



Determinants of Exclusive Breastfeeding and Immunization Status with ARI Incidence in Toddlers in Central Buton District

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ABSTRACT

In Indonesia, infants with acute respiratory infections (ARI) are a common occurrence. Many baby deaths are brought on by ARI. The goal of the study was to ascertain the link between the prevalence of ARI in toddlers in the working area of Wamolo Public Health Center, Central Buton Regency, and exclusive breastfeeding and immunization status. Type research uses quantitative methods with a cross sectional study approach. Population is 223 and sample is 70 and sampling method used is purposive sampling. The research data consisted of primary data obtained from questionnaires and secondary data sourced from reports. The SPSS program is used to process the data. Analysis used is univariate and bivariate using chi square test at a 95% confidence level ($\alpha = 0.05$). Results showed that relationship between exclusive breastfeeding and incidence ARI in toddlers was $p=0,000 < \alpha = 0,05$ and relationship between immunization status and incidence ARI in toddlers was $p=0,000 < \alpha = 0,05$. Conclusion shows that relationship between exclusive breastfeeding and immunization status with incidence of ARI in toddlers in working area of Wamolo Health Center, Central Buton Regency.

Keywords: ARI; toddler; breastfeeding; immunization status

Introduction

Acute Respiratory Infections (ARI) are respiratory tract infections caused by viruses or bacteria and last for 14 days. Symptoms can range from mild (cough and cold) to moderate (shortness of breath and wheezing), and even severe symptoms (cyanosis and nasal flaring). Severe complications of ARI affecting lung tissue can lead to pneumonia [1].

The World Health Organization (WHO) pays special attention to ARI in young children. WHO data shows that out of 6 million child deaths, 16% are caused by pneumonia, which is one of the manifestations of ARI. ARI in children in Indonesia is common, especially during episodes of cough and cold, which are estimated to occur 3-6 times per year (4 times annually on average) [2].

Basic Health Research (Riskesdas) on 2018 data showed an ARI prevalence rate of 4.4%. The highest prevalence of ARI was found in the age group of 1-4 years (25.8%). According to research by the Ministry of Health, the highest prevalence of

ARI was in East Nusa Tenggara (NTT) Province at 15.4%, followed by Papua Province at 13.1%, West Papua Province at 12.3%, and North Sumatra Province at 6.8%, ranking thirtieth. The lowest ARI prevalence was in Jambi Province at 5.5%. The prevalence of ARI in infants was 9.4%, in children under two years old (Baduta) was 14.4%, and in children under five years old was 13.5% [2].

The three common risk factors for ARI are the environment, the individual child's condition, and behavior. Environmental factors include indoor air pollution, such as cigarette smoke and cooking fumes, ventilation, and housing density. Individual child factors include nutritional status, birth weight, age, vitamin A consumption, and immunization status. Behavioral factors encompass prevention and management of ARI in infants or the involvement of families/community in tackling ARI [3].

In 2016, data from the Sulawesi Provincial Health Office showed that ARI ranked first (119,626 cases) among the top 10 most common diseases. In 2017, there was a decrease of 3,096

cases. In 2018, the number decreased again by 2,447 cases, or 24.43%. However, in 2019, there was an increase in ARI cases by 3,676 cases, or 30.06%. In 2020, there was a decrease of 188 cases, or 20.99%. [4].

Based on data from the annual report of the Central Buton Health Office, ARI was the highest disease in 2016 with 7,231 cases. In 2017, it decreased by 5,810 cases. In 2018, there was another decrease to 4,888 cases, followed by an increase in 2019 to 6,415 cases [5].

Based on the ARI case data obtained from the Wamolo Community Health Center in Central Buton District, in 2019, there was an increase of 479 ARI cases, followed by a decrease of 114 cases in 2020. However, in 2021, there was an increase again by 172 cases, calculated from January to December [6].

The initial observation conducted in the research area of Central Buton District showed that some mothers with toddlers were observed to give formula milk rather than breastfeeding their children. Additionally, some mothers did not bring their children to the integrated health post (posyandu) for immunization. Therefore, the

research aims to determine the relationship between exclusive breastfeeding and immunization status with the occurrence of ARI in toddlers at the Wamolo Community Health Center in Central Buton District.

Research Method

Center in Central Buton District. The variables examined in this study were exclusive breastfeeding, immunization status, and the occurrence of ARI in toddlers. The study population consisted of 223 toddlers registered at the Wamolo Community Health Center, with a sample size of 70 using simple random sampling. Data collection included both primary and secondary data. Data analysis was performed using SPSS version 20 software. Univariate analysis was used to determine the distribution and frequency of the variables studied, while bivariate analysis was used to determine the relationship between each variable. The chi-square test was used to determine the relationship between one variable and another variable with a confidence level of 95% (α value = 0.05).

Results and Discussion

Table 1.
Distribution of Respondent Data

Respondent	Frekuensi	Persentase
Age (Year)		
27-30	9	12,9
31-35	21	30,0
36-40	20	28,6
41-45	12	17,1
46-48	8	11,4
Education		
Tamat SD	2	2,9
Tamat SMP	30	42,9
Tamat SMA	34	48,6
Tamat Diploma	3	4,3
Tamat Sarjana	1	1,4
Age Toddler (Month)		
12 – 23	20	28,6
24 - 35	13	18,6
36 - 47	18	25,7
48 - 59	19	27,1
Gender of Toddlers		
Male	32	45,7
Female	38	54,3

Table 2.
Distribusi variabel yang diteliti

Variabel	Frekuensi	Persentase
Exclusive Breastfeeding		
Exclusive Breastfeeding	46	65,7
Not Exclusive Breastfeeding	24	34,3
Immunization Status		
Complete	70	100
Not Complete	0	0
Occurrence of ARI in Toddlers		
ARI	20	28,6
Not ARI	50	71,4

Table 3.
Distribusi variabel yang diteliti

Variabel	ARI				Total		Uji Chi Square
	ARI		Not ARI		N	%	
	n	%	n	%			
Exclusive Breastfeeding							
Exclusive Breastfeeding	4	8,7	42	91,3	46	100	$\rho = 0,000$
Not Exclusive Breastfeeding	16	66,7	8	33,3	24	100	
Imunization Status							
Complete	20	28,6	50	71,4	70	100	$\rho = 0,000$

The first table shows the characteristics of respondents. The highest age range among respondents is 31-35 years, with 21 respondents (30.0%). Regarding the respondents' education level, the majority have completed high school (SMA), with 34 respondents (48.6%), while the fewest respondents have completed a Bachelor's degree, with 1 respondent (1.4%). Based on the age of the toddlers, the highest number of toddlers are aged 12-23 months, with 20 respondents (28.6%), and the fewest respondents have toddlers aged 24-35 months, with 13 respondents (18.6%). In terms of gender, the majority of respondents are female, with 38 (54.3%), while the fewest are male, with 32 (45.7%).

Table 2 presents the univariate variables, namely exclusive breastfeeding. The majority of respondents, 46 (65.7%), practiced exclusive breastfeeding, while 24 respondents (34.3%) did not. The immunization status variable shows that all toddlers, 70 respondents (100%), have complete immunization status. The variable for the occurrence of ARI in toddlers indicates that 50 respondents (71.4%) did not suffer from ARI, while the fewest respondents had toddlers who experienced ARI, with 20 respondents (28.6%).

The chi-square test shows that the exclusive breastfeeding variable obtained a p-value ($0.000 < \alpha (0.05)$), indicating a relationship between exclusive breastfeeding and the occurrence of ARI in toddlers at the Wamolo Community Health Center. The

immunization status variable obtained a p-value ($0.000 < \alpha (0.05)$), indicating a relationship between the immunization status of toddlers and the occurrence of ARI in toddlers at the Wamolo Community Health Center. Further details can be seen in the following Table 3.

This study shows that out of 46 respondents who exclusively breastfed their toddlers, 4 respondents (8.7%) had toddlers who experienced ARI. This could be due to the presence of disease agents caused by family behaviors that do not adhere to clean and healthy living practices, such as smoking habits, closing room ventilation, and lack of sanitation and cleanliness in their home environment.

In addition, there were 42 respondents (91.3%) whose toddlers were exclusively breastfed and did not experience ARI. This could be attributed to the fact that the majority of respondents have good knowledge about the importance of exclusive breastfeeding from birth until the age of 6 months. Furthermore, mothers introduced complementary foods only after 6 months of age and continued to breastfeed until the child reached 24 months.

The research results indicate that out of 24 respondents who did not exclusively breastfeed their toddlers, 16 respondents (66.7%) had toddlers who experienced ARI. This could also be attributed to mothers feeling anxious about their child not receiving sufficient intake from breastfeeding, leading them to give formula milk or

complementary foods before the age of 6 months. Lack of knowledge among mothers contributes to this issue.

There are still respondents who did not exclusively breastfeed their toddlers, namely 8 respondents (33.3%), and their toddlers did not experience ARI. This could be because the mothers consistently monitor the development and growth of their toddlers by regularly bringing them to the integrated health posts (*posyandu*), allowing the health condition of the toddlers to be monitored. This leads to the toddlers not experiencing ARI even though they are not exclusively breastfed. However, toddlers who are not exclusively breastfed are still at risk of experiencing other illnesses such as diarrhea.

When viewed in relation to the occurrence of ARI in toddlers, the variable of exclusive breastfeeding is associated with the occurrence of ARI in toddlers ($\rho < \alpha$). This indicates that exclusive breastfeeding for toddlers is beneficial for strengthening the immune system, making them less susceptible to acute respiratory infections. The association of exclusive breastfeeding until 6 months of age with the occurrence of ARI in toddlers lies in the excellent content of breast milk for the growth and development of babies.

Breast milk contains complete and sterile nutrition for babies. It fully meets the needs of babies up to 6 months of age. Breast milk can protect toddlers from the risk of illness. Therefore, mothers do not need to worry about their children and should continue to exclusively breastfeed them until they reach 6 months of age [7].

Kaur (2017) Indicates similar research stating that exclusive breastfeeding has a significant association with the occurrence of ARI in infants [8]. The research findings at the Banjarangkan Community Health Center indicate that the occurrence of ARI is significantly associated with exclusive breastfeeding [9].

The study by Permatasari shows that maternal knowledge supports attitudes and actions toward exclusive breastfeeding [10]. The results of the study conducted by Lestari (2020) show that a history of non-exclusive breastfeeding increases the likelihood of experiencing ARI by 7 times compared to toddlers who are exclusively breastfed [11]. This study is also in line with Rahayuningrum's research (2021), which states that breast milk contains all the nutrients and fluids needed to meet the nutritional needs of infants up to 6 months of age [12].

The research results indicate that all respondents have complete immunization status, with 20 respondents (28.6%) having toddlers who

experienced ARI. This could be due to transmission by family members who are experiencing coughs/flu and sharing the same room with the toddler, the presence of household members who smoke, the practice of burning trash or cashew nut shells, the smoke of which enters the house and is inhaled by the toddler, making it easy for them to contract ARI.

The research findings also indicate that there are toddlers with complete immunization status who did not experience ARI, totaling 50 respondents (71.4%). This could also be attributed to the administration of complete and regular basic immunizations, which provide the baby or child with immunity to fight against harmful diseases. Additionally, the presence of positive behaviors from mothers or family members, such as keeping the child away from direct exposure to cigarette smoke or smoke from burning, and maintaining the toddler's nutritional status properly, contributes to the child having good immune resilience.

The statistical test results indicate that the immunization status variable is associated with the occurrence of ARI in toddlers ($\rho < \alpha$). This can occur because immunizations can prevent ARI in toddlers. ARI is a disease that develops from illnesses that can be prevented with immunization, such as pertussis, diphtheria, and measles. Therefore, the eradication of ARI in toddlers can be prevented by providing complete immunization.

The fact is consistent with the theory stating that complete basic immunization has been proven effective in preventing respiratory infections such as pertussis, diphtheria, tuberculosis, and measles. [13]. Exclusive breastfeeding can prevent children from the risk of illness up to death.

There are two causes of death in children in various countries, namely infectious diseases and nutritional disorders. Complete immunization and maintaining the health and nutrition of children are the best choices to address these issues [14].

This research is in line with the study conducted by Irnawulan (2021), which shows a significant relationship between immunization status and the occurrence of ARI in toddlers [15]. The findings of this research are consistent with Wahyuni's (2020) study, where ARI is more common in toddlers with incomplete basic immunization compared to those with complete immunization [16]. These results align with Nugraha's (2022) research at the Teladan Medan Community Health Center, which indicates that the more complete the immunization status of toddlers, the lower the likelihood of contracting ARI [17].

Conclusion

The research demonstrates a relationship between exclusive breastfeeding and immunization status with the occurrence of ARI in toddlers at the Wamolo Community Health Center in Central Buton District.

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Bibliography

- [1] Depkes RI, *Departemen Nasional Penanggulangan ISPA Pada Balita*. Jakarta: Departemen Kesehatan RI, 2015.
- [2] Kemenkes RI, *Laporan Nasional Riskesdas 2018*. Jakarta: Kementerian Kesehatan Republik Indonesia, 2018.
- [3] A. Zoland, M. Raharjo, and O. Setiani, "Faktor Risiko Kejadian Infeksi Saluran Pernafasan Akut Pada Balita di Indonesia," *Link*, vol. 17, no. 1, pp. 73–80, 2021, doi: 10.31983/link.v17i1.6828.
- [4] Dinas Kesehatan Sulawesi Tenggara, *Profil Kesehatan Sulawesi Tenggara*. Kendari: Dinas Kesehatan Sultra, 2021.
- [5] Dinas Kesehatan Kabupaten Buton Tengah, *Profil Kesehatan Kabupaten Buton Tengah, Register Data Penyakit ISPA*. Lakudo: Dinkes Kabupaten Buton Tengah, 2021.
- [6] Puskesmas Wamolo, *Data Kunjungan Penderita ISPA Yang Berobat di Puskesmas*. Wamolo: Puskesmas Wamolo, 2021.
- [7] E. Linda, *ASI Eksklusif*. Jawa tengah: Yayasan Jamiul Fawaid, 2019.
- [8] I. Maulana and A. Suhenda, "Kepuasan Pasien BPJS PBI terhadap Pelayanan Petugas Pendaftaran Rawat Jalan di RSUD DR. Soekardjo Kota Tasikmalaya," vol. 9, no. 35, pp. 68–72, 2021.
- [9] K. A. R. S. Sentana, "Hubungan Pemberian ASI Eksklusif dengan Kejadian Diare pada Bayi," *e-Jurnal Med.*, vol. 7, no. 10, pp. 13–23, 2018.
- [10] S. M. Permatasari, "Gambaran Perilaku Pemberian Makan dan Kejadian Diare serta Status Gizi Balita di Kelurahan Bagan Deli," *J. Kesehat. Masy.*, vol. 2, no. 4, pp. 11–20, 2019.
- [11] P. A. P. B. H. Lestari, "Hubungan Asi Eksklusif Dengan Kejadian Ispa Pada Balita Di Sekitar Pembangkit Listrik Tenaga Uap Batubara Babelan, Bekasi Jawa Barat," *J. Med. Hutana*, vol. 02, no. 01, pp. 402–406, 2020.
- [12] D. C. Rahayuningrum and S. A. Nur, "Hubungan Status Gizi Dan Status Imunisasi Dengan Kejadian Infeksi Saluran Pernafasan Akut Pada Balita Kota Padang," *J. Kesehat. Mesencephalon*, vol. 7, no. 1, 2021, doi: 10.36053/mesencephalon.v7i1.247.
- [13] Kemenkes RI, *Pedoman Pencegahan dan Pengendalian Infeksi Saluran Pernapasan Akut*. Jakarta: Kementerian Kesehatan Republik Indonesia, 2017.
- [14] I. Oktaviani, S. Hayati, and E. Supriatin, "Faktor-Faktor Yang Berhubungan Dengan Kejadian Infeksi Saluran Puskesmas Garuda Kota Bandung," *Jurnal Ilmu Keperawatan*, vol. 1, no. 2, p. 113, 2014.
- [15] H. Maulana and Z. H. N. I. I. Irnawulan, "Faktor-Faktor Yang Mempengaruhi Kejadian Ispa Pada Balita Di Desa Hilir Muara Wilayah Kerja Puskesmas Kotabaru Tahun 2021," 2021.
- [16] F. Wahyuni, U. Mariati, and T. S. Zuriati, "Hubungan Pemberian Asi Eksklusif dan Kelengkapan Imunisasi dengan Kejadian ISPA pada Anak Usia 12-24 Bulan," *J. Ilmu Keperawatan Anak*, vol. 3, no. 1, p. 9, 2020, doi: 10.32584/jika.v3i1.485.
- [17] A. A. Nugraha, "Hubungan Perilaku Ibu dalam Pencegahan ISPA dengan Kejadian ISPA pada Balita," *J. Ilmu Kesehat. Aisyiyah*, vol. 2, no. 4, pp. 15–21, 2022.