk production.

Based on the Indonesian Basic Health Study (*Riskesdas*) 2010, coverage of exclusive breastfeeding for 6 months was 15.3%.⁴ While the 2010 the Indonesian National Health Survey (*Susenas*), noted that 33.6% infants had exclusive breastfeeding.⁵ However, for the last years it was noted that the coverage of exclusive breastfeeding is low and the prevalence tended to decline due to complex barriers, among others, socio-cultural factors, and increasing number of working mothers.

This paper aimed to assess several factors related to exclusive breastfeeding for 6 months in mothers in Indonesia.

METHODS

This analysis used a part of the data from National Indonesian Demographic and Health Survey (IDHS) 2012 in all (33) provinces in Indonesia. The 2012 IDHS was a nationally representative survey of 46024 selected households of which 43852 were successfully interviewed, 45607 ever-married women age 15-49 and 9306 currently married men age 15-54. Sampling frameworks was based on stratified sampling design.⁶

The sub-sample included in this analysis was based on women age 15-49 years who met the criteria: women who had a live last child age 6 months at the time of interview, single birth, baby living with mother, and had complete data for this analysis. There were 325 women who fulfilled these criteria.

Breastfeeding status referred to a 24-hour period (yesterday and the last night). Exclusive breastfeeding was met if the infant from the first 3 days after birth until yesterday or last night have did not been given milk other than breast milk, not given plain water,

sugar/glucose water, sugar/salt solution, fruit juice, infant formula, tea/infusions, honey, rice water and other liquid, other solid-semi solid food). The infant is currently breastfed and have not drank from bottle/nipple yesterday and last night.

For this analysis contraception used was divided into three categories (hormonal, non hormonal, none); mother's education was divided into two categories (low = no education/not complete/complete primary level/not complete secondary level, middle/high education = complete secondary or higher).

A number of variables were examined as potential confounders and/or modifiers, including marital status (not married, married); underfive children in family (≥ 2 persons, 1 person); household members (5-17 persons, less than 5 persons); mother's job (work, none); mother's age (20-34 years, less than 20 years, 35 years or more); husband's education (low = no education/not completed/completed primary level/not completed secondary level, middle/high education = completed secondary or higher); husband's job (work, none); economic status (poor = lowest or second quintile, middle/rich = middle, fourth and highest quintile); residence (urban, rural); delivery (Caesarian section, normal); birth weight (< 2500 gram, ≥ 2500 gram); child's sex (male, female); immediately breastfeeding (less than 1 hour, within 1 hour/immediately); parity (≤ 3 , ≥ 4); unwanted pregnancy (no/late, yes); antenatal care (less than 4 times, 4 times or more); pregnancy complication (yes, no); delivery assistant (non health workers, health workers); delivery complication (yes, no); delivery place (home, health facilities, private health workers).

Cox regression analysis was used to obtain the final model using Stata software version 9.

RESULTS

Table 1 showed that the proportion of those who had exclusive breastfeeding were 3.7% (12/325). Those who had exclusive and non exclusive breastfeeding were similarly distributed with respect to underfive children in family, household members, mother's job, as well as mother's age. Compared to the respective reference group, those with husbands having middle and higher education, husband who had work, middle and rich economic status were less likely to have exclusive breastfeeding. However, compared to those who lived in urban area, those who lived in rural areas were more likely to exclusive breastfeeding.

Table 1. Several demographic characteristics of mothers and the chance of exclusive breastfeeding for 6 months

	Breastfeeding				Crude relative risk	95% confidence interval	P
	Non exclusive (n=313)		Exclusive (n=12)				
	n	%	n	%			
Marital status							
Not married	9	100.0	0	0.0	1.00	Reference	
Married	304	96.2	12	3.8	N/A	N/A	N/A
Underfive children in family							
≥ 2 persons	122	95.3	6	4.7	1.00	Reference	
1 person	191	97.0	6	3.0	0.65	0.21-2.01	0.455
Household members							
5-17 persons	211	96.3	8	3.7	1.00	Reference	
Lesws than 5 persons	102	96.2	4	3.8	1.03	0.31-3.43	0.958
Mother's work							
Work	129	96.3	5	3.7	1.00	Reference	
No work	184	96.3	7	3.7	0.98	0.31-3.09	0.976
Mother's age							
20-34 years	229	97.0	7	3.0	1.00	Reference	
Less than 20 years	31	96.9	1	3.1	1.05	0.13-8.56	0.961
35 years or more	53	93.0	4	7.0	2.37	0.69-8.08	0.169
Husband's education							
Low	109	94.0	7	6.0	1.00	Reference	
Middle & higher	204	97.6	5	2.4	0.40	0.13-1.26	0.118
Husband's job							
No Work	21	91.3	2	8.7	1.00	Reference	
Work	290	96.7	10	3.3	0.38	0.08-1.74	0.213
Economic status							
Poor	152	95.0	8	5.0	1.00	Reference	
Middle & rich	161	97.6	4	2.4	0.48	0.15-1.61	0.237
Residence							
Urban	156	98.1	3	1.9	1.00	Reference	
Rural	157	94.6	9	5.4	2.87	0.78-10.61	0.113

N/A = Not aplicable

Table 2 showed that exclusive and non-exclusive breastfeeding were similarly distributed with respect to child's sex and delivery assistant. Compared to the respective reference group, those who were immediately breastfeeding (less than 1 hour), parity ≥ 4 persons, unwanted pregnancy, antenatal care 4 times or more, who had no delivery complication were more likely for exclusive breastfeeding. However, compared to those who had no complication in pregnancy, those who had complications during pregnancy was less likely to exclusive breastfeeding. Compared to those who had delivery at home, those who had delivery at health facilities and those who had delivery by private health workers were less likely to exclusive breastfeeding.

Table 3, the final model, showed that method of contraception used and mother's education were dominants factors for the chance of exclusive breastfeeding for

6 months. Compared with those who used hormonal contraception, those who used non-hormonal and those that did not use any contraception, had a higher chance to exclusive breastfeeding for 6 months [adjusted relative risk (RRa)=7.25;P= 0.031; and RRa = 9.08; P = 0.04 respectively].

Furthermore, in terms of mother's education, those who had low education compared to middle/higher education had 4.2-fold chance for exclusive breastfeeding (RRa = 4.19; P = 0.027).

DISCUSSION

There were a few limitations in this study, such as, exclusive breastfeeding determined in the last 24 hours was reported by the mothers. This was a cross-sectional study with limitation in drawing inferential causalities.

Table 2. Several obstetrics and gynecology characteristics and the chance of exclusive breastfeeding for 6 months

	Breastfeeding				Crude relative risk	95% confidence interval	P
	Non exclusive (n=313)		Exclusive (n=12)				
	n	%	n	%			
Type of delivery							
Caesarian section	39	100.0	0	0.0	1.00	Reference	
Normal	274	95.8	12	4.2	NA	NA	NA
Birth weight							
< 2500	12	100.0	0	0.0	1.00	Reference	
>=2500	301	96.2	12	3.8	NA	NA	1.000
Child's sex							
Male	159	96.4	6	3.6	1.00	Reference	
Female	154	96.3	6	3.7	1.03	0.33-3.20	0.957
Immediate breastfeeding							
Less than 1 hour	161	97.0	5	3.0	1.00	Reference	
1 hour/immediately	152	95.6	7	4.4	1.46	0.46-4.61	0.517
Parity							
≤ 3	268	96.8	9	3.2	1.00	Reference	
≥ 4	45	93.8	3	6.3	1.92	0.52-7.11	0.326
Unwanted pregnant							
No more/later	40	97.6	1	2.4	1.00	Reference	
Then	273	96.1	11	3.9	1.59	0.21-12.30	0.658
Antenatal care							
Less than 4 times	61	96.8	2	3.2	1.00	Reference	
4 times or more	252	96.2	10	3.8	1.20	0.26-5.49	0.812
Pregnancy complication							
Yes	42	93.3	3	6.7	1.00	Reference	
No	271	96.8	9	3.2	0.48	0.13-1.78	0.274
Delivery assistant							
Non health workers	58	96.7	2	3.3	1.00	Reference	
Health workers	255	96.2	10	3.8	1.13	0.25-5.17	0.873
Delivery complications							
Yes	186	96.9	6	3.1	1.00	Reference	
No	127	95.5	6	4.5	1.44	0.47-4.48	0.525
Delivery place							
Home	119	95.2	6	4.8	1.00	Reference	
Health facilities	124	96.1	5	3.9	0.81	0.25-2.64	0.724
Private health workers	70	98.6	1	1.4	0.29	0.03-2.44	0.256

Table 3. Dominant factors related to the chance for exclusive breastfeeding for 6 months

	Breastfeeding				Adjusted relative risk	95% confidence interval	P
	Non exclusive (n=313)		Exclusive (n=12)				
	n	%	n	%			
Contraception used							
Hormonal	196	99.0	2	1.0	1.00	Reference	
Non hormonal	37	94.9	2	5.1	7.25	1.20-43.96	0.031
Not use	80	90.9	8	9.1	9.08	1.99-41.52	0.004
Mother's education							
Middle/higher	136	98.6	2	1.4	1.00	Reference	
Low	177	94.7	10	5.3	4.19	1.18-14.89	0.027

*Adjusted to each other between risk factors listed on this table

In this study, the exclusive breastfeeding definition was based on WHO recommendation as a mother or caregiver giving nothing else but breast milk to an infant in the last 24 hours preceding a survey. This study found two factors to be associated with exclusive breastfeeding in Indonesia. These factors were contraception use and educational level of mother.

This study noted that the proportion of those with exclusive breastfeeding were 3.7%. This finding was lower than prior study results.⁷⁻¹⁰ Nkala & Msuya in Tanzania found that exclusive breastfeeding for 6 months was 58%, as well as those found by Onah *et al.* who stated that exclusive breastfeeding until the age of 5-6 months in Nigeria reached 10.9%.^{7,8} Compared with the WHO/UNICEF recommendation of 90% for the level of exclusive breastfeeding in children of less than 6 months of age, the findings in Indonesia was very low. Tan in Malaysia found that the prevalence of exclusive breastfeeding in mothers who have children aged 0-6 months was 43.1%,⁹ while the rate of exclusive breastfeeding in Ghana was 64%.¹⁰ In Pnom Penh, Cambodia 51.3% of the mothers practiced exclusive breastfeeding for the entirety of the first 6 months.¹¹ These results show a wide variation of exclusive breastfeeding prevalence between place and over time. Aarts *et al.* noted a wide discrepancy on the prevalence of exclusive breastfeeding between current status based on a 24-hour recording and exclusive breastfeeding since birth. They reported that exclusive breastfeeding was 11% in current status data and only 1.8% in data since birth. Different methodologies for estimating the rate of exclusive breastfeeding may influence the results.¹²

In this study, compared with those who used hormonal contraception, those who had non-hormonal and those who did not use any contraception were more common in practising exclusive breastfeeding for 6 months. Using hormonal contraceptives can decrease exclusively breastfeeding. This finding was corroborated by the Cochrane systematic review that showed combined oral contraceptives may reduce the volume of breast milk.¹³

Suparmi *et al.* found that exclusive breastfeeding for 5 months but not selected contraceptive reduced the risk of resumption of menstruation. This study suggested not to use combine oral contraceptive which contain estrogen in the first six months postpartum, since it may affect breast milk production.³ This was consistent with the findings of Abdullah and Ayubi in Jakarta, which noted that the reason for working mothers stopping breastfeeding was not because

of work but because of a reduction in breast milk production.¹⁴ Progestogen-only contraceptives have not been shown to negatively affect milk production.¹⁵ Health workers or breastfeeding counselors should advise women on appropriate contraceptive methods during lactation.

Furthermore, this study noted that exclusive breastfeeding for 6 months were more common among mothers with low education. But mothers with secondary education/higher tended to fail giving exclusive breastfeeding. This was not similar to a study by Aidam *et al.* in Accra, Ghana, where the opposite was true. They noted that mothers who had secondary/higher education had a greater chance of giving exclusive breastfeeding.¹⁶

The findings of this study were similar to study results of Tampah-Naah and Kumi-Kyereme in Ghana. Mother with secondary/higher education were less likely to give exclusive breastfeeding compared to those with no education.¹⁶ Other results by Xu *et al.* in Xinjiang, China in 2003-2004 revealed that mothers who had 13 years or higher formal education had on average, a shorter duration of exclusive breastfeeding than those who had 10-12 years and 9 years or lower education. This suggested that the higher educated mothers had a shorter duration of giving exclusive breast-feeding.¹⁷ This was most likely due to mothers with higher educational level had a steady job outside the home. This is one of the factors that lead mothers who had high educational level not able to implement exclusive breastfeeding for 6 months. It is important to give information about how to succeed with exclusive breastfeeding in working mothers.

In conclusion, exclusive breastfeeding for 6 months were more common among women who did not use any contraception as well as who had low education.

Acknowledgments

The authors wish to express their sincerest gratitude to Macro International for the approval to use the datasets.

REFERENCES :

1. World Health Organization. The optimal duration of exclusive breastfeeding. Report of an expert consultation. Geneva: The Organization; 2002 [cited 2014 April 21]. Available from: http://www.who.int/nutrition/publications/infantfeeding/WHO_NHD_01.09/en/

2. Bureau of Statistics Indonesia, National Population And Family Planning Board, Ministry Of Health, Measure DHS ICF International. Indonesia Demographic And Health Survey 2006-2007. Jakarta: The Bureau; 2007.
3. Suparmi, Tjandarini DH, Herdayanti M. Exclusive breastfeeding but not selected contraceptives use delayed resumption of menstruation. *Health Science Journal of Indonesia*. 2010;1:3-7.
4. National Institute for Health Research and Development. Final report of national basic health research 2010. Jakarta: The Institute; 2011.
5. Ministry of Health of Indonesia and Central Bureau of Statistics. Activity report integration of nutrition indicators in Susenas 2010; public nutrition improvement program in 2010. Jakarta: PT Citra Putra Dharma; 2010.
6. Bureau of Statistics Indonesia, National Population and Family Planning Board, Ministry of Health, Measure DHS ICF International. Indonesia demographic and health survey 2012. Jakarta: The Bureau; 2013.
7. Nkala TE, Msuya SE. Prevalence and predictors of exclusive breastfeeding among women in Kigoma region, Western Tanzania: a community based crosssectional study. *International Breastfeeding J*. 2011;6:17 [cited 2012 November 27]. Available from: <http://www.internationalbreastfeedingjournal.com/content/6/1/17>.
8. Onah S, Osuorah DIC, Ebenebe J *et al*. Infant feeding practise and maternal socio-demographic factors that influence practise of exclusive breastfeeding among mothers in Nnewi South-East Nigeria: a cross sectional and analytical study. *International Breastfeeding Journal*. 2014;9:6 [cited 2014 April 21]. Available from: <http://www.internationalbreastfeedingjournal.com/content/9/1/6>.
9. Tan KL. Factors associated with exclusive breastfeeding among infants under six months of age in Peninsular Malaysia. *International Breastfeeding Journal*. 2011;6:2 [cited 2014 April 21]. Available from: <http://www.internationalbreastfeedingjournal.com/pdf/1746-4358-6-2.pdf>.
10. Tampah-Naah AM, Kumi-Kyereme A. Determinants of exclusive breastfeeding among mothers in Ghana: a cross-sectional study. *International Breastfeeding Journal*. 2013;8:13. [cited 2014 April 21]. Available from: <http://www.internationalbreastfeedingjournal.com/content/8/1/13>.
11. Sasaki Y, Ali M, Kakimoto K, et al. Predictors of exclusive breast-feeding in early infancy: A survey report from Phnom Penh, Cambodia. *J Pediatric Nursing*. 2010;25(6):463-69. [cited 2014 April 21]. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21035012>.
12. Aarts C, Kylberg E, Hornell A, et al. How exclusive is exclusive breastfeeding ? A comparison of data since birth with current status data. *International Journal of Epidemiology*. 2000;29:1041-6 [cited 2014 April 21]. Available from: <http://www.scholar.google.com>.
13. Guthmann RA, Bang J. Combined oral contraceptives for mothers who are breastfeeding. *Am Fam Physician*. 2005;72:1303-4 [cited 2014 April 21]. Available from: <http://www.aafp.org/afp/2005/1001/p1303.html>.
14. Abdullah GI, Ayubi D. Determinant of exclusive breastfeeding behaviour on working mothers. *J National Public Health*. 2013;7:298-303.
15. World Health Organization. Progestogen-only contraceptive use during lactation and its effects on the neonate. Geneva. The Organization. 2008 [cited 2014 April 21]. Available from: http://whqlibdoc.who.int/hq/2009/WHO_RHR_09.13_eng.pdf
16. Aidam BA, Peres-Escamilla R, Lartey A, et al. Factors associated with exclusive breastfeeding in Accra, Ghana. *European J Clinical Nutrition*. 2005;59:789-96 [cited 2014 April 21]. Available from: <http://www.nature.com/ejcn>.
17. Xu F, Binns C, Zheng S, et al. Determinans of EBF duration in Xinjiang, PR China. *Asia Pacific Nutrition*. 2007;16:16-20.