
Determinants Of The Incidence Of Acute Respiratory Infections (Ari) In Toddlers In The Working Area Of The Health Centers Simpang Pandan, Tanjung Jabung Timur Regency In 2022

Fitria Eka Putri¹⁾, Cindy Syah Putri²⁾, Rumita Ena Sari³⁾, Hubaybah⁴⁾, Adelina Fitri⁵⁾, Oka Lesmana⁶⁾
^{1,2,3,4,5,6)} Fakultas Kedokteran dan Ilmu Kesehatan, Universitas Jambi

*Corresponding Author

Email : fitriaekaputri@unja.ac.id

Abstract

Disease (acute respiratory infection) Ari is one type of Environmental-based infectious diseases. In Indonesia, cases of Ari always ranks first cause of infant mortality and the prevalence of Ari disease in Jambi province amounted to 3.2% and in Tanjung Jabung Timur amounted to 4.44%. ISPA in East Tanjung Jabung regency is a disease trend every year. In general, the risk factors for ARI are physical environmental factors, host/host factors, agent factors and social environmental factors. The type of research used is quantitative research with cross sectional design. This study aims to find the relationship between the variable occupancy density, floor type, wall type, ceiling of the house, lighting, smoking family members, maternal knowledge with the incidence of ARI in toddlers. The population in this study were toddlers in the Working Area of the Simpang Pandan Health Center and the sample of this study was 103. Sampling technique in this study using Stratified Random Sampling technique. How data collection is done by interviews, observations, and measurements using tools. The results showed that there is a relationship between : occupancy density (P - value=0.003 and PR = 1.976), floor type (p= 0.014 and PR = 1.874), wall type (p=0.020 and PR = 1.852) lighting (p=0.018 and PR = 1.790), smoking family members (p= 0.020 and PR = 1.852) and maternal knowledge (P-value=0.035 and PR = 1.678) with acute respiratory infections in toddlers. While the variables that are not related to the incidence of ARI in this study is the variable ceiling of the House (p-value = 0.968 and PR = 1.080). It is recommended that family members do not smoke in the house, pay attention to the residential density of the House, home lighting, and the type of floor in the House.

Keywords: Acute respiratory Tract Infection (Ari), Toddlers, Health Centers, Simpang Pandan

INTRODUCTION

Health is a human right and an investment for the successful development of the nation. For this reason, a comprehensive and sustainable health development is organized. The purpose of the National Health System is the implementation of health development by all the potential of the nation, both public, private and government synergistically, and have a good use so as to achieve the highest degree of Public Health. Environmental-based disease is a disease phenomenon that occurs in a community group, which is related, rooted or has a close relationship with one or more components of the environment in a space where the community lives or activities for a certain period of time. Acute) Ari is one type of Environmental-based infectious diseases. Acute respiratory infection (Ari) is an acute infection that affects one or more parts of the airway from the nose to the alveoli including the adnexa (sinuses, middle ear cavity, pleura).

According to the World Health Organization (WHO) approximately 13 million children under five in the world die each year and most of these deaths are found in developing countries, where Ari is one of the leading causes of death by killing \pm 4 million children under five every year. In Indonesia, Ari cases always rank first in the cause of infant death. Based on Riskesdas 2018, the national prevalence of ARI is 9.3%. A total of five provinces with the highest prevalence of Ari, namely Nusa Southeast East 15.4%, Papua 13.1%, West Papua 12.3%, Banten 11.9%, and Bengkulu 11.8%. The population with the highest Ari occurs in the age group of 1-4 years, which is 13.7%. Basic Health Research Data (RISKESDAS, 2018). Based on data from Riskesdas results in 2018,

the prevalence of Ari disease in Jambi province amounted to 3.2% of the number of household members examined at the time of RISKESDAS, where Ari patients suffered the most in the age group 1-4 years. The 3 regencies / cities with the highest prevalence of ARI in Jambi province are Kerinci (6.15%), Jambi city (4.92%), and Bungo (4.47%). While the regencies / cities with the lowest prevalence of Ari are Merangin Regency (4.09%), Sungai Penuh City (3.74%), and Tanjung Jabung Timur regency (2.34%). In general, the risk factors for ARI are physical environmental factors, host/host factors, agent factors and social environmental factors. Agent factors are bacteria, viruses and fungi. Physical environmental factors include, air pollution in the house, the physical condition of the house such as occupancy density, floor type, wall type, home lighting. While social factors include parental work, maternal education, and smoking behavior of family members. human behavior is a major factor in determining the degree of Health. Poor public behavior can lead to various diseases, although basic sanitation facilities have been available, for example the occurrence of Ari disease. One example is the smoking behavior of family members in the House will increase the occurrence of Ari cases in toddlers, it is in accordance with research William (2015) which states that smoking in the house is one of the significant factors in the incidence of Ari including toddlers. While the 2018 RISKESDAS Data for the prevalence of Ari disease in East Tanjung Jabung regency amounted to 3.72% of 1324 respondents examined, and for the prevalence of ARI in toddlers in East Tanjung Jabung regency amounted to 4.44% of 109 toddlers weighed. Meanwhile, data from the East Tanjung Jabung District Health Office showed that the number of Ari cases in toddlers in 2017 was 14,303 cases, in 2018 as many as 14,109 cases and in 2019 as many 18,362 cases. The increase in cases at 3 years can be caused by conditions that do not meet the health requirements so that it affects the health of its residents. The House must have sufficient ventilation and home humidity.

ISPA in East Tanjung Jabung regency is a disease trend every year. One of the health centers in Tanjung Jabung Timur area is Simpang Pandan Health Center. From 17 health centers in East Tanjung Jabung regency, Health Center Simpang Pandan was chosen because Ari disease has always been in the top 10 in the pain rate for 2 consecutive years (Tanjung Jabung Timur Health Office, 2019). Based on data obtained in 2017 ARI cases at the Simpang Pandan Health Center as many as 437 patients. While new cases of ARI in 2018 as many as 367 patients and in 2019 as many as 591 patients. Simpang Pandan Health Center has 8 villages and 1 Kelurahan where the highest ISPA cases are in the Working Area of Simpang Pandan Health Center as many as 16 patients.

RESEARCH METHODS

The type of research used is quantitative research with cross sectional design. looking for relationships between independent (free) variables "occupancy density, floor type, Wall Type, House ceiling, lighting, smoking family members, maternal knowledge."and the dependent variable (bound)"incidence of ARI on Ballita" research samples were taken using Stratified Random Sampling technique research target.9 the population in this study were toddlers in the Working Area of Simpang Pandan Health Center.

A sample is a part based on a population that represents a population.10 sampling is done by using Stratified Random Sampling technique, the sampling technique is taken from 1 Village consists of 8 villages in the working area Simpang Pandan Health Center which has complete data and has the highest ISPA cases.

Research instruments are tools or facilities used by researchers in collecting data so that the work is easier and the results are better (careful, complete and systematic) so that it is easier to process (Saryono, 2011). The instruments in this study are observation, questionnaire and measurement.

Data collection was conducted using questionnaires and observations by researchers directly to the primary caregiver of toddlers on the condition of the home environment, among others, the ceiling of the house, smoking habits, floor type, type of Wall. As well as measurements of occupancy density and lighting measurements.

RESULTS AND DISCUSSION

The analysis was conducted in two stages, namely univariate analysis to determine the frequency distribution of each variable, both independent and dependent variables. Then proceed with bivariate analysis to determine the relationship between independent variables and dependent variables.

Table 1. Characteristics of respondents based on the level of work

Respondent Jobs	Frequency	Percentage %
PNS	24	23,3
Self-employed	12	11.7
Petani	11	10,7
Housewife	56	54.4
Total	103	100 %

Based on Table 1 above shows that the level of employment of the most respondents are housewives as many as 56 people (54.4%) and the least are farmers 11 people (10.7%).

Table 2. Characteristics Of Respondents Based On Age

Age Of Respondent	Frequency	Percentage (%)
17-19 year	9	8,7
20-35 year	92	89,3
36 year	2	1,9
Total	103	100

Based on Table 2 above shows that most respondents aged 20-35 years as many as 92 people (89.3 %).

Table 3. Age Characteristics Of Toddlers

Toddler Age	Frequency	Percentage (%)
0-5 mounth	1	1,0
5-11 mounth	7	6,8
12-23 mounth	17	16,5
24-35 mounth	24	23,3
36-59 mounth	54	52,4
Total	103	100

Based on Table 3 above shows that the age of the most toddlers between 36-59 months amounted to 54 toddlers (52.4%) and the age of the least toddlers between 3-5 months amounted to 1 toddler (1.0 %).

Table 4. Toddler Weight Characteristics

Min-max	Mean	95%CI	SD	Median
4-21kg	13	(12,66-14,12)	3,73	13

Based on Table 4 above, the average body weight of toddlers is 13 kg.

Table 5. Relationship of sleep occupancy density with the incidence of Ari

Variabel	The incidence of ARI in toddlers				Total		PR (95% CI)	P-Value
	Yes		No		n	%		
	n	%	n	%				
Room Occupancy Density								
Unqualified, < 8m for 2 people	28	63,6	16	36,4	44	100	1,976 (1,282-3,045)	0,003*
Qualified, >= 8m for 2 people	19	32,2	40	67,8	59	100		

Based on Table 5 above shows that the proportion of ARI in toddlers is greater in the variable occupancy density of rooms that do not meet the requirements (63.6%) compared with the eligible (32.2%). From the results of bivariate analysis obtained occupancy density of unqualified rooms have a risk of Ari greater than 1.98 times the occupancy density of eligible rooms and proved to be significantly related (p-value = 0.003).

Table 6. Floor type relationship with ISPA incidence in toddlers

Types Of Flooring	The incidence of ARI in toddlers				Total		PR (95% CI)	P-Value
	Yes		No		n	%		
	n	%	n	%				
Did Not Meet conditions (ground floor)	34	56,7	26	43,3	60	100	1,874 (1,131-3,106)	0,014*
Qualified (mester floor, ceramic)	13	30,2	30	69,8	43	100		

Based on Table 6 above shows that the proportion of ARI in toddlers is greater in the variable type of floor that does not meet the requirements (56.7%) compared with the eligible (30.2%). From the results of bivariate analysis found that the type of floor that does not meet the requirements has a greater risk of Ari 1.874 times than the type of floor that meets the requirements and proved to be significantly related (p-value = 0.014).

Table 7. The relationship between the type of Wall with the incidence of ARI

Variabel	The incidence of ARI in toddlers				Total		PR (95% CI)	P-Value
	yes		No		N	%		
	n	%	n	%				
Types Of Walls								
Unqualified (wooden wall)	35	55,6	28	44,4	63	100	1,852 (1,098-3,122)	0,020*
Qualified (stone wall)	12	30,0	28	70,0	40	100		

Based on Table 7 above shows that the proportion of ARI in toddlers is greater in the variable type of wall that does not meet the requirements (55.6%) compared with the eligible (30.0%). From the results of bivariate analysis found that the type of wall that does not meet the requirements has a risk of Ari greater than 1.852 times than the type of wall that meets the requirements and proved to be significantly related (p-value = 0.020).

Table 8. The relationship between the ceiling of the House with the incidence of Ari

Ceiling Of The House	The incidence of ARI in toddlers				Total		PR (95% CI)	P-Value
	Yes		No		n	%		
	n	%	n	%				
Did Not Meet conditions (none ceiling)	38	46,3	44	53,7	82	100	1,081 (438-3,029)	0,968
Qualified (there is a ceiling)	9	42,9	12	57,1	21	100		

Based on Table 8 above shows that the proportion of ARI in toddlers is greater on the ceiling of the house that does not meet the requirements (46.3%) compared with the eligible (42.9%). From the results of bivariate analysis found that the ceiling of the house that does not meet the requirements has a risk of Ari greater than 1.081 times the ceiling of the house that meets the requirements, but has not been shown to be significantly related (p-value = 0.968).

Table 9. The relationship between lighting and the incidence of Ari

Lighting	The incidence of ARI in toddlers				Total		PR (95% CI)	P-Value
	Yes		No		n	%		
	n	%	n	%				
Did Not Meet terms, <60 or >60 lux	32	57,1	24	42,9	56	100	1,790 (1,265-6,395)	0,018*
Qualified = 60 lux	15	31,9	32	68,1	47	100		

Based on Table 9 above shows that the proportion of ARI in toddlers is greater in the lighting variables that do not meet the requirements (57.1%) compared with those that meet the requirements (31.9%). From the results of bivariate analysis found that unqualified lighting has a risk of Ari greater than 1,790 times than qualified lighting and proved to be significantly related (p-value = 0.018).

Chart 10. Relationship between smoking family members with the incidence of Ari

	The incidence of ARI in toddlers				Total		PR (95% CI)	P-Value
	Yes		No		n	%		
	n	%	n	%				
Family Smoking								
Yes Smoking	35	55,6	28	44,4	64	100	1,852	0,018*
No Smoking	12	30,0	28	70,0	40	100	(1,260-6,751)	

Based on Table 10 above shows that the proportion of ARI in children under five is greater in family variables that smoke smoking (55.6%) compared with non-smoking (30.0%). From the results of bivariate analysis found that there are family members who smoke have a risk of Ari greater than 1.852 times than no family members who smoke and proved to be significantly related (p-value = 0.018).

Chart 11. The relationship of maternal knowledge with the incidence of Ari

Variable	The incidence of ARI in toddlers				Total		PR (95% CI)	P-Value
	Yes		No		n	%		
	n	%	n	%				
Mother's Knowledge								
Less good <50%	17	65,4	9	34,6	26	100	1,678	0,035*
good >=50 %	30	39,0	47	61,0	77	100	(1,169-7,491)	

Based on Table 11 above shows that the proportion of ARI in toddlers is greater in the variable maternal knowledge is less good (65.4%) than dengen good maternal knowledge (39.0%). From the results of bivariate analysis found that poor maternal knowledge has a greater risk of Ari 1.678 times than good maternal knowledge and proved to be significantly related (p-value = 0.035).

Discussion

1. Relationship between bedroom occupancy density with the incidence of ARI in toddlers

Based on the results of the study, it was concluded that the density of bedroom occupancy has a significant relationship with the incidence of acute respiratory infections (ARI) in toddlers (P-value=0.003), where there are 63.6% of toddlers have experienced acute respiratory infections. The magnitude of the risk of Ari can be seen from the value of PR= 1.9 means that toddlers who sleep in a room with a density of occupancy that does not meet the requirements have a risk of ARI by 1.9 times greater than the toddlers who sleep in a residential density that meets the requirements.

The results of this study are in line with the research of Rahmi Pramulia Fitri et al (2020). Shows there is a relationship between the density of occupancy of the bedroom with the incidence of acute respiratory infections (ARI) in toddlers known that the value (p=0.000). Residential density can affect room air quality, where the more the number of occupants, the faster the air pollution,

because the CO₂ in the room will increase and will reduce O₂ levels in the room, and the density of occupancy is related to the number of infectious disease-causing agents.)

Other researchers who support Ira Putri Lan Lubis et al (2019) based on the results of the study, it can be concluded that there is a significant relationship between occupancy density and the incidence of acute respiratory infections (ARI) in toddlers in Silo Bonto Village, Silau Laut District, Asahan Regency with a value ($p=0.004$).

The residential density of the House will increase the room temperature caused by the expenditure of body heat which will increase the humidity due to water vapor from the breathing. Thus, the more the number of residents of the house, the faster the room air experiences gas pollution or bacteria that can interfere with health (Ari non pneumonia). in addition, the density of occupancy can affect room air quality, where the more the number of occupants, the faster the air pollution, because CO₂ in the room will increase and will reduce O₂ levels in the room, and the density of occupancy is related to the number of infectious disease-causing agents.

The value of the density of the house is obtained from the calculation of the floor area of a dense house that triggers the growth of bacteria and viruses that cause respiratory diseases. Children who are still under age are susceptible to contracting these bacteria and viruses. The floor area of a healthy House should be sufficient for the residents of the House in it, it means that in order to avoid excess residents in the house, the number of residents must be adjusted to the floor area of the House.

The results of research in the Working Area of the Simpang Pandan Health Center were obtained from the calculation of 44 respondents (42.7%) are not eligible for it needs to be considered again when the room area is not eligible, and there is one family member who is sick ISPA better not combined his bed in one room to prevent disease transmission. Narrow room conditions and too many residents even 2-3 toddlers will accelerate the transmission of Ari. % , one example as shown below :



Figure 1. Occupancy Density Picture

Based on the above floor condition picture shows the condition of the occupancy density of the bedroom, a good bedroom is a bedroom with a bedroom area of at least 8 square meters, and it is recommended that no more than 2 people and reduce the furniture that accumulates in the room.

2. Relationship of floor type with the incidence of ARI in toddlers

or the virus that causes Ari. A good floor is a floor that is dry and not damp, an unqualified floor is a House floor made of Earth, cement that has not been tiled. Construction should be watertight, easy to clean, not dusty and not muddy when it rains. To avoid the ingress of water from under the ground, the floor should be at least 20 cm from the ground level.

The results of research in the Working Area of the Simpang Pandan Health Center based on hasl observation there were 60 respondents whose floor type did not meet the requirements with a percentage of 58.3%, one example as shown below :



Figure 2, Bad floor picture

Based on the picture above floor conditions indicate the condition of the floor that does not meet the requirements of a good floor, such as floors made of soil, cement that has not been in kermaik, and dusty, supported by poor health behavior, such as not doing floor cleaning every morning and evening, rarely mopping the floor. Dirty floor conditions become a breeding ground for disease-causing bacteria send qualified as many as 43 respondents 41.7%. one example as in the picture below :



Figure 3 picture of a good floor

Based on the picture above floor conditions indicate the condition of the floor that meets the requirements of a good floor, including the floor in a dry state and not damp, not dusty, waterproof and easy to clean. The condition of the floor of the house that suits the requirements in addition to minimizing the possibility of disease to multiply, can also provide comfort in the room seluruh for residents :

3. The relationship of the type of Wall with the incidence of ARI in toddlers

Based on the results obtained conclusion that the type of Wall has a significant relationship with the incidence of acute respiratory infections (ARI) in infants with (P-value =0,020). The magnitude of the risk of patients with acute respiratory infections (Ari) can be seen from the value of PR=1.8, which means that toddlers who live in homes with the type of wall that does not meet the requirements have a risk of suffering from respiratory tract infections acute respiratory disease (ARI) of 1.8 times greater than toddlers who live in homes with the type of wall that meets the requirements.

This study is in line with the research of Safrizal (2017) on the relationship of ventilation, floors, walls and roofs with the incidence of ARI in toddlers. The results of the study there is a significant relationship between the type of wall with the incidence of acute respiratory infections (ARI) in infants. The walls of the House in Gampong Blang Muko are still mostly clapboard and bamboo. This is because the family income is less, some of the respondents are IRT. Other

supporting research results are Dismo Katiandago, Nildawati (2018). Based on the results of data processing for the relationship of the condition of the walls with the incidence of acute respiratory infections (ARI) in toddlers by using the chi square test that there is a significant relationship between the type of wall with the incidence of ARI in toddlers who obtained the value ($p=0.001$).

However, in contrast to the research of Irma Suharno et al (2019), the results showed that toddlers who had a qualified type of wall and did not suffer from Ari were 35 (92.15) toddlers. Then toddlers who have walls do not meet the requirements and suffer from Ari amounted to 3 (7.9%) toddlers. Chi square test results Value ($p=0.268$) which shows there was no significant relationship between the wall and the incidence of ARI in toddlers in the Working Area of Health Center Wawanosa.

The walls of the bedroom and family room should be equipped with ventilation for air circulation. Some of the provisions of wall construction include building materials must not be made of materials that easily release substances that can harm health and are not made of materials that can be a place for the growth and development of pathogenic microorganisms such as Ari.

The results showed that there were 35 respondents (55.6%) whose walls did not meet the requirements had suffered from Ari. However, there are 12 respondents (30.0%) with the type of wall that meets the requirements but never suffered Ari because some of the respondents' houses that have been made of batubata but have not been plastered look dirty and dusty, so as to increase the seeds of disease multiply so as to cause the health of toddlers decreased. From the results of more research most types of walls do not meet the requirements, one an example as in the picture below :



Figure 4. Bad Wall pictures

Based on the picture above, the condition of the wall shows the condition of the wall that does not meet the requirements of a good wall, this is because there are still many made of wood rather than stone, therefore to minimize the wall so as not to become a disease media respondents are expected to clean the wall at least once a week. A good house wall is using a wall but the walls of the house in the working area of the Simpang Pandan Health Center are still many clapboard this is due to less prekonomian. Houses whose walls are not tight such as boards and bamboo can cause respiratory diseases.

The results also showed that there are respondents with Wall conditions that meet the requirements of a good wall, one example as shown below :

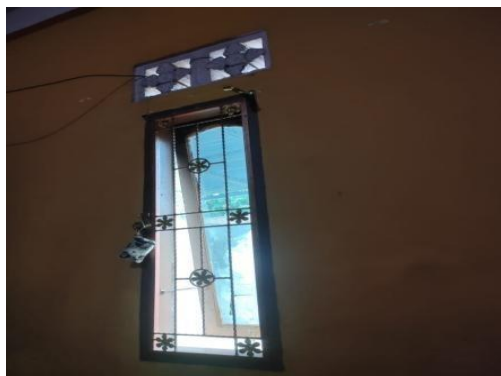


Figure 5. Good wall pictures

Based on the picture above Wall condition indicates the condition of the wall that meets the requirements of a good wall, one of the walls made of Akjdshdkj, in addition, the walls are both have dry conditions and are easy to clean.18 thus minimizing as a breeding ground for various causes of disease, considering that a healthy home and environment is very important to improve the health of the family so that its residents can perform maximum productivity.

4. Relationship ceiling of the House with the incidence of ARI in toddlers

Results of statistical tests conducted value P-value= (0.968). The HO is accepted so that it can be concluded that there is no significant relationship between the type of ceiling of the house with the incidence of acute respiratory tract infections in toddlers in the Working Area of the Simpang Pandan Health Center. The ceiling is not qualified, but not enough to provide a meaningful difference to the incidence of ARI in toddlers.

This is in line with the research of Carina Devi Trisiah, Chatarina Umbul W (2018) shows that there is no relationship between the ceiling of the house with the incidence of acute respiratory infections (ARI) in toddlers. However, the study found that houses that do not have can make it easier for dust to enter the house through the gap between the walls and roof of the House.

Based on the results obtained that the sky - lagit house there who berplafon da nada also not berplafon, as many as 32 respondents (57.1%) that the ceiling of the House does not meet the requirements have experienced Ari sufferers. Based on the results of the study researchers bepenangat that existing homes in the Working Area of the Health Center Simpang Pandan almost every house is not fitted with a ceiling. one example as in the picture below :



Figure 6. Pictures of ceilings that are not good

Based on the picture above ceiling conditions indicate the condition of the ceiling that does not meet the requirements of a good ceiling, whereas the ceiling greatly affects the comfort of the air in the room. This is because the ceiling can withstand water seepage from the roof of the house in the room. The ceiling can also withstand heat from the roof of the house during the day and cold air at night.

The ceiling of this house can withstand heat coming from the roof of the house during the day and cold air at night. To minimize the breeding ground of the disease it is necessary to install a

simple ceiling for example from plywood and always maintain the cleanliness of the ceiling of the House, While the eligible ceiling had suffered from Ari as many as 15 respondents (31.9%). one example as in the picture below :



Figure 7. Good ceiling pictures

Based on the above ceiling condition picture shows the condition of the ceiling that meets the requirements of a good ceiling, the ceiling serves to reduce solar radiation. who entered the House. Ceiling height of at least 240cm. A healthy ceiling is one that has a ceiling or that can prevent the fall of dirt from the sidelines of the roof. The ceiling should also be designed to be able to cover the roof layer and be easy to clean.

5. The relationship of lighting with the incidence of ARI in toddlers

Based on the results obtained conclusion that lighting has a meaningful relationship with the incidence of acute respiratory infections (ARI) in infants with (P-value 0,018). the magnitude of the risk of patients with acute respiratory infections (Ari) can be seen from the value of PR=1.7, which means that toddlers who live in homes with unqualified lighting have the risk of suffering from acute respiratory infections (Ari) is 1.7 times greater than toddlers who live in homes with qualified lighting.

Lighting itself according to the Big Indonesian dictionary (KBBI), is the process, Way, Act of giving light. Light is a prerequisite for human vision, especially in recognizing the environment and carrying out its activities A healthy home requires sufficient light sources, not less and not too much. The lack of light that enters the house, especially sunlight, can cause the media a good place to live and Breed Seeds of disease, otherwise if the light source is too much can dazzle the eyes and eventually can damage the eyes.¹⁸ natural lighting is important to reduce air humidity and kill pathogenic microorganisms natural and artificial lighting intensity of at least 60 lux. The results of this study are in line with the research of Kartini et al (2019) on temperature, ventilation and lighting found there was a significant relationship between lighting and the incidence of acute respiratory infections (ARI) in toddlers Another research that supports is Julia's Research (2017) on the relationship of lighting with the incidence of ARI in toddlers. The results showed no significant relationship between lightingwith the incidence of ARI in toddlers. Other studies conducted by Elmia Kursani, et al (2019), showed the results that there was a relationship between lighting and the incidence of ARI in the Garuda Tangkerang Tengah Heal Center.

One of the causes of the lack of natural lighting that enters the house, especially the toddler's room, is a residential area that is densely populated so that the incoming light is blocked between one house and another so narrow that minimizes sunlight entering the House.

The results showed that the lighting of respondents ' homes in the working area of the Simpang pandan Health Center, a small percentage of lighting qualified as many as 47 respondents (45.6%) and those who did not meet the requirements as many as 56 respondents (54.4%). one example as in the picture below :



Figure 8. Bad lighting pictures

Based on the picture above lighting conditions indicate the existence of lighting conditions that do not meet the requirements of good lighting, most home lighting is not good, less than the intensity of 60 lux.

Therefore, respondents are expected to always open the vents so that light can enter through the vents or open the door and add glass tiles or fiber so that light enters the bias according to its intensity. We recommend that the area of entry of light such as windows at least 15% to 20% of the floor area of the House. In addition, there are also respondents' houses located in the working area of the Simpang pandan Health Center, a small part of the lighting 47 respondents (45.6%) one example as shown below :

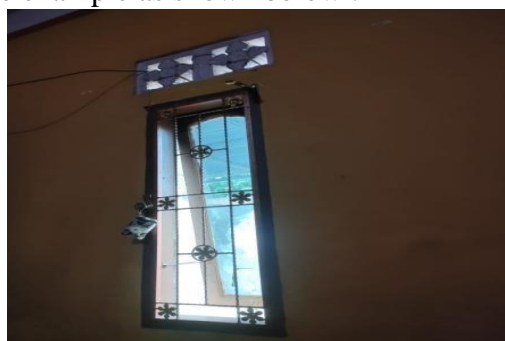


Figure 9. Good lighting pictures

Based on the picture above lighting conditions indicate the existence of lighting conditions that meet the requirements of good lighting, including already having a window as the entry of natural light from sunlight into the house, which of course already meets one of the indicators of a healthy home, which has sufficient lighting.

6. Relationship of smoking family history with the incidence of ARI in toddlers

Based on the results obtained that smoking family members have a significant relationship with the incidence of acute respiratory infections (ARI) in toddlers with a value (P - value=0.020). The magnitude of the risk of acute respiratory infections (Ari) can be seen from the value of PR =1.8 means that toddlers who live with family members who smoke have a risk of 1.8 times greater than toddlers who live at home with family members do not smoke.

This study is in line with Sofia (2017) research on environmental risk factors with the incidence of ARI in toddlers in the Working Area of Healt Center want Jaya Aceh Besar the results of this study there is a relationship between smoking habits with the incidence of ARI in toddlers. Cigarette smoke exhaled by the parents will increase the risk in toddlers to get Ari attacks although cigarette smoke is not a direct cause of ARI in toddlers, but indirectly a factor that can cause lung disease that will weaken the immune system of toddlers. The results of the study were also supported by I Gusti Agung Putu Mahendrayasa et al (2018) the results of the analysis between the behavior of smoking family members and the incidence of ARI in toddlers stated that there was a significant relationship between the behavior of smoking family members and the incidence of acute

respiratory infections (ARI) in toddlers. 28 other studies conducted by Salma Milo, et al. showed a relationship between smoking habits in the house with the incidence of ARI in children aged 1-5 years in Healt Center Sario Manado City.

The same results are also in line with a study conducted by Tazinya et al (2018) in one of the hospitals in Cameroon that compared between families who smoke and do not smoke with the conclusion that families who smoke are at greater risk of Ari than those who do not smoke. Cigarette smoke smoked by active smokers and passive smokers will cause air pollution, which will further damage the defense mechanism of the lungs, making it easier for toddlers who live in the same house with smokers to easily suffer from acute respiratory infections Ari. passive smokers have a greater risk than active smokers. Young children are particularly susceptible to cigarette smoke because their immune system is still weak. Cigarette smoke can also cause irritation, inflammation, and narrowing of the respiratory tract the healing process for people with Ari will take a long time if the patient is still exposed to cigarette smoke, because the body's defense against infection will still be disrupted. Based on these results, researchers argue that most of the family members of respondents in the work area Simpang Pandan Health Center smokes, after every meal the family members always smoke, and one day can spend one pack of cigarettes, of course, very dangerous for the health of themselves and especially in toddlers. So that families need to implement clean and healthy living behavior, especially not to smoke in the house and close to toddlers.

7. Relationship of maternal knowledge with the incidence of ARI in toddlers

Based on the results of research obtained that maternal knowledge has a significant relationship with the incidence of acute respiratory infections (ARI) in infants with p - value= 0.035. The magnitude of the risk of suffering from acute respiratory infections (Ari) can be seen with the value of $PR=1.6$ means that toddlers who live with poor maternal knowledge have a risk of suffering from ARI by 1.6 times greater than with good maternal knowledge. The results of the study were also supported by Tina Yuli Fatmawati (2018) based on the research results of 48 mothers who had low knowledge, there were 38 toddlers (79.2%) who experienced Ari and 10 toddlers (20.8%) who did not experience Ari. The results of the chi square test can be P -value =0.004 ($p<0.05$) which means there is a significant relationship between maternal knowledge with the incidence of acute respiratory infections (ARI) in toddlers. The role of parents about Ari disease is the main capital for the formation of good habits for the quality of health of children under five. knowledge or cognitive is a very important domain for the formation of one's actions based on knowledge, awareness and a positive attitude will last a long time and is permanent, mothers who have good knowledge about Ari is expected to bring a good impact on children's health because the risk of Ari events in toddlers can be eliminated to a minimum. Another research that supports that is Indah Indah Wulaningsih et al (2018), from the results of the chi square test obtained p -value of 0.031 is smaller than the significant level of 0.05 or 5% then H_a is accepted. So it is proven that there is a significant relationship between maternal knowledge and the incidence of ARI in toddlers in the Working Area of the Dawungsari Health Center, Pegadon District, Kendal Regency. Knowledge of parents about Ari disease is the main capital for the formation of good habits for the quality of health of children under five. knowledge or cognitive is a very important domain for the formation of a person's actions based on knowledge, awareness and a positive attitude will last a long time and be permanent.

Mothers who have a good knowledge of ARI is expected to bring a good impact on children's health because the risk of Ari events in toddlers can be eliminated to a minimum. Education is one of the factors that affect the knowledge of education affects the learning process, where the higher a person's knowledge, the easier a person to receive information Notoadmodjo (2010). From the results of research in the Working Area of the Health Center Simpang Pandan poor maternal knowledge ever suffered from the incidence of ARI in toddlers as many as 17 respondents (65.4%)

while the knowledge of mothers who are not as many as 9 respondents (34.6%). one example as in the picture below :



Figure 10. Knowledge Respondents

Knowledge can also be obtained through personal human experience that occurs repeatedly, if someone has a lot of experience it will produce more knowledge, age greatly affects the mother in obtaining more information directly or indirectly will increase the experience that will increase knowledge.28 most of human knowledge is acquired through the eyes and ears. Knowledge or cognitive is a dominant that is very important for the formation of one's actions.

CONCLUSION

Based on the results of research and discussion can be concluded that as follows :

1. the incidence of ARI on toddlers is still quite a lot. The situation is caused because the environmental conditions are largely unqualified. Thus showing that 47 toddlers (45.6%) had acute respiratory infections Ari. While those who do not experience Ari as many as 56 toddlers (54.5).
2. The occupancy density of small sebaigian rooms 42.7% did not meet the requirements, the type of floor there were 58.3 respondents who did not meet the requirements, the type of wall as much as 61.2% did not meet the requirements, lighting 54.4% did not meet, the ceiling of the house more than 79.6% did not meet the requirements, smoking family members there were 61.2% who did not meet the requirements and maternal knowledge there was a small percentage that was not good 25.2%.
3. There is a relationship between the density of occupancy of the bedroom with the incidence of acute respiratory infections (ARI) in toddlers in the Working Area of Simpang Pandan Health Center (P-Value=0.003 ; PR=1.9; CI95%=1.62-8.38).
4. There is a relationship between the type of floor with the incidence of acute respiratory infections (ARI) in toddlers in the Working Area of Simpang Pandan Health Center (P-Value=0.014 ;PR=1.8 ; CI95 % =1.32-6.90).
5. There is a relationship between the type of wall with the incidence of acute respiratory infections (ARI) in toddlers in the Working Area of Simpang Pandan Health Center (P-Value=0.020 ;PR=1.8 ; CI95 % =1.26-6.75).
6. There is no relationship between the ceiling of the house with the incidence of acute respiratory infections (ARI) in toddlers in the Working Area of Simpang Pandan Health Center (P-Value=0.968 ; PR=1.0; CI95%= , 438-3. 02

7. There is a relationship between lighting and the incidence of acute respiratory infections (ARI) in toddlers in the Working Area of Simpang Pandan Health Center (P-Value=0.018 ;PR=1.7 ; CI95 % =1.26-6.39).
8. There is a relationship between the habit of smoking family members with the incidence of acute respiratory infections (ARI) in toddlers in the Working Area of Simpang Pandan Health Center (P-Value=0.020 ; PR=1.8 ;CI95%=1.26-6.75).
9. There is a relationship between maternal knowledge with the incidence of acute respiratory infections (ARI) in toddlers in the Working Area of Simpang Health Center Pandanus (P-Value=0.035; PR=1.6 ; CI95 % =1.16-7.39).

REFERENCES

- Arba S. Pendampingan RumahSehat Di Kelurahan Togafo. 2021;1(1):19-24
Badan Penelitian Dan Pengembangan Kesehatan. *Riskesdas 2018*. Kemenkes Ri; 2018.
- Bontosikuyu Kabupaten Kepulauan Selayar. *J Ilm Kesehat Sandi Husada*. 2018;6(1):49-57. Doi:10.35816/Jiskh.V6i1.14
- Damayanti Dp, Silitonga S,Pakpahan R. Rumah Sehat Dan RamahGempa Di Kabupaten Samosir. *Alur*.2019;2(1):49-62. <https://www.neliti.com/publications/282660/Rumah-Sehat-Dan-Ramah-Gempa-Di-Kabupaten-Samosir>
- Delyuzir Rd. Analisa Rumah Sederhana Sehat Terhadap Kenyamanan Ruang. *J Arsit Dan Kota Berkelanjutan*.2020;2(2):15-27.
- Departemen Kesehatan RepublikIndonesia. *Tentang Kesehatan.*; 2009.
Achmadi. *Dasar-Dasar PenyakitBerasis Lingkungan*. Rajawali Pres; 2012.
- Departemen Kesehatan Republik Indonesia. *Pedoman Pengendalian Penyakit Infeksi Saluran Pernapasan.*;2012.
- Dian Fajariati Kartini Arh 1. Faktor-Faktor Yang Berhubungan Dengan Kejadian Ispa Pada Anak Balita Di Posyandu Melati Kelurahan Cibinong. *J Persada Husada Indones*. 2019;6(23):42-49
- Fatmawati Ty. Analisis Karakteristik Ibu, Pengetahuan Dan Kebiasaan Merokok Dengan Kejadian Ispa Pada Balita Di Kelurahan Kenali Asam Bawah. *J Ilm Univ BatanghariJambi*. 2018;18(3):497.Doi:10.33087/Jiubj.V18i3.516
- Haris A, Ikhsan M, Rogayah R. Asap Rokok Sebagai Bahan Pencemar Dalam Ruangan. *Cermin Dunia Kedokt*. 2012;39(1):17-20.
- Herdiani I, Kurniawan A, Nuradillah H, Putri Gw, Gunawan Ip. Penyuluhan Kesehatan Rumah Sehat Pada Masyarakat Di Wilayah Kerja Healt Center Cibeureum. *Abdimas Phb*. 2021;4(1):47-52
- Jamal S, Hengky Hk, Patintingan A. Pengaruh Paparan Asap Rokok Dengan Kejadian Penyakit Ispa Pada Balita Di Healt Center Lompoe Kota Pare-Pare. *J Ilm Mns Dan Kesehat*. 2022;5(1).
- Janati Jna, Arum Siwiendrayanti. Hubungan Kondisi Lingkungan Fisik Rumah Dan Kebiasaan Orang Tua Dengan Kejadian Ispa Pada Balita Di Wilayah Kerja Healt Center Traji Kabupaten Temanggung. *J Kesehat Pena Med*. 2017;7(1):1-13
- Kementerian Kesehatan Ri. *Peraturan Menteri Kesehatan Republik Indonesia Nomor 40 Tahun 2017 Tentang Pengembangan Jenjang Karir Profesional Perawat Klinis.*; 2017.
- Kementrian Pekerjaan Umum DanPerumahan Rakyat. *Dasar Dasar Rumah Sehat.*; 2016.

- Kursani Elmia Yb, Ramadhani Ws. Hubungan Kondisi Fisik Rumah Dan Faktor Manusia Dengan Kejadian Ispa Pada Balita Di Wilayah Kerja Healt Center Garuda Kelurahan Tangkerang Pekanbaru Tahun 2019. *JKesehatan, Kebidanan, DanKeperawatan*. 2019;12(01):1-19.
- Kusumawati I. Hubungan Antara Status Merokok Anggota Keluarga Dengan Lama Pengobatan Ispa Balita Di Kecamatan Jenawi. Published Online 2010.
- Mahendra Igap, Farapti F. Relationship Between Household Physical Condition With The Incidence Of ARI On Todler At Surabaya. *J Berk Epidemiol*. 2018;6(3):227. Doi:10.20473/Jbe.V6i32018.227-235
- Mayasari E. Pemanfaatan Fasilitas Kesehatan Pada Infeksi Saluran Pernapasan Akut (Ispa) Anak Balita Di Wilayah Kerja Puskesmas Rejosari. *J Public Heal Sci*. 2018;7(2):112-127.
- Milo S, Ismanto A, Kallo V. Hubungan Kebiasaan Merokok Di Dalam Rumah Dengan Kejadian Ispa Pada Anak Umur 1-5 Tahun Di Healt Center Sario Kota Manado. *J Keperawatan Unsrat*. 2015;3(2):107603.
- Muslim Kp. *Penyehatan Udara*. Pertama. Kementrian Kesehatan Republik Indonesia; 2018.
- Trisiyah Cd, W Cu. Hubungan Kondisi Lingkungan Rumah Dengan Kejadian Pneumonia Pada Balita Di Wilayah Kerja Healt Center Taman Kabupaten Sidoarjo. *Indones J Public Heal*. 2018;13(1):119-129. Doi:10.20473/Ijph.V113i1.2018.119-129
- Ningrum E. Kusuma. Hubungan Kondisi Fisik Rumah Dan Kepadatan Hunian Dengan Kejadian Ispa Non Pneumonia Pada Balita Di Wilayah Kerja Healt Center Sungai Pinang. *Publ Kesehat Masy Indones*. 2015;2(2):72- 76.
- Oktavia Em. Pengaruh Kondisi Fisik Rumah Dengan Kejadian Tb Paru. *Stikes Surya Mitra Husada*. Published Online 2018:1-7.
- Profil Healt Center Simpang Pandan. Published Online 2020.
- Rosjidi C. *Panduan Penyusunan Proposal Dan Laporan Penelitian Untuk Mahasiswa Kesehatan*.; 2015.
- Ratodi M. *Things You Should Know About Healthy House Design*.; 2017. .
[Http://jurnal.unikal.ac.id/index.php/medika](http://jurnal.unikal.ac.id/index.php/medika)
- Ri. K. *Infeksi Saluran Pernapasan Ispa*. Departemen Kesehatan Republik Indonesia; 2007.
- Saryono. *Metodolog Penelitian Kesehatan*. Mitra Cendikia; 2011.
- Sofia. Faktor Risiko Lingkungan Dengan Kejadian Ispa Pada Balita Di Wilayah Kerja Healt Center Ingin Jaya Kabupaten Aceh Besar. *Action Aceh Nutr J*. 2017;2(1):43. Doi:10.30867/Action.V2i1.35
- Sufiliana K. Penilaian Rumah Sehat Dan Identifikasi Penyakit Berbasis Lingkungan Pada Balita Di Kelurahan Aur Kota Medan Tahun 2019. Published Online 2020.
- Surira Mr. Hubungan Faktor Lingkungan Rumah Dan Perilaku Pencegahan Dengan Endemisitasi Malaria Di Pulau Jampea Kabupaten Kepulauan Selayar. Published Online 2019.
- Sundari S. Perilaku Tidak Sehat Ibu Yang Menjadi Faktor Resiko Terjadinya Ispa Pneumonia Pada Balita. 2014;2(3):141-147.
- Syamsi N. Hubungan Tingkat Pendidikan Dan Pengetahuan Ibu Balita Tentang Dengan Kejadian Ispa Pada Balita Di Wilayah Kerja Healt Center
- Tazinya Aa, Halle-Ekane Ge, Mbuagbaw Lt, Abanda M, Atashili J, Obama Mt. Risk Factors For Acute Respiratory Infections In Children Under Five Years Attending The Bamenda Regional Hospital In Cameroon. *Bmc Pulm Med*. 2018;18(1):1-8. Doi:10.1186/S12890-018-0579-7
- Teguh I. Kajian Kualitas Lingkungan Terkait Kejadian Ispa Di Kelurahan Simbang Kulon Kecamatan Buaran Kabupaten Pekalongan. *J Pena Med*. 2015;5(1):84-95.
- Who. *Penanganan Ispa Pada Anak Di Rumah Sakit Kecil Di Negara Berkembang*. In *Pedoman Untuk Dokter Dan Petugas Kesehatan Senior*. Kedokteran Egc; 2003.