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THE RELATIONSHIP OF EXCLUSIVE BREASTFEEDING WITH THE INCIDENT OF DIARRHEA IN BABIES AGED 0-6 MONTHS

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ABSTRACT

Exclusive breastfeeding is essential to protect babies/children from the risk of infectious diseases. Diarrhea, which is the contagious disease that causes mortality and morbidity in second place in children under five years of age (toddlers), is thought to be related to the low level of exclusive breastfeeding. This research aims to determine the relationship between exclusive breastfeeding and the incidence of diarrhoea in babies aged > 0-6 months. This type of research is observational analytic using a cross-sectional design and a retrospective approach. The research population came from babies at the Pasar Merah Community Health Center in 2023. The research sample was 66 babies. Analysis of the relationship between variables was carried out using the chi-square test. The research results were obtained from 66 respondents; 6 (20.7%) babies were exclusively breastfed and suffered from diarrhoea, and 23 (34.8%) did not. Meanwhile, 29 (43.9%) babies who were not solely breastfed suffered from diarrhoea, and only 8 (12.1%) did not suffer from diarrhoea. The results of the chi-square test obtained a p-value = 0.000. The research conclusion shows that exclusive breastfeeding is related to the incidence of diarrhoea in babies aged 0-6 months.

Keywords: babies 0-6 months, diarrhea, exclusive breastfeeding

INTRODUCTION

Diarrhea is still a public health problem in developing countries, including Indonesia, because the morbidity and mortality rates are still very high because they often occur in the form of extraordinary events. Diarrhea is the leading cause of death among children under five in Indonesia (Depkes RI, 2012). In ASEAN countries, children under five experience an average of 3 to 4 episodes of diarrhoea per year or almost 15-20% of a child's lifetime spent with diarrhoea (Juffrie et al., 2012). In Indonesia, diarrhoea still ranks second as the 10th most common disease in primary health care (WHO, 2017). Around 1.7 million cases of diarrhoea occur each year, and 760,000 children under the age of 5 die each year due to diarrhoea (Juffrie et al., 2012).

Breast milk has higher nutritional value because the antibodies in breast milk and the leukocyte cells, enzymes, and hormones protect the baby against infection (Sudaryat, 2010). Research by WHO proves that breastfeeding until the age of 2 years can reduce child mortality due to diarrhoea and acute respiratory infections (Tumbelaka & Karyanti, 2008).

Babies who receive exclusive breast milk automatically get anti-infective immunity. Breast milk also provides passive protection for the child's body to deal with pathogens that enter the body. Breast milk is the best natural food that a mother can give her child, and its composition is suitable for the growth and development of the baby and protects the baby from various infectious diseases (Lamberti et al., 2011).

Another study by Lamberti et al. (2011) found that in babies aged 0-5 months who were not breastfed, the risk of death due to diarrhoea increased compared to babies aged 0-5 months who were given exclusive breast milk and for every breastfeeding in children aged 6-23 months. From these results, it can be concluded that exclusive breastfeeding for six months, according to WHO recommendations, will protect children against diarrhoea during the first two years of life.

Exclusive breastfeeding can reduce the risk of children being treated for infectious diseases under one year of age. Specifically for diarrheal diseases caused by infection, there appears to be a direct relationship between breastfeeding patterns and a decrease in the incidence of diarrhoea, the percentage of sick days and the duration of diarrheal episodes. Exclusive breastfeeding has been proven to reduce the number of hospitalizations by 53% per month. With non-exclusive breastfeeding, hospitalization due to infectious diseases only decreased by 31% (Adikarya et al., 2019). This study aimed to determine the relationship between exclusive breastfeeding and the incidence of diarrhoea in babies aged 0-6 months.

METHODS

This research is a quantitative analytical research using a cross-sectional design and a retrospective approach or a research design that identifies an effect that occurs in the present and then identifies risk factors that occurred in the past. The research was carried out from July to August 2023 in the Pasar Merah Community Health Center working area.

This study consisted of mothers with babies aged > 0-6 months, namely 66 babies. The sampling technique in this research was total sampling. Sample selection was based on inclusion and exclusion criteria; inclusion criteria were babies aged > 0-6

months. Exclusion criteria include babies born < 2.5 kg, babies born prematurely, babies with disabilities, babies with congenital diseases and breastfeeding mothers using media (breast pumps).

RESULTS AND DISCUSSION

Table 1 Frequency distribution of respondents' characteristics (n = 66)

Variable	n	%
Exclusive breastfeeding		
Exclusive breastfeeding	29	43,9
Not exclusive breastfeeding	37	56,1
Mother's Education		
Intermediate	28	42,4
Tall	38	57,6
Work		
Work	32	48,5
Doesn't work	34	51,5

Table 2 Relationship between exclusive breastfeeding and the incidence of diarrhea in babies aged 0-6 months (n = 66)

Exclusive breastfeeding	Diarrhea Occurrence				Total		*p-value**
	Diarrhea		No diarrhea				
	n	%	n	%	n	%	
Exclusive breastfeeding	6	20,7	23	34,8	29	43,9	0,000
Not exclusive breastfeeding	29	43,9	8	12,1	37	56,1	
Total	35	53,0	31	47,0	66	100	

* Chi-Square Test

Table 1 shows that the frequency distribution of respondents' characteristics shows that the majority of babies are not exclusively breastfed at 56.1%, the majority of mothers' education is in the high category at 57.6% and the majority of mothers are not working at 51.5%. **Table** 2 shows that of the 66 respondents, there were 6 (20.7%) babies who were exclusively breastfed who suffered from diarrhea, 23 (34.8%) who did not suffer from diarrhea. Meanwhile, 29 (43.9%) babies who were not exclusively breastfed suffered from diarrhea, and only 8 (12.1%) did not suffer from diarrhea. The results of the analysis showed that there was a relationship between exclusive breastfeeding patterns and the incidence of diarrhea in babies aged 0-6 months ($P < 0.05$).

The results of this study can prove the hypothesis proposed that exclusive breastfeeding is associated with the incidence of diarrhoea ($P = 0.000$) in babies aged 0-6 months at the Barana Community Health Center. Exclusive breastfeeding is

giving only breast milk as soon as the baby is born until he reaches six months without any additional food or drink (Safitri & Puspitasari, 2018). Exclusive breastfeeding can provide a protective effect for children until they are three years old or at 1000 HPK from the risk of gastrointestinal infections, intestinal or minor intestine infections, as well as other infectious diseases (Kattula et al., 2014), so that children suffer from diarrhoea more often. Who does not consume exclusive breast milk than children who consume exclusive breast milk.

Exclusive breastfeeding can protect against infectious diseases because of the bioactive substances in breast milk, which play a role in strengthening immunity, protein, fat and lactose. These ingredients can prevent children from disease due to bacterial, viral or fungal invasion (Santos et al., 2015). Breast milk bioactive substances include Ig, Human Milk Oligosaccharides (HMO), white blood cells, antimicrobial peptides and mRNA, which play a role in immune function and metabolism (Lyons et al., 2020).

HMO is a complex glycan in breast milk that maintains the bacterial community in the baby's digestive tract. HMOs act as probiotic agents as metabolic substrates that enhance and promote the growth of commensal microorganisms in the infant gut microbiome. HMOs also modulate intestinal epithelial cell response and pathogen deflection and prevent pathogen adhesion to the intestinal epithelium through their action as soluble glycan receptor decoys. HMOs have a receptor structure similar to the viral receptor structure and can prevent the attachment of viruses to cells, thereby preventing infection (Lyons et al., 2020).

Meanwhile, breast milk proteins, which include casein, lactoferrin, α-lactalbumin, lysozyme, SIgA and serum albumin, act as antibody components that can paralyze pathogenic bacteria and various viruses in the digestive tract, preventing the attachment of pathogenic microorganisms to the intestinal mucosal walls. Smooth and inhibits the proliferation of pathogenic microorganisms in the intestine (Santos et al., 2015). Lactoferrin, the second most abundant protein in breast milk, is an iron-binding glycoprotein involved in various immune functions. Lactoferrin has antimicrobial and anti-infective activity, including a role in preventing diarrhoea (Lyons et al., 2020).

Breast milk can also protect children from bacterial infections because it contains commensal bacteria, including bifidobacterium, lactobacillus and streptococcus. Commensal bacteria in breast milk act as competitors for pathogenic microorganisms. Increased colonization of commensal microorganisms in the intestine can minimize the development of pathogens and inhibit the possibility of infection (Lyons et al., 2020). Exclusive breastfeeding can also prevent children from the risk of diarrhoea due to external contamination that comes from giving complementary foods to breast milk (Roesli, 2015).

The results of this research are in line with research that has been conducted that exclusive breastfeeding can protect children from diarrhoea, including research by Arista and Nuzuliana (2017) on toddlers 6-12 months at the Piyungan Community Health Center, research by Rahmawati (2019) on toddlers 12-59 months in the working area of the Juntinyuat Indramayu Community Health Center, research by Rohmah et al. (2015) in 6-month-old toddlers at Jatinangor Community Health Center, and research by Tamimi et al. (2016) in 6-month-old toddlers in the Nanggalo Padang Health Center working area, research by Mohamad et al. (2014) in the work area of the North Galesong Community Health Center, Takalar Regency, Trisna

(2018) research at RSI Bogor, and research by Suliarta et al. (2021) at Wangaya Hospital, West Java.

The frequency of diarrhoea is more common in children who are not exclusively breastfed. The results of this study showed that most babies who were not solely breastfed experienced diarrhoea at 43.9%. Children will not receive the main immunoglobin in breast milk, such as SIgA, and babies cannot be protected from pathogenic microorganisms from the surrounding area. Children who are not breastfed will not get enzymes that help the baby's digestion because the pancreas's function is still imperfect, as a transporter of metals (Fe, Mg, Zn and Se) and functions as an anti-infection. Apart from that, children will not get the main carbohydrates from breast milk, such as lactose, which will be converted into lactic acid during fermentation, providing an acidic atmosphere in the baby's intestines. So, babies who are not breastfed will easily experience pathological bacterial growth in the baby's intestines (Rafid et al., 2022).

This was further clarified by Putri and Illahi (2017), that in newborn babies, the IgE system is not yet perfect; giving milk (other than breast milk) will stimulate the activation of this system and can cause allergies. Breast milk does not cause this effect. Delaying the administration of foreign proteins until six months of age will reduce the possibility of allergies.

CONCLUSION

There is a relationship between exclusive breastfeeding and the incidence of diarrhoea in babies aged 0-6 months at the Barana Community Health Center in 2023; this is proven by the statistical test value ρ value of 0.00 <α 0.05, meaning Ha is accepted, and Ho is rejected. This shows that babies who do not receive exclusive breast milk are more likely to get diarrhoea than babies who receive exclusive breast milk. Research on the effect of exclusive breastfeeding and maternal hygiene behaviour on the incidence of diarrhoea using a cohort research approach and standardized questionnaires can be carried out in future research.

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