**ANALYSIS OF THE RELATIONSHIP BETWEEN HISTORY OF EXCLUSIVE
BREASTFEEDING WITH IMMUNITY STATUS OF INFANTS AGED 6 – 12 MONTHS
DURING THE COVID-19 PANDEMIC**

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Abstract

Analyzing the relationship between a history of exclusive breastfeeding and the immune status of infants aged 6-12 months during the covid-19 pandemic. This study is a descriptive-analytic study with a cross-sectional approach. The sampling technique used was accidental sampling. The sample is 62 respondents. Primary data collection uses a questionnaire. Data analysis using Chi-Square with a significance of 0.05.

The history of exclusive breastfeeding was 61.3%. The immune status of infants aged 6-12 months was mostly good, which was 56.4%. There is a relationship between a history of exclusive breastfeeding and the immune status of infants aged 6-12 months during the covid-19 pandemic with a p-value of 0.040

The results of the study cannot be generalized widely. Many factors affect the immune status of infants aged 6 – 12 months

Providing information to mothers and the community about the importance of exclusive breastfeeding on the baby's immune status.

Keywords: *Exclusive breastfeeding, Immune status, Infants aged 6-12 months*

1. Introduction

The high infant mortality rate (IMR) is still a health problem in Indonesia. Nearly 90% of under-five deaths occur in developing countries and more than 40% of deaths are caused by diarrhea and acute respiratory infections. Gastrointestinal and respiratory diseases can be prevented by exclusive breastfeeding because breast milk is rich in various immunologically active factors, especially antibodies (Aldy et al., 2016) However, the coverage of exclusive breastfeeding has not yet reached the expected figure of 80%. In 2019, the coverage of exclusive breastfeeding in East Java was 78.3% (Dinkes Jawa Timur, 2019)

Although there are many benefits obtained from exclusive breastfeeding, the coverage of exclusive breastfeeding is still not at the expected number. The negative impact that can occur in infants who are not exclusively breastfed is having a risk of death due to diarrhea 3.94 times greater than infants who are exclusively breastfed (breastfeeding and frequency of illness) (Khasanah & Rahayu, 2016). Based on this background, the authors conducted a study aimed at: Analyzing the relationship between a history of exclusive breastfeeding and the immune status of infants aged 6-12 months during the COVID-19 pandemic.

2. Literature Review And Hypothesis Development

Exclusive breast milk (ASI) based on Government Regulation Number 33 of 2012 concerning Exclusive Breastfeeding is breast milk that is given to babies from birth for six months, without adding and/or replacing with other foods or drinks (except drugs, vitamins, etc., and minerals). Breast milk contains colostrum which is rich in antibodies because it contains protein for the immune system and is useful for killing high numbers of germs so that exclusive breastfeeding can reduce the risk of death in infants. Colostrum is yellowish and which is produced from the first day to the third day. On

the fourth to the tenth day, breast milk contains less immunoglobulin, protein, and lactose than colostrum but has higher fat and calories with a whiter color. In addition to containing nutrients, breast milk also contains certain enzymes that function as absorbent substances that will not interfere with other enzymes in the intestine. Formula milk does not contain these enzymes so the absorption of food is completely dependent on the enzymes found in the baby's intestines. (Kemenkes RI, 2010)

During the growth and development of the infant's endogenous immunological system, various immunological and bioactive components of milk work synergistically to provide a passive immunological support system from mother to baby in the first days and months of birth. Several studies have shown a reduced risk of gastrointestinal and respiratory infections, especially during the first year of life. Increased bioactive and immune factors can reduce the risk of gastrointestinal and respiratory allergies and autoimmune diseases in breastfed children (Aldy et al., 2016)

Breast milk contains molecules with antimicrobial activity as well as probiotic bacteria *Lactobacillus gasseri* and *Lactobacillus fermentum*. Babies who are fed breast milk (ASI), will have more *Bifidobacterium* and lactic acid bacteria (LAB) colonies than babies who are given formula milk where the *C. difficile* colonies found will be higher. The dominance of *Bifidobacteria* in breast milk is influenced by the composition of breast milk which is rich in bifidogenic factors such as oligosaccharides. Oligosaccharides are carbohydrates that can promote the development of *Bifidobacteria* where the monosaccharides are resistant to digestive enzymes. Oligosaccharides are not produced by cow's milk, therefore in formula milk, oligosaccharides are replaced by prebiotics (fructo-oligosaccharides(FOS), inulin, gluco oligosaccharides, galacto-oligosaccharides (GOS). Prebiotics added to infant milk can affect the development of the immune system in infants. (Kusumo, 2012)

The negative impact that can occur in infants who are not exclusively breastfed is having a risk of death due to diarrhea 3.94 times greater than infants who are exclusively breastfed (breastfeeding and frequency of illness) (Khasanah & Rahayu, 2016). Based on this, the provisional hypothesis that can be enforced is that there is a relationship between a history of exclusive breastfeeding and the immune status of infants aged 6-12 months during the COVID-19 pandemic.

3. Research Methodology

This study is a descriptive-analytic study with a cross-sectional approach. The population in this research amounted to 124 respondents. The sampling technique used accidental sampling with a total sample of 62 respondents. Samples were taken from mothers who have babies aged 6 to 12 months who came for treatment at the Surabaya regional midwife's independent practice in the period April - June 2021. The instrument used was a questionnaire. Questions on the questionnaire consisted of ten questions on exclusive breastfeeding and five questions on immunity status. Data analysis using Chi-Square with a significance of 0.05.

3. Results And Discussions

A. Exclusive breastfeeding

Table 1 Distribution of Exclusive Breastfeeding Frequency

No	Exclusive breastfeeding	f	%
1.	Exclusive Breastfeeding	38	61,3
2.	No Exclusive Breastfeeding	24	38,7
	Total	62	100

The results of univariate analysis showed that most of the infants received exclusive breastfeeding, namely 38 people (61.3%). Based on the results of the answers from the questionnaire sheet given, it

shows the mother's understanding of exclusive breastfeeding, namely the definition of exclusive breastfeeding is breast milk given from birth to 6 months of age and the benefits of exclusive breastfeeding as a form of immunity. This is in accordance with what is stated in Government Regulation Number 33 of 2012, which states that exclusive breastfeeding is breast milk that is given to babies from birth for six months, without adding and/or replacing with other foods or drinks (except drugs, vitamins, etc.) , and minerals) (Kemenkes RI, 2010).

Breast milk contains colostrum which is rich in antibodies because it contains protein for the immune system and is useful for killing high numbers of germs so that exclusive breastfeeding can reduce the risk of death in infants (Burhan et al., 2012) (Asweros et al., 2014)

B. Immune status of infants 6 - 12 months

Table 2. Frequency Distribution of Immunity Status

No	Immunity Status	f	%
1.	Good	35	56,4
2.	Weak	27	43,6
	Total	62	100

The results of the univariate analysis showed that most of the infants' immune status was good, namely 35 people (56.4%). Immunity is a protective mechanism that acts to maintain the integrity of the body against foreign substances. The three main functions of the immune system include: defense against invaders, homeostasis-removal of dead self cells, and surveillance-disposal of mutant cells (difference in immunity) (Utami et al., 2015)

C. The relationship between exclusive breastfeeding and the immune status of infants 6 – 12 months

Table 3 Cross table of the relationship between exclusive breastfeeding and immune status

No	Exclusive breastfeeding	Immunity Status				Total		p-value
		Good		Weak				
		f	%	f	%	f	%	
1.	Exclusive breastfeeding	27	43,5	11	17,8	38	61,3	0,040
2.	No Exclusive breastfeeding	8	12,9	16	25,8	24	38,7	
	Total	35	56.4	27	43.6	62	100	

The results of the bivariate analysis showed that the infant's immune status based on breastfeeding showed that the majority of infants who were not exclusively breastfed had good immune status, which was lower than those who were exclusively breastfed, namely 8 (12.9%) compared to 27 (43.5%). , while the statistical test results obtained a p-value of 0.040 ($p < 0.05$), which means that there is a relationship between exclusive breastfeeding and immune status in infants 6-12 months.

The results of this study are in line with the research of Burhan et al. who examined the duration of exclusive breastfeeding with the level of infant immunity, which showed that the longer the duration of exclusive breastfeeding, the smaller the frequency of babies experiencing illness so that the baby's immunity level would be greater (Burhan et al., 2012). Breastfeeding during the first 6 months of life can reduce the risk of morbidity by 70% (Antya Tamimi et al., 2016)

In this study, it was found that the incidence of illness that was often experienced by infants aged 6-12 months was diarrhea, hot cough and runny nose, whereas in infants who were exclusively breastfed they were less likely to get sick, especially diarrheal diseases. Immunities contained in breast milk include lactobacillus, lactoferrin and lysozyme. Lactobacillus is useful in inhibiting the growth of microorganisms such as E. Coli bacteria which often causes diarrhea in infants. Lactoferrin increases iron and prevents the growth of bacteria that need iron, as well as antibodies such as IgA, while lysozyme functions to destroy harmful bacteria and balance bacteria in the intestine (Qoyyimah & Rohmawati, 2017)

5. Conclusion

There is a relationship between history of exclusive breastfeeding and the immune status of infants aged 6-12 months with p value = 0.040.

Limitation And Study Forward

Some of the limitations of this study are:

- The results of the study cannot be generalized widely. Many factors affect the immune status of infants aged 6 – 12 months. The results of the study can be used as a reference as a comparison for other studies in areas that have almost the same cultural characteristics and geographical location.
- This study used a cross sectional design, one of the drawbacks is that it cannot describe the course of risk factors and effects of the infant's immune status. So it is not necessarily the poor immune status caused by pure exclusive breastfeeding. Some of the limitations of this study are:

Study forward are:

- Midwives increase the scope of the exclusive breastfeeding program through the promotion of exclusive breastfeeding, and counseling on exclusive breastfeeding starting during pregnancy, IMD during delivery, and forming exclusive breastfeeding support groups
- Future researchers can conduct more in-depth research related to exclusive breastfeeding on the baby's immune status

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