

Effect of Exclusive Breastfeeding on The Incidence of Acute Respiratory Infections

Husnul Muthoharoh¹, Fitriana Ikhtiarinawati Fajrin², Angraini Dyah Setiyarini³

¹ Diploma III Midwifery Study Program, Vocational Program, Lamongan Islamic University, Lamongan, Indonesia, 62292

² Diploma III Midwifery Study Program, Vocational Program, Lamongan Islamic University, Lamongan, Indonesia, 62292

³ Diploma III Midwifery Study Program, Faculty of Health Science, IIK Bhakti Wiyata, Kediri, Indonesia, 64100

Email: Email: muthoharohusnul@gmail.com¹; fitrianaikhtiarinawatifajrin@gmail.com², angraini@iik.ac.id³

ABSTRACT

Introduction – Acute Respiratory Infection (ARI) is a respiratory infection where the cause is a virus or bacteria that lasts for 14 days. One of the efforts to prevent ARI in infants is to provide exclusive breastfeeding, because breast milk contains elements of specific and non-specific immunity that can protect newborns from respiratory infections.

Purpose – The aim of the study was to determine the effect of exclusive breastfeeding with the incidence of Acute Respiratory Infection (ARI) in infants aged 7-24 months in the Community Health Center Ujung Pangkah Gresik.

Methodology/Approach – The research design used was observational analytic with a cross sectional approach. The population in this study were all infants aged 7-24 months. The number of sample 60 babies taken with the sampling technique using purposive sampling method. The study used a questionnaire with a closed ended item type of questionnaire. Data analysis used univariate and bivariate analysis using Chi Square.

INTRODUCTION

Human breast milk contains carbohydrates, protein, fat, vitamins, minerals, digestive enzymes and hormones. In addition to these nutrients, it is rich in immune cells, including macrophages, stem cells, and numerous other bioactive molecules. Some of these bioactive molecules are protein-derived and lipid-derived, while others are protein-derived and indigestible, such as oligosaccharides (Martin et al., 2016).

The prevalence of women who exclusively breastfeed their infants to 6 months of age remains low, with only 41% globally and 37% in LMICs (World Health Organization and United Nations Children's Fund, 2018). In Indonesia, breastfeeding is widely practiced, but the prevalence of exclusive breastfeeding at 6 months is only 37.3% and has not improved despite recommendations to exclusively breastfeed made by the World Health Organization's Infant and Young Child Feeding (WHO IYCF) guidelines. Breastfeeding has been reported to be more prevalent among poor communities in Indonesia, but very few of these communities promote exclusive breastfeeding (Hadi et al., 2021).

Breast milk is the best natural food that can be given by a mother to her newborn child, besides the composition suitable for the growth and development of infants who change accordingly with the needs of the baby at all times. Breast milk also contains substances protection against

Findings – The results showed that 33 respondents (55 percent) had ARI and 27 respondents (45 percent) did not. Respondents who did not give exclusive breastfeeding were 28 respondents (46.7 percent), giving exclusive breastfeeding were 32 respondents (53,3 percent). This shows that the proportion of children under five who are not exclusively breastfed and has ARI is higher than the proportion of infants who are exclusively breastfed and have ARI. The results of statistical calculations obtained p-value = 0.000 (p-value <0,05), so there is a relationship between exclusive breastfeeding and the incidence of ARI in toddlers at the Ujung Pangkah Health Center.

Originality/ Value/ Implication – This research is the result of my own work and has never been published at all.

Keywords: exclusive breastfeeding, acute respiratory infection, ARI

various infectious diseases. Breastfeeding also has a tremendous emotional impact that affect the relationship between mother and child and development the soul of the child (Azwar, 2001). Breast milk contains the proven mineral zinc effective for reducing pneumonia (pneumonia), diarrhea and other infectious diseases. Zinc can also reduce the length and degree Acute Respiratory Infection (ARI) severity (Abdulahi et al., 2021; Van Dellen et al., 2019).

Globally, acute respiratory infections (ARIs) are a leading cause of morbidity and mortality in under-five children. Pneumonia alone is responsible for approximately 20% of child deaths globally, a majority of which occur in sub-Saharan Africa and South Asia. Multiple studies have shown that 40% of child ARI deaths occur in Bangladesh, India, Indonesia, and Nepal (Islam et al., 2021; Soriano et al., 2020). The existing evidences on ARI are focused on the burden of illness around urban slums and hence lack representative and reliable data resulting in under estimation of ARI prevalence. Shift in the infectious disease etiology from gram positive to gram negative organisms is not well-recognized by health care providers who often under utilize novel rapid diagnostic methods and/or irrationally use antibiotics leading to increased burden of ARI (Selvaraj et al., 2014).

Acute Respiratory Infection (ARI) is acute infection that affects one or more parts from the airways from the

nose to the alveoli including their adnexa (sinuses, middle ear cavity and pleura). Pneumonia is an acute infection that attacks lung tissue (alveoli). Toddler pneumonia marked with symptoms of cough and/or difficulty breathing such as Breathe fast, pull in the lower chest wall, or chest x-ray radiography showing acute pulmonary infiltrates (Farisni et al., 2022; Mir et al., 2022; Zavalishina et al., 2021).

Prevention efforts are the most strategic component for eradicating ARI, including fulfilling nutrition, clean and healthy living habits, and exclusive breastfeeding. Toddlers with poor nutrition will be more easily attacked by ARI, therefore toddlers must be given good nutrition to increase their immune system so they are not easily attacked by ARI. Clean and healthy living behavior can be applied by avoiding toddlers from exposure to cigarette smoke because the smoke from the combustion of high concentrations can damage the defense mechanisms of the lungs so that it will facilitate the emergence of ARI. Exclusive breastfeeding for infants can avoid the risk of transmitting ARI. The presence of immunoglobulin A contained in breast milk, breastfeeding as early as possible can increase antibodies in the baby's body (Sholeh et al., 2022).

LITERATURE REVIEW

A similar study was conducted in 2022 by Riska Permana Sari, it was found that the majority of mothers did not give exclusive breastfeeding, almost entirely 81.9% had ARI. Based on the results of the chi square test, it was found that X^2 count (22.419) > X^2 table (3.841) which means there is a relationship between exclusive breastfeeding and the incidence of ARI (R. P. Sari & Qomariyah, 2022).

Another research conducted by Andi Elsa Mulya Pratiwi in 2022, it was found that the relationship history of exclusive breastfeeding with the number of the incidence of ARI in infants at the Balangnipa Sinjai Health Center using the test Chi Square obtained the probability value (p-value) Chi Square of 0.000. These results show that the probability value is <0.05, thus H_0 rejected while H_1 is accepted so that it is stated that there is a significant relationship between history of exclusive breastfeeding and the incidence of urinary tract infections acute respiratory infection (ARI) in infants at the Balangnipa Sinjai Public Health Center (Pratiwi, 2022).

Another research conducted by Novita Indah Yanti. Research results obtained 19 children (90.5%) who were exclusively breastfed experienced ARI and 2 people (9.5%) did not experience ARI. In children who are not exclusively breastfed obtained as many as 37 people (41.5%) had ARI and 25 people (30.9%) who do not have ARI. Based on the Chi Square test, it is known that the p-value of 0.014 which indicates that there is a relationship between breastfeeding exclusive to the incidence of ARI (Yanti, 2019).

METHOD

The research design used was observational analytic

RESULT AND DISCUSSION

Table 1. Frequency distribution of respondent characteristics is directly related to the incidence of ARI

with a cross sectional approach. The population in this study were all infants aged 7-24 months. The number of sample 60 babies taken with the sampling technique using purposive sampling method. The research instrument used in this study in the form of a checklist sheet incidence of ARI and breastfeeding exclusive. The checklist sheet contains the checklist about the ARI criteria checklist variable and variable breastfeeding checklist which will be filled by researchers according to with the results of interviews with respondents study. Researchers make a checklist by adopting from the instrument sheet the previous researcher, namely Musfardi Rustam from Indonesia University (Rustam, 2010). This checklist sheet has been tested validity using content validity (Content Validity) is testing on the contents of the instrument through the expert judgment that is some experts in the field who master the topic research, to assess how far overall points and instruments represent defined content area. Test item validity of each instrument content using the Content Validity formula Index (CVI) according to Lynn is the number of expert who gave 3 or 4 to each instrument item divided by the total experts used. Provision the conditions used and said a valid item for 3-5 expert is 1.00 . Testing the validity of this content using 3 experts in doing assessment for each instrument item, which consists of 2 experts in the field of education and 1 expert in the field field. If the value of each item instrument is less than 1.00 then, item the instrument is considered invalid or cannot be used. After carried out the calculation of the content validity test against 18 instrument items with using the CVI formula, we get results for all items are valid with mean I-CVI = 1.00 and mean expert proportion = 1.00, so the sheet This checklist can be used in study.

The incidence of ARI in infants aged 7-24 month is a state in which the baby 7-24 months old have experienced ARI characterized by experiencing symptoms main form of cough, runny nose, fever, pain throat and or have been diagnosed experiencing ARI by a doctor. As for the way the measurement of this variable is by using the checklist sheet. Incident ARI in infants aged 6-12 months categorized into 2 nominal categories i.e. babies have ARI and not experiencing ARI. Exclusive breastfeeding is breastfeeding only without food and drink other additions to the baby from birth until the age of six months, except for medicine and vitamins. As for the measurement method of this variable is to use checklist sheet. Exclusive breastfeeding for babies ages 6-12 months are categorized into 2 nominal category, namely babies with breast milk exclusive and not exclusively breastfed babies. Data collection in this study using primary data. Primary data obtained directly by doing Interview. The data obtained and collected and then carried out data processing which consists of 4 stages, namely: editing, coding, data entry, and tabulating Data analysis was carried out by testing chi-square statistic with $\alpha = 0.05$ for know the relationship between breastfeeding exclusive to the incidence of ARI in babies aged 7-24 months in the Community Health Center Ujung Pangkah Gresik.

No	Variable	Category	Frequency	Percentage
1	Age	• 7-12 Months	9	15,0%
		• 13-18 Months	21	35,0%
		• 19-24 Months	30	50%
2	Gender	• Male	28	46,7%
		• Female	32	53,3%
3	Breastfeeding	• Non Eksklusive	28	46,7%
		• Eksklusive	32	53,3%
4	Incidence of ARI	• No ARI	33	55%
		• ARI	27	45%

(Source: Data processed in 2022)

Based on Table 1 It can be seen that of the 60 respondents at the Ujung Pangkah Health Center who participated in this study as many as 9 toddlers (15%) aged 7-12 months, 21 toddlers (35%) aged 13-18 months, and 30 toddlers (50%) aged 19-24 months. This is in accordance with the theory which states that age has a significant influence for the occurrence of ARI. Pneumonia in toddlers often caused by a respiratory virus and its peak occurs at the age of 2-3 years. ARI incident in infants and toddlers will provide a clinical picture bigger and worse, caused by ARI in infants and toddlers is generally an first infection and not yet fully formed optimal natural immune process. Besides that the child's immunity is not good and the lumen of the channel his breath was still tight. Therefore, the incidence of ARI in infants and toddlers will be higher if compared to adults (N. I. Sari & Ardianti, 2017).

Amount 28 toddlers (46,7%) are male gender and 32 toddler (53,3%) are female toddlers. This is not in line with research (Evrianasari, 2015) which states that male babies are more susceptible to disease so that many are brought by their mothers for examination. This is because baby girls have a biological advantage of about 0.15-1.00 times compared to boys in terms of morbidity and mortality in an optimal environment.

Amount 32 toddlers (53,3%) have no history of exclusive breastfeeding. Most babies who were not exclusively breastfed were found at the Ujung Pangkah Health Center, namely 53.3%. This is in accordance with research (Nurdiyanah & Nildawati, 2015) which states that some puskesmas still have low coverage of exclusive breastfeeding, this is caused by many factors, one of which is the mother's perception of exclusive breastfeeding, mothers who have bad perceptions tend not to give exclusive breastfeeding. One of them is the mother who thinks her breast milk is insufficient or not enough when in fact it is enough but is not sure even though the breast if the breast is sucked more often it will stimulate the milk to come out and multiply.

Toddlers at most have incident No ARI are 33 (55%). The proportion of ARI occurs in Puskesmas due to high spread and transmission during the rainy season. There are often erratic weather changes that do not follow seasonal patterns. This is also in accordance with research (Nurdiyanah & Nildawati, 2015) that is very easy spread and transmission through droplets is one of the causes of ARI, it can also be through direct contact with patients or contaminated so that pathogens enter the body.

Table 2. The Relationship between Exclusive Breastfeeding and the Incidence of ARI at the Ujung Pangkah Health Center

Exclusive Breastfeeding	Incidence of ARI				Total		Pvalue
	Yes		No		f	%	
	f	%	F	%			
Not Exclusive Breatfeeding	24	85,7%	4	14,3%	28	100%	
Exclusive Breastfeeding	3	9,4%	29	90,6%	32	100%	0,000
Jumlah	27	45,0%	33	55,0%	60	100%	

Based on table 2, it is known that the proportion of children under five who were not exclusively breastfed and experienced ARI was 24 children (85.7%), while the proportion of infants who were exclusively breastfed and experienced ARI was 3 children (9.4%). The proportion of children under five who were exclusively breastfed and did not experience ARI as much as 4 children (14,3%), the proportion of children under five who were exclusively breastfed and did not experience of ARI as much as 29 children (90,6%).

This shows that the proportion of children under five who are not exclusively breastfed and has ARI is higher than the proportion of infants who are exclusively breastfed and have ARI. The results of statistical calculations obtained p-value = 0.000 (p-value <0,05), so there is a relationship between exclusive breastfeeding and the incidence of ARI in toddlers at the Ujung Pangkah Health Center.

ARI is an important public health problem among children under five. The incidence of ARI in children under five is relatively high, especially in developing

countries, one of which is Indonesia (Alamsyahi et al., 2021). That matter clearly shows that breastfed babies exclusive is better than a baby who not exclusive breastfeeding in prevention the incidence of ARI, because babies with breast milk exclusively has a strong immune better and less susceptible to ARI compared to non-breastfed babies exclusive. Breast milk contains immune substances against infections caused by bacteria, viruses, fungi, so as to prevent infection in infants. That matter because breast milk contains substances immunity to infection, namely proteins, lactoferrin, immunoglobulin and antibodies. Exclusive breastfeeding provides protection in children through SigA antibodies so that Avoid infection with Haemophilus bacteria Influenza in the mouth and nose, and can also lower the risk get infected (McCormick et al., 2022; Muthoharoh, 2021; Nascimento et al., 2021).

So it can be concluded that if mothers know the importance of the benefits of exclusive breastfeeding for their children, it will reduce the infection rate in children. By providing education about the importance of the benefits of exclusive breastfeeding in infants, it can reduce the infection rate in infants, thus enabling mothers to improve their lifestyles. Because Exclusive Breastfeeding contains a lot of antibodies, so that babies who are breastfed have antibodies that increase so that it will reduce the incidence of ARI. By making it a habit to give breast milk every 2 hours or on demand, parents know the changes that occur in their children and immediately treat them (R. P. Sari & Qomariyah, 2022).

ARI can be caused by three factors, namely the individual child factors, behavioral factors and environmental factor. Child individual factors include: child's age, birth weight, status nutrition, vitamin A and immunization status. Factor behavior includes preventive behavior and prevention of ARI in infants or the role of active family/community in dealing with ARI disease. Environmental factors include: indoor air pollution (cigarette smoke) and smoke from burning fuel for cooking with great concentration height), house ventilation and occupancy density. ARI caused by by intrinsic factors which include age, gender, gender, nutritional status, low birth weight (LBW), immunization status, breastfeeding mother (breast milk), and giving vitamins. One of the efforts to prevent ARI is with increased or improved nutrition. On infants less than 6 months of age, increased or Nutritional improvement can only be done by giving water exclusive breastfeeding. This is because the amount of breast milk composition is still sufficient for baby's growth and development when Breast milk is given properly and correctly until 6 month old baby. Babies underage from 6 months the digestive system is immature until the baby is 6 months old. breast milk contains many immune factors and useful for the prevention of ARI, especially since breastfeeding at the beginning of the baby's birth until the baby is 6 months old (Fitri, 2021).

CONCLUSION AND RECOMMENDATION

There is a significant relationship between exclusive breastfeeding to the incidence of ARI in children aged 7-24 months with a strong relationship. Children who are exclusively breastfed are less likely to get ARI compared to

children who were not exclusively breastfed. It is hoped that further research can use other research methods and more in-depth analysis to analyze other factors related to the incidence of acute respiratory infections in toddlers.

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