THE RELATIONSHIP BETWEEN BREASTFEEDING PATTERNS AND INCIDENCE OF DIARRHEA IN CHILDREN AGED 7 – 23 MONTHS

Filipus Michael Yofrido [1,2], Hanung Aryana [2], Jessica Hoetama Jaya [2], Rachmat Ageng Prastowo [2], Rynda Kirana Satwikaputri [2], Pirlina Umiastuti [2], Indawan Setyono Hadi [3]

ABSTRACT

***Introduction*:** Breastmilk is the main source of nutrition for infants, giving protection through its immunity properties. Indonesian Ministry of Health targeted 80% coverage 6-months-exclusive-breastfeeding. However, it is very difficult to achieve, even the prevalence of exclusive-breastfeeding trends to decline from year to year. In Baturetno Village, Singosari District, Malang Regency, exclusive-breast feeding proportion is 59%. This research is aimed to analyze the relationship between breastfeeding patterns and incidence of diarrhea in children aged 7-23 months. ***Method*:** This was analytic-observational study with cross-sectional design. Sixty children aged 7 – 23 months were randomly included. 32 children (53%) were male. Their parent were interviewed based on questionaire about their breastfeeding patterns and last two weeks incidence of diarrhea. ***Results*:** The proportion of exclusive breastfeeding was 58.33% and the incidence of diarrhea in last 2 weeks was 31.67%. Chi-Square test result illustrates there was association between breastfeeding patterns and incidence of diarrhea (p=0.004, PR 0.33, 95%CI 0.145-0.748). Based on contingency coefficient, a strong relationship between breastfeeding patterns and the incidence of diarrhea in the last 2 weeks was 0.347 (moderate). ***Conclusion*:** There was relationship between breastfeeding patterns and incidence of diarrhea in children aged 7-23 months. Exclusive-breastfeeding children have 67% lower incidence of diarrhea.

Keywords: Diarrhea, exclusive breastfeeding, immunity properties

ABSTRAK

Pendahuluan: Air susu ibu (ASI) adalah sumber nutrisi utama bagi bayi dan memberikan proteksi melalui proses imunologis. Kementerian Kesehatan Indonesia menargetkan cakupan 80% ASI eksklusif hingga usia 6 bulan. Cakupan tersebut sangat sulit dicapai oleh karena berbagai kendala, lebih-lebih angka ASI eksklusif cenderung menurun dari tahun ke tahun. Dalam studi pendahuluan di Desa Baturetno, Kecamatan Singosari, Kabupaten Malang, angka ASI eksklusif didapatkan sebesar 59%. Pada penelitian ini bertujuan untuk menganalisis

Presented at 2nd International Symposium of Public Health (IsoPH), Faculty of Public Health, Airlangga University, Surabaya, November 11th, 2017

apakah ada hubungan antara pola ASI eksklusif dengan insiden diare pada anak berusia 7 – 23 bulan. **Metode:** Penelitian ini adalah penelitian analitik-observasional dengan desain potong-lintang. Enam puluh anak berusia 7 – 23 bulan dipilih menjadi sampel secara acak. Tiga puluh dua anak (53%) berjenis kelamin laki-laki. Para orang tua diwawancara dengan menggunakan kuesioner mengenai pola ASI mereka dan kejadian diare dalam dua minggu terakhir. **Hasil:** Angka proporsi ASI eksklusif yang didapatkan adalah 58,33% dengan insiden diare dalam dua minggu terakhir sebanyak 31,67%. Hasil uji χ^2 menunjukkan adanya asosiasi antara pola pemberian ASI dengan insiden diare (p=0,004, PR 0,33, 95%CI 0,145 – 0,748). Didapatkan hubungan yang kuat antara pola pemberian ASI dengan insiden diare dengan nilai koefisien kontingensi sebesar 0,347. **Kesimpulan:** Ada hubungan antara pola pemberian ASI dengan insiden diare pada anak berusia 7 – 23 bulan. Anak yang diberikan ASI eksklusif berisiko 67% lebih rendah terhadap insiden diare.

Kata Kunci: Diare, ASI eksklusif, sifat imunitas

1) Fakultas Kedokteran, Universitas Katolik Widya Mandala Surabaya, Jalan Kalisari Selatan No. 1, Tower Barat, Lt. 6, Pakuwon City, Surabaya. Correspondence email: filipus@ukwms.ac.id 2) Department of Public Health and Preventive Medicine, Faculty of Medicine, Airlangga University. Mayjen Prof. Dr. Moestopo Street 47, Surabaya 3) East Java State Public Health Training Center. Argo Tunggal Street 1, Lawang

INTRODUCTION

Diarrhea is still a public health problem in a developing country like Indonesia because of the high morbidity and mortality rate. According to WHO, 1.8 million people die from diarrhea each year, of which 90 percent are children under the age of 5 and mostly in developing countries. Diarrhea is the second leading cause of death for 760,000 children under five per year.

In Indonesia, according to the morbidity survey conducted by the Ministry of Health in 2006, morbidity rate of diarrhea at all ages was 423 per 1000 population. This rate of morbidity increased when compared with the same survey result in 2000 as 301 per 1000 population and in 2003 as 374 per 1000 population (Kemenkes, 2011).

Infant and under five mortality rate is still very high in Indonesia, and diarrhea is the leading cause of death in infants and under five in Indonesia. According to the Indonesian Demography and Health Survey (IDHS) 2007, the mortality rate of infants and under five in Indonesia was 44 per 1000 live births (Kemenkes, 2011).

In developing countries, children under 3 years have experienced about three episodes of diarrhea each year. Each episode of diarrhea disrupts the nutritional balance that the child needs to grow. Ultimately, diarrhea is a major cause of malnutrition in children, and malnourished children are more likely to

experience episodes of diarrhea (WHO, 2013). This is unfortunate given the prevention and treatment of diarrhea is not too difficult.

In the government program on the five steps of diarrhea treatment, one of them mentioned to continue breastfeeding. Breastmilk can speed up the recovery of diarrhea because it has various protection factors against diarrheal agent of infections.

Ideally, exclusively breastfed infants have lower risk suffering diarrhea because breastmilk contains sIgA, T lymphocytes, B lymphocytes, lactoferrin, and acceptable with the condition of the infant's immature digestive system (in infants aged 0-6 months) making the infant has less allergies and will experience enhancement of the immune system, thereby decreasing the risk of diarrhea in infants.

In this study, we wanted to provide more information about the relationship between breastfeeding patterns and the incidence of diarrhea in children aged 7-23 months who received exclusive breastfeeding with non-exclusive breastfeeding.

Our primary hypothesis is that exclusive breastfeeding is associated with lower risk of diarrhea incidence.

METHODS

This study was analytic-observational with cross sectional design. We chose sixty children aged 7 – 23 months in Baturetno Village, Singosari District, Malang Regency by multistage random sampling. Subjects who denied giving data were excluded.

Their parent were interviewed based on questionnaire about their childern age and sex, their educational background, their breastfeeding patterns, their reason why didn't give breastfeeding exclusive, and their children last two weeks incidence of diarrhea.

We defined diarrhea as defecating loose stool three times or more per day with a more fluid consistency than usual, with or without blood or mucus.

We defined exclusive breastfeeding when infants receive only breastmilk from the mother, or a nursemaid requested to give their mother's breastmilk, without adding any other fluid or solid food, except syrup containing vitamins, mineral supplements or medications from birth to 6 months old.

The data were analyzed by Chi-square test and Kramer coefficient with $\alpha = 0.1$.

RESULTS

Among sixty subject, 21 subjects (35%) were 7 – 12 months old, 23 (38%) were 13 – 18 months old, and 16 (27%) were 19 – 23 months old. 32 subjects (53%) were male.

Educational backgrounds and distribution of breastfeeding pattern from the subject's mother were presented in table 1.

We found that subjects who exclusively breastfed were 35 (58.33%) persons, and the other 25 (41.67%) were not.

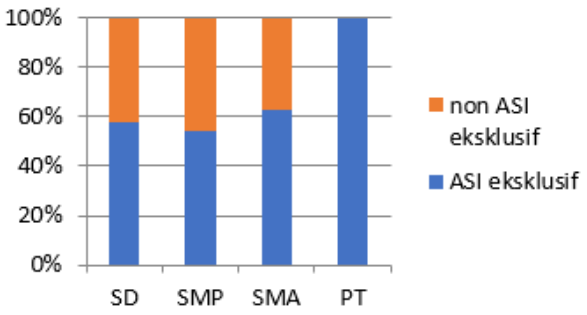
There was five reason why subject's mother hadn't given exclusive breastfeeding. 11 (44%) mothers had lack of information, 9 (36%) because of tradition, 4 (16%) because their infant's weight didn't increase, 1 (4%) because had been pregnant, and 1 (4%) because the mother had been working. (Table 2)

As many as 19 subjects from 60 (31.67%) suffered from diarrhea in this last two week.We documented 6 (17.14%) diarrhea cases in exclusive breastfeeding group. Compared to non-exclusive breastfeeding, there was 13 (52%) diarrhea cases in non-exclusive breastfeeding group. (Table 3)

Chi-Square test analysis illustrates there was a association between breastfeeding patterns and incidence of diarrhea (p=0.004, PR 0.33, 95%CI 0.145-0.748). Contingency coefficient between breastfeeding patterns and the incidence of diarrhea in the last 2 weeks was 0.347 (moderate).

Table 1. Distribution of breastfeeding pattern based on mother's educational background

	Exclusive Breastfeeding	Non Exclusive Breastfeeding
Elementary	22 (57.89%)	16 (42.11%)
Junior High	7 (53.85%)	6 (46.15%)
Senior High	5 (62.5%)	3 (37.5%)
College	1 (100%)	0
	35	25



DISCUSSION

In this study, the prevalence of respondents who gave exclusive breastfeeding of 58.3%. These results indicate exclusive breastfeeding to their babies has not met the Indonesian national target. In 2007, the exclusive breastfeeding rate in Indonesia was 32%, while the target of exclusive breastfeeding coverage according to the Ministry of Health of the Republic of Indonesia was 80%. Achieving exclusive breastfeeding programs can not be done by itself, but is based on exclusive breastfeeding behavior by the mother itself (Firmansyah, et al, 2012).

Based on the results of interviews, the mothers' educational backgroud were 38 elementary school graduated mothers (63.3%), 13 junior high school (13.7%), 8 senior high school (13.3%), and 1 college (1.67%). The highest proportion of not giving exclusive breastfeeding was in junior high school graduated mother (46%). According to Notoadmodjo (2010), generally the higher education of someone is consistent with easier to obtain information and affect someone's behavior.

Among subjects who didn't get exclusive breastfeeding, 76% got foods or drinks other than breast milk as a companion of breastmilk. The remaining 24% got it as a substitution of breastmilk. Among the types of foods or drinks was provided other than breast milk, porridge is the most (28%), and the second is banana (24%).

Through interviews, we obtained various reasons of respondents why they didn't give exclusive breastfeeding. 44% had lack of knowledge. Reasons that was included in the lack of knowledge group is the respondents who consider that breastfeeding is not satiating, breastmilk is not enough to meet their infant's nutritional need, babies crying even after breastfeeding, and breastmilk doesn't come out.

Table 2. Distribution of reasons not giving exclusive breastfeeding

	Frequency	% frequency
Lack of information	11	44
Tradition	9	36
Infant's weight doesn't increase	4	16
Pregnant	1	4
Working	1	4
	25	**100**

Table 3. Crosstabulation breastfeeding patterns and last 2 weeks incidence of diarrhea in children aged 7 – 23 months

	Diarrhea	Non Diarrhea	Total	P**	r***
Exclusive Breastfeeding	6	29	**35**		
Non Exclusive Breastfeeding	13	12	**25**	0.01	0.347
Total	**19**	**41**	**60**		

The second most common reason was the presence of tradition in their environment (36%), followed by non-rising weight reason (16%), the mother was pregnant again (1%), and the mother worked (1%).

From these results, explained that the mother's knowledge about exclusive breastfeeding was still lacking, thus reducing the coverage of exclusive breastfeeding. The lack of knowledge was also the beginning of a tradition in their environment which cause them tend to provide food or drinks other than breastmilk before their child aged 6 months.

This study results showed that there was a relationship between breastfeeding pattern and diarrhea incidence in the last 2 weeks. Based on the results, the proportion of diarrhea in the last 2 weeks was 17% among subjects who got exclusive breastfeeding and 68% among subjects who didn't get exclusive breastfeeding.

Many factors that cause diarrheal diseases include environmental factors, host factors, maternal factors, and sociodemographic factors. Exclusive breastfeeding will increase immunity through substances in breast milk, including sIgA, T lymphocytes, B lymphocytes, and lactoferrin. Therefore the role of breastmilk hadn't been able to be replaced by formula milk in bacteriostatic or anti-allergic role (Roesli, 2008).

CONCLUSION

In this study, there was a relationship between breastfeeding patterns and incidence of diarrhea in children aged 7-23 months (p=0.004, PR 0.33, 95%CI 0.145-0.748). Exclusive-breastfeeding children have 67% lower risk of suffering diarrhea. Our findings support that breastmilk is the main source of nutrition for infants which gives them protection through its immunity properties.

REFERENCES

Firmansyah, Nuhuda, and Mahmudah. 2012. Pengaruh Karakteristik Pendidikan, Pekerjaan, Pengetahuan, dan Sikap Ibu Menyusui terhadap Pemberian Asi Eksklusif td Kabupaten Tuban. *Jurnal Biometrika dan Kependudukan*. Vol. 1 No. 1. Available at: http://journal.unair.ac.id/downloadfull/BIOMETRIK4114-154ae25985fullabstract.pdf

Kemenkes. 2011. *Panduan Sosialisasi Tatalaksana Diare pada Balita*. Available at: http://www.depkes.go.id/download.php?file=download/pusdatin/buletin/buletin-diare.pdf

Notoadmodjo, Soekidjo. 2003. *Pendidikan dan Perilaku Kesehatan*. Jakarta: Rineka Cipta.

Roesli, Utami. 2008. *Inisiasi Menyusui Dini Plus ASI Eksklusif*. Jakarta: Pustaka Bunda

WHO. 2004. *Facts and figures: Water, sanitation and hygiene links to health*. Available at: https://www.who.int/water_sanitation_health/publications/facts2004/en/

WHO. 2013. *Diarrhoeal Disease*. Available at: https://www.who.int/topics/diarrhoea/en/