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# Risk Factors for Acute Respiratory Infection in Toddlers at Pratama Colibri Clinic, Colomadu, Karanganyar

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**Abstract**

Acute Respiratory Infection (ARI) is still one of the important public health problems to pay attention to, because it can cause death in toddlers in various developing countries including Indonesia. The under-five mortality rate reaches more than 40 per 1000 live births, of which 15% to 20% per year is caused by ARI and has increased from the previous year. This study aims to determine the risk factors for ARI in toddlers at Pratama Colibri Clinic, Colomadu, Karanganyar. The research methods used are quantitative research, analytical approach, observational research design, with cross-sectional studies conducted by distributing questionnaires to research respondents. The population in this study was all patients under five at the Colibri Primary Clinic in 2022. The samples in this study were 50 samples using convenience sampling. Bivariate analysis using Chi-Square. The results showed a relationship between maternal knowledge (p = 0,046), nutritional status (p = 0,034), and environment (p = 0,047) with the occurrence of ARI in toddlers at Pratama Colibri Clinic, Colomadu, Karanganyar.

**Keywords:** Toddler, Risk Factors, ARI

## Introduction

Acute Respiratory Infection (ARI) remains a significant public health concern that demands attention, particularly in various developing countries like Indonesia, where this acute ailment poses a threat of mortality, especially among toddlers. The World Health Organization (WHO) has estimated that in developing nations like Indonesia, the mortality rate among toddlers exceeds 40 per 1000 live births. A significant portion, ranging from 15% to 20% annually, is attributed to Acute Respiratory Infections (ARI). There has been an observed rise in the

number of deaths among children under five due to ARI. In 2019, the ARI-related mortality rate in toddlers was 0.12%, with approximately 551 deaths recorded among 468,172 identified ARI cases. This figure increased to 0.16% in 2020, resulting in around 498 deaths from 309,838 documented ARI cases in toddlers (Nurbariyah and Adriyani, 2022).

The prevalence of ISPA in Indonesia that occurred in the five highest provinces in 2020 were: West Nusa Tenggara 6,38%, Bangka Belitung Island 6,05%, South Kalimantan 5,53%, Central Sulawesi 5,19%, and West Java 4,62%, while Central Java Province 3,61% of cases. From the data on the number of toddler cases found and handled in 2017 as many as 462 cases, in 2018 as many as 1,198 cases, in 2019 as many as 1,970 cases, in 2020 as many as 1,134 cases, and in 2021 as many as 1,315 cases (Arifa, 2020).

Data from the Population and Civil Registration Office of Karanganyar Regency reported a population in 2021 of 935,771 people. The distribution of the population is still uneven. Population density in urban areas is generally higher compared to rural areas. The largest population is in Karanganyar District at 86,363 people and the most populous population is in Colomadu District with a density of 4,313 people per km2. This situation is because Colomadu is an urban area adjacent to Solo City where services and facilities are more complete and easy to reach while Jenawi District is the district with the lowest population of 28,201 people and the lowest population density of 503 people per km2. This study was intended to determine the risk factors for ARI in toddlers at Pratama Colibri Clinic, Colomadu, Karanganyar.

**Literature Review**

*Definition of ISPA*

Acute Respiratory Infection (ARI) is an infection that involves the upper respiratory organs and lower respiratory organs. ISPA is an acute respiratory infection due to the entry of germs/microorganisms into the body which lasts for 14 days with complaints of cough, runny nose, shortness of breath with or without fever. ARI is divided into two, namely the upper respiratory tract such as rhinitis, pharyngitis and otitis and the lower respiratory tract such as laryngitis, bronchitis, bronchiolitis and pneumonia (WHO, 2020).

Acute Respiratory Infection (ARI) consists of several definitions, namely infection is the entry of microorganisms into the human body and multiplying, causing disease. The respiratory tract is the organ from the nose to the alveoli along with the adnexa organs such as the sinuses, middle ear cavity and pleura. Acute infection is an infection that lasts up to 14 days. The limit of 14 days is taken to indicate an acute process although for some diseases that can be classified as ARI, this process can last more than 14 days. Meanwhile, pneumonia is an acute infectious process that affects lung tissue (alveoli). Pneumonia occurring in children often coincides with an acute infectious process in the bronchi called Broncho pneumonia. Based on the definition above, ARI is an acute infectious process lasting 14 days, which is caused by microorganisms and attacks one or more parts of the respiratory tract, starting from the nose (upper tract) to the alveoli (lower tract), including the adnexal tissue. , such as sinuses, middle ear cavity and pleura (Prabowo, 2018).

*ARI Classification*

The classification of ARI diseases is divided into two age groups, 2 months and 2 to 5 years, namely:

1. The 2 month age group consists of 2 types, namely:
   a. Severe Pneumonia, if the cough is accompanied by rapid breathing (>60 times/minute) with or without pulling the lower part of the chest into the kuta. Besides that, there are several clinical signs that can be grouped as danger signs such as lack of ability to drink, seizures, decreased consciousness, stridor, wheezing and fever.
   b. Not pneumonia, if you have a cold cough without being accompanied by rapid breathing (>60 times/minute) and without inhaling the lower chest wall.
2. The age group 2 months-5 years, consists of 3 types, namely:
   a. Severe pneumonia, if the cough is accompanied by shortness of breath, namely there is a pulling of the lower chest wall inward when the child inhales
   b. Ordinary pneumonia, coughing with signs of no inward pulling of the chest wall, but accompanied by rapid breathing (>50 times/minute for ages 2-12 months, and >40 times/minute for ages 12 months to 5 years)
   c. Not pneumonia, a normal cold cough and no inward pulling of the lower chest wall and no rapid breathing (Santi, 2021).

**Risk Factors**

***Child Characteristics***

*Age*

A person's age influences a person's ability to comprehend and think patterns. The older you get, the more your understanding and thinking patterns will develop, so that the knowledge you gain will get better. Several things regarding education can influence a person's preventive behavior. Education can increase individuals' understanding of information about health. This will cause individuals to be more alert to check themselves before the disease occurs. Education can also increase a person's motivation. Someone who is motivated will be more enthusiastic about adopting a healthy lifestyle (Suyami, 2016).

The following are the age categories:

1) Toddler period = 0 – 5 years
2) Childhood = 5 – 11 years
3) Early adolescence = 12 – 16 years
4) Late adolescence = 17 – 25 years
5) Early adulthood = 26 – 35 years
6) Late adulthood = 36 – 45 years
7) Early old age = 46 – 55 years
8) Late old age = 56 – 65 years
9) Seniors = > 65 years

Nutritional Status

A person's nutritional status can also influence susceptibility to infection, and vice versa. Toddlers are a group that is very vulnerable to various health problems so that if they are malnourished they will be very susceptible to disease infections, one of which is pneumonia (Ministry of Health, 2011). Toddlers with poor nutrition will be more susceptible to ARI compared to toddlers with normal nutrition, due to their lack of immune system. Infectious diseases themselves will cause toddlers to have no appetite and result in malnutrition. In

conditions of malnutrition, toddlers are more susceptible to severe ISPA and the attacks last longer (Mei Elyana, 2019).

*Environment*

Unsanitary physical conditions in the house are one of the triggers for ARI. A house that is said to meet health requirements must have indoor air quality, namely the air in a residential building occupied by people with different health conditions for at least one hour. The air quality in the house affects the health condition of the occupants. The risk of health problems can be exacerbated by cigarette smoke, chemicals, room cleaning materials, and pollutants from outside the room. Indoor air pollution is said to be more dangerous because the source is close to exposed humans. In developing areas, indoor air pollution problems generally occur due to human activities indoors without adequate ventilation or ventilation (Rahmi Pramulia Fitri, Iyang Maisi Fitriani, 2020).

*Economy*

The family's high socio-economic status is due to education, the type of work they are engaged in, their income and family conditions are categorized as high, where some of the family are high school graduates, the type of work they are engaged in is mostly self-employment so the income earned is also more than the Pekanbaru UM limit and family conditions are also including prosperity. Education, type of work, income and high family conditions have an impact on various things including the health of the family, there is a difference in the proportion of families with low socio-economic status and high socio-economic status on the incidence of pneumonia in toddlers (p=0.015). Where the risk of ARI in children under five from low socio-economic family groups is 1.75 times greater than from families with high socio-economic levels (Ilebar Syafarilla, Reni Zulfitri, 2018).

*Parental Knowledge*

Most parents of toddlers are influential and only a small number of parents of toddlers have good knowledge about ISPA. This is because there are still many parents of toddlers who have low education and lack information about ISPA. The results of bivariate analysis using person correlation show that there is a significant relationship between parental knowledge and the incidence of ISPA in toddlers. For parents who have less knowledge, their toddlers have a risk of ARI disease 4.33 times compared to those who have good knowledge. These results prove the hypothesis that there is a relationship between parental knowledge and the incidence of ISPA in toddlers. It was found that there was a relationship between parental knowledge about coping with the incidence of ISPA. The level of knowledge is very important for a person to have, because the level of knowledge is an insight that will cause changes in a person's attitudes and actions in overcoming problems that arise in life (Nurwahidah, 2019).

**Methods**

The research methods used are quantitative research, analytical approach, observational research design, with cross-sectional studies conducted by distributing questionnaires to research respondents. The population in this study was all patients under five at the colibri primary clinic in 2022. the samples in this study were 50 samples using convenience sampling. bivariate analysis using *chi-square* is to determine the relationship of independent variables (parental knowledge, nutritional status, environment, economy) with dependent variables

(incidence of ari toddlers). data analysis was performed with spss for windows release 17,5 computer software with a significant level of α=0,05 (95% confidence level).

## Results

### *Variable Frequency Distribution at Pratama Colibri Clinic*

Based on the research sample of 50, the results of the variable frequency distribution can be obtained as follows:

*Mother's Knowledge*

Table 1

*Distribution of Frequency of Maternal Knowledge*

| Mother's Knowledge | Frequency | Percentage (%) |
|---|---|---|
| Less | 33 | 66 |
| Good | 17 | 34 |
| **Sum** | **50** | **100** |

Based on Table 1, it is known that most of the mothers' knowledge of ARI is still lacking, namely as many as 33 people (66%), while mothers who have good knowledge of ARI are 17 people (34%).

*Nutritional Status*

The nutritional status of toddlers can be seen from toddler weight, immunization status, and exclusive breastfeeding in toddlers

*Toddler Weight*

Table 2

*Frequency Distribution of Toddler Body Weight*

| Toddler Weight | Frequency | Percentage (%) |
|---|---|---|
| Less | 31 | 38 |
| Good | 19 | 62 |
| **Sum** | **50** | **100** |

Based on Table 2, it is known that most toddlers are underweight, namely as many as 31 people (62%), while those who have good weight as many as 19 people (38%).

*Immunization on Balita*

Table 3

*Distribution of Immunization Frequency in Toddlers*

| Immunization | Frequency | Percentage (%) |
|---|---|---|
| Complete | 28 | 56 |
| Incomplete | 22 | 44 |
| **Sum** | **50** | **100** |

Based on Table 3, it is known that 28 people under five who have received complete immunization (56%) and 22 incomplete people (44%).

*Exclusive Breastfeeding to Toddler*

Table 4

*Frequency Distribution of Exclusive Breastfeeding to Toddlers*

| Exclusive breastfeeding | Frequency | Percentage (%) |
|---|---|---|
| Less | 19 | 38 |
| Good | 31 | 62 |
| **Sum** | **50** | **100** |

Based on Table 4, it is known that most toddlers have received exclusive breastfeeding well, namely as many as 31 people (62%), while those who are still less as many as 19 people (38%).

*Environment*

Environmental factors can be seen from air pollution, the number of family members in one house, and the number of family members who smoke.

*Air Pollution inthe Environment*

Table 5

*Frequency Distribution of Air Pollution in the Environment*

| Environmental Conditions | Frequency | Percentage (%) |
|---|---|---|
| Less | 29 | 58 |
| Good | 21 | 42 |
| **Sum** | **50** | **100** |

Based on Table 5, it is known that most respondents have unfavorable environmental conditions, namely as many as 29 people (58%), while those with good environmental conditions as many as 21 people (42%).

*Number of members in one house*

Table 6

*Frequency Distribution of Number of Members in One House*

| Number of Family Members | Frequency | Percentage (%) |
|---|---|---|
| 1-3 | 20 | 40 |
| 4-5 | 30 | 60 |
| **Sum** | **50** | **100** |

Based on Table 6, it is known that most respondents have the number of family members in one house (4-5 people), which is 30 people (60%), while those who have the number of family members in one house (1-3 people) are 20 people (40%).

*Analysis of the Number of Family Members WhoSmoking*

Table 7

*Frequency Distribution of Number of Family Members Smoking*

| Number of Family Members Smoking | quency | ercentage (%) |
|---|---|---|
| ≥ 2 | 17 | 34 |
| < 2 | 33 | 66 |
| **Sum** | **50** | **100** |

Based on Table 7, it is known that most respondents have the number of family members who smoke (< 2 people), which is 33 people (66%), while those who have the number of family members who smoke (≥ 2 people) as many as 17 people (34%).

*Economy*

Economic factors can be seen from the work of parents and family income per month

*Employment of Parents of Toddlers*

Table 8

*Frequency Distribution of Work of Parents of Toddlers*

| Employment Status | Frequency | Percentage (%) |
|---|---|---|
| Civil servants | 10 | 20 |
| TNI | 15 | 30 |
| Housewives | 12 | 24 |
| Laborer | 5 | 10 |
| Private | 8 | 16 |
| **Sum** | **50** | **100** |

Based on Table 8, it is known that most respondents work as TNI, Housewives, and Civil Servants.

*Family Income Per Month*

Table 9

*Frequency distribution of family income per month*

| Income | Frequency | Percentage (%) |
|---|---|---|
| >1,000,000 | 10 | 20 |
| 1.000.000-5.000.000 | 25 | 50 |
| <5,000,000 | 15 | 30 |
| **Sum** | **50** | **100** |

Based on Table 7, it is known that most respondents have a monthly income of 1,000,000-5,000,000, which is 25 people (50%), while those who have a total income of < 5,000.000 as many as 15 people (30%), and > 1,000,000 as many as 10 people (20%).

**Variable Bivariate Analysis at Colibri Primary Clinic**

*Mother's Knowledge*

Table 10

*Cross-Table between Mother's Knowledge and the Incidence of Toddler ARI*

| Maternal Knowledge Factor | ARI Occurrence | | | | Sum | | P value |
|---|---|---|---|---|---|---|---|
| | It doesn't hurt | | Sick | | | | |
| | n | % | n | % | n | % | |
| Good | 7 | 58 | 13 | 34 | 20 | 40 | 0,046 |
| Bad | 5 | 42 | 25 | 66 | 30 | 60 | |
| **Sum** | **12** | **100** | **38** | **100** | **50** | **100** | |

Based on the *chi square test*, a value of p = 0,046 (p < 0,05) was obtained, this shows that there is a relationship between maternal knowledge factors and the incidence of ARI at Pratama Colibri Clinic, Colomadu, Karanganyar.

*Nutritional Status*

Table 11

*Cross Table between Nutritional Status and Incidence of ARI for Toddlers*

| Nutritional Status | ARI Occurrence | | | | Sum | | P value |
|---|---|---|---|---|---|---|---|
| | It doesn't hurt | | Sick | | | | |
| | n | % | n | % | n | % | |
| Good | 8 | 67 | 10 | 26 | 18 | 36 | |
| Bad | 4 | 33 | 28 | 74 | 32 | 64 | 0,034 |
| **Sum** | **12** | **100** | **38** | **100** | **50** | **100** | |

Based on the *chi square test*, a value of p = 0,034 (p < 0,05) was obtained, this shows that there is a relationship between nutritional status and the incidence of ARI in the Colomadu Karanganyar area.

*Environment*

Table 12

*Cross Table between Environment and Incidence of Toddler ARI*

| Environmental Factors | ARI Occurrence | | | | Sum | | P value |
|---|---|---|---|---|---|---|---|
| | It doesn't hurt | | Sick | | | | |
| | n | % | n | % | n | % | |
| Good | 9 | 75 | 16 | 42 | 20 | 40 | |
| Bad | 3 | 25 | 22 | 58 | 30 | 60 | 0,047 |
| **Sum** | **12** | **100** | **38** | **100** | **50** | **100** | |

Based on the *chi square test*, a value with niai p = 0,047 (p < 0,05) was obtained, this shows that there is a relationship between the environment and the incidence of ISPA in the Colomadu Karanganyar area.

*Economy*

Table 13

*Cross Table between Economic Factors and the Incidence of Toddler ARI*

| Economic Factors | ARI Occurrence | | | | Sum | | P value |
|---|---|---|---|---|---|---|---|
| | It doesn't hurt | | Sick | | | | |
| | n | % | n | % | n | % | |
| Good | 5 | 42 | 12 | 32 | 17 | 34 | |
| Bad | 7 | 58 | 26 | 68 | 33 | 66 | 0,096 |
| **Sum** | **12** | **100** | **38** | **100** | **50** | **100** | |

Based on the *chi square test*, a value of p = 0,096 (p < 0,05) was obtained, this shows that there is no relationship between economic factors and the incidence of ISPA in the Colomadu Karanganyar area.

**Discussion**

*Relationship between Mother's Knowledge and ARI Incidence at Pratama Colibri Clinic, Colomadu, Karanganyar*

Based on the chi square test, a value of p = 0,046 (p < 0,05) was obtained, this shows that there is a relationship between maternal knowledge factors and the incidence of ARI at Pratama Colibri Clinic, Colomadu, Karanganyar.

Consistent with the study conducted by Wulaningsih and Hastuti (2018), their research yielded a p-value of 0.031, indicating a notable correlation between parental awareness of Acute Respiratory Infections (ARI) and the occurrence of ARI in toddlers in Dawungsari Village, Pegandon District, Kendal Regency.

Most parents have less knowledge and only a small percentage of mothers under five have good knowledge about ARI. This is because there are still many parents of toddlers who have low education and lack of information about ARI. For mothers who are less knowledgeable, their toddlers are at risk of ARI compared to those who have good knowledge.

Parents' knowledge about ARI disease is the main capital for the formation of good habits for the quality of children's health. Knowledge or cognitive is a domain that is very important for the formation of one's actions (over behavior). Based on knowledge, awareness and a positive attitude that will last a long time and be permanent, mothers who have good knowledge about ARI are expected to have a positive impact on children's health because the risk of ARI events in children can be eliminated to a minimum.

*Relationship between Nutritional Status and the Incidence of ARI at Pratama Colibri Clinic, Colomadu, Karanganyar*

Based on the chi square test, a value of p = 0,034 (p < 0,05) was obtained, this shows that there is a relationship between nutritional status and the incidence of ARI in the Colomadu Karanganyar area.

This is in line with research conducted by Yanti & Sari (2018) the results of the chi-square statistical test obtained a p value of < 0,001, meaning that there is a relationship between nutritional status and the incidence of ARI in children under 1-5 years old at the Sukaraja Nuban Health Center in 2018. The results of the analysis also obtained the value of OR = 10,4 which means that toddlers with less nutritional status have a 10.4 times greater chance of experiencing ARI than children under five with good nutritional status.

Poor nutritional status makes toddlers more susceptible to infection, toddlers who have normal nutrition should have a better immune system than toddlers who have less nutrition, because toddlers with good nutrition get nutritious food intake, get complete immunization and exclusive breastfeeding for at least 6 months.

*Environmental Relationship with ARI Incidence at Pratama Colibri Clinic, Colomadu, Karanganyar*

Based on the chi square test, a value with niai p = 0,047 (p < 0,05) was obtained, this shows that there is a relationship between the environment and the incidence of ISPA in the Colomadu Karanganyar area.

This aligns with Sofia's (2018) research findings, indicating that factors such as household air humidity (p = 0.039), family members' smoking habits indoors (p = 0.001), and the practice of using mosquito coils indoors (p = 0.003) are identified as risk factors contributing to the occurrence of Acute Respiratory Infections (ARI) among toddlers within the working area of Puskesmas Ingin Jaya, Aceh Besar Regency.

There is still a lot of garbage that is thrown carelessly around the landfill, but the pollution of the air around the landfill causes environmental health to be disrupted, including the air quality in the house around the landfill, . Occupancy density in one house is also a factor causing ARI, houses with occupancy that does not meet the requirements filled by more than 4 people will very quickly transmit to others through the air. From the results of the research conducted, it was also obtained that there are still many family members who smoke.

Generally known that, exposure to cigarette smoke greatly affects the incidence of ARI, because cigarettes smoked by smokers contain chemicals such as tar, nicotine and other ingredients that are very dangerous for active smokers and passive smokers, toddlers can be exposed to cigarettes from one of their family members will suffer from Acute Respiratory Infection (ARI).

Economic Relationship with ARI Incidence at Pratama Colibri Clinic, Colomadu, Karanganyar
Based on the chi square test, a value of p = 0,096 (p < 0,05) was obtained, this shows that there is no relationship between economic factors and the incidence of ISPA in the Colomadu Karanganyar area.

The results of this research similar with Syafarilla and Zulfitri (2018) which stated that the results of the study obtained a value of p = 0,123, which means there is no relationship between family socioeconomic status and the incidence of ARI in toddlers.

There are several factors that influence the absence of a relationship between family socioeconomic status and the incidence of ARI in toddlers, namely health behavior, toddler age and government support. Themost jobs are the TNI as many as 15 people and the lowest is the rush h as many as 5 people, the income obtained is also more than the limit of MSEs in the city of KAranganyar and family conditions are also including prosperous.

Education, type of work, income and family conditions that are already high, have an impact on various things including the health of his family. This high level of income is because most of the population has a permanent job with a job status that is influenced by a good level of family education will result in a better family income as well, where the family can meet the basic needs of their toddlers.

**Conclusion**

1. There is a relationship between maternal knowledge and the occurrence of ARI in toddlers at Pratama Colibri Clinic, Colomadu, Karanganyar (p = 0,046 < 0,05 ).
2. There is a relationship between nutritional status and the occurrence of ARI in toddlers at Pratama Colibri Clinic, Colomadu, Karanganyar (p = 0,034 < 0,05 ).
3. There is a relationship between the environment and the occurrence of ARI in toddlers at Pratama Colibri Clinic, Colomadu, Karanganyar (p = 0,047 < 0,05 ).
4. There is no relationship between the economy and the occurrence of ARI in toddlers at Pratama Colibri Clinic, Colomadu, Karanganyar (p = 0,096 > 0,05 ).

**Sugesstion**

1. Health workers can increase the intensity of counseling to all communities, especially the elderly about the prevention and control of hypertension and activate the role of the elderly in existing PTM Posbindu activities.
2. For the community to increase awareness and awareness of their health conditions by screening early blood sugar levels, applying a healthy and nutritionally balanced diet.

**Theoretical and Contextual Significance of the Study**

This study holds substantial theoretical and contextual significance by contributing to the existing body of knowledge on Acute Respiratory Infections (ARI) in toddlers, particularly in developing regions like Indonesia. Theoretically, the findings reinforce the importance of maternal knowledge, nutritional status, and environmental conditions as key determinants of ARI, aligning with prior research (Yanti & Sari, 2018; Sofia, 2018). By confirming these associations through statistical analysis ($p < 0.05$), the study validates established frameworks that link socio-environmental and behavioral factors to pediatric respiratory health. Contextually, the research addresses a critical public health gap in Karanganyar, where urbanization and high population density exacerbate ARI risks. The identification of modifiable risk factors—such as poor indoor air quality and low maternal awareness—provides actionable insights for local health interventions. Policymakers and clinicians can leverage these findings to design targeted education programs and environmental reforms, ultimately reducing ARI prevalence in similar high-risk communities. This study thus bridges theoretical understanding with practical applications, emphasizing its relevance in both academic and public health spheres.

**References**

Anggraini, S., Amelia Sintha, K., & Suaka Insan Banjarmasin, S. (2018). Faktor-Faktor Yang Mempengaruhi Kejadian ISPA pada Balita di Puskesmas Alalak Selatan Banjarmasin.

Cinta, A. (2018). Hubungan Tingkat Pendidikan Ibu dengan Kejadian Infeksi Saluran Pernapasan Atas pada Balita.

Chandra. (2018). Hubungan Pendidikan dan Pekerjaan Ibu dengan Upaya. 11–15.

Umboh, E., Wilar, R. M. (2015). Pengetahuan Ibu Mengenai Manfaat ASI pada Bayi. 210–214.

Garmini, R., & Purwana, R. (2020). Polusi Udara dalam Rumah Terhadap Infeksi Saluran Pernafasan Akut pada Balita di TPA Sukawinatan Palembang. 19(1), 1–6.

Hardianti, S., & Muhammadiyah. (2021). Hubungan Kepadatan Hunian dengan Kejadian ISPA pada Balita. 2(2), 1111–1115.

Syafarilla, I., Zulfitri, S. W. (2018). Hubungan Status Sosial Ekonomi Keluarga dengan Kejadian ISPA pada Balita.

Magdaleni, A. R., Irawan, D. B., & Sukemi, S. (2020). Hubungan Berat Badan Lahir Rendah , Status Gizi dan Pemberian ASI Eksklusif dengan Penyakit Ispa Pada Balita Usia 6 – 23 Bulan di Pusat Kesehatan Masyarakat Karang Asam, Kota Samarinda Pada Tahun 2018 Relationship Of Low Birth Weight , Nutritional Status. 05(2), 123–131.

Mei Elyana, A. C. (2019). Hubungan Frekuensi ISPA dengan Status Gizi Balita. 1–12.

Nurwahidah, A. H. (2019). Jurnal Keperawatan Terpadu (Integrated Nursing Journal). 1(2), 9–16.

Prabowo, A. B. (N.D.). Sistem Pakar Untuk Mendiagnosa Penyakit Infeksi Saluran Pernafasan Akut (ISPA) Berbasis Web. 1–6.

Rahman, A., & Nur, A. F. (N.D.). Hubungan Pemberian ASI Eksklusif dengan Kejadian Penyakit Infeksi Saluran Pernafasan Akut pada Anak Balita di Wilayah Kerja Puskesmas Managaisaki. 2018, 33.

Santi, N. L. P. A. D. (2021). Hubungan Kualitas Fisik Rumah dengan Penderita ISPA di Desa Tenganan Kecamatan Manggiskabupaten Karangasem Tahun 2021. Kesehatan Lingkungan, 5–24. Http://Repository.Poltekkes-Denpasar.Ac.Id/7683/

Sofia, S. (2018). Faktor Risiko Lingkungan dengan Kejadian ISPA pada Balita di Wilayah Kerja Puskesmas Ingin Jaya Kabupaten Aceh Besar. Action: Aceh Nutrition Journal, 2(1), 43. Https://Doi.Org/10.30867/Action.V2i1.35

Sunarni, N. (2017). Hubungan Status Gizi dengan Kejadian ISPA pada Balita di Wilayah Kerja Puskesmas Margaharja Sukadana Ciamis.

WHO. (2020). Pusat Pengobatan Infeksi Saluran Pernapasan Akut Berat Pusat Pengobatan Infeksi Saluran Pernapasan Akut Berat.

Wulaningsih, I., & Hastuti, W. (2018). Hubungan Pengetahuan Orang Tua Tentang ISPA dengan Kejadian ISPA pada Balita di Desa Dawungsari Kecamatan Pegandon Kabupaten Kendal. Jurnal Smart Keperawatan, 5(1), 90. Https://Doi.Org/10.34310/Jskp.V5i1.25

Yanti, D. E., & Sari, N. (2018). Analisis Faktor yang Berhubungan dengan Kejadian Infeksi Saluran Pernafasan Akut (ISPA) pada Anak Balita Usia 1- 5 Tahun di Wilayah Kerja Puskesmas Sukaraja Nuban Kabupaten Lampung Timur.