

The Relationship of Residential Density and Smoking Habits with The Incidence of Acute Respiratory Infections (Ari) In Toddlers in The Working Area at The Sausu Public Health Clinic, Parigi Moutong District, Central Sulawesi Province

Hasanudin, Novarianti, Saharudin, Maryan
Poltekkes Kemenkes Palu

ABSTRACT

ISPA is a respiratory tract disease that can cause mild to fatal infections due to environmental factors. ISPA in toddlers is caused by several factors including environmental factors, namely type of house, ventilation, type of floor, lighting, residential density, humidity, type of fuel and smoking habits. The aim of this research is to find out whether there is a relationship between population density and smoking habits with the incidence of ISPA in toddlers in the Sausu Community Health Center Working Area, Parigi Moutong Regency, Central Sulawesi Province. Analytical with the aim of finding relationships between one variable and other variables. The population was 167 samples, 62 toddlers suffering from ISPA and not suffering from ISPA. There is no relationship between the density of house occupants and the incidence of ISPA with a P-Value $\geq 0.252 > 0.05$, so H_0 is accepted and H_a is rejected. There is no relationship between home smoking habits and the incidence of ARI with a P-Value $\geq 1,000 > 0.05$, so H_0 is accepted and H_a is rejected. Keep the home environment clean and do not smoke near children, inside the house. Because it will have an impact on the health of the toddler and the entire family.

Keywords: Resident Density, Smoking Habits, and ARI Toddlers

Corresponding author

Name: Hasanudin

Email: hasanudinuti@gmail.com

INTRODUCTION

Data from the World Health Organization (WHO) shows that the death rate for children under five in the world in 2013 was 45.6 per 1,000 live births and 15% of them were caused by ISPA. According to data obtained from WHO in 2012, ARI or pneumonia is the disease most frequently suffered by toddlers, namely 78% of toddlers visiting health services with ARI cases. Every year, the number of children under five who are hospitalized with acute respiratory infections is 12 million (WHO, 2019)

ISPA is always in the top 10 diseases in almost every health center in every area where ISPA sufferers do not know their age or gender. Each individual has a risk of being

infected with this disease depending on each person's immune system so that the ages most vulnerable to contracting ISPA are children and the elderly where at this age the immune system in the body is not as strong as the immune system in individuals in the teenage and senior age categories. adults (Sholihah et al. 2021)

Based on data from Central Sulawesi Province in 2019, ISPA in toddlers amounted to 116,784 people (Central Sulawesi Province Health Profile 2019). (Central Sulawesi Province Health Profile 2020).

ISPA is one of the causes of patient visits to the Community Health Center. Based on data from Parigi Moutong Regency, the incidence of ISPA shows a number that fluctuates (experiencing changes) every year, in 2019 the prevalence of ISPA reached 1,346 people with a percentage of 65.48% (Parigi Moutong Health Service, 2019 n.d.). In 2020, ARI findings in children under five in Parigi Moutong reached 788 people with a percentage of 32.59% (Parigi Moutong Health Service, 2020 n.d.). In 2021, ARI findings in children under five reached 577 people with a percentage of 31.96 (Anon 2021a)

Based on secondary data seen by researchers on November 12 2022 by looking at the top 10 diseases at the Sausu Community Health Center. ISPA also ranks first among the top ten diseases in the working area of the Sausu Community Health Center where it is obtained from all ISPA sufferers such as toddlers, teenagers and the elderly, namely the fluctuation in 2019 was 2,546 people affected by ISPA, in 2020 there were 2,055 people affected by ISPA, in 2021 1,968 people were affected by ISPA and in 2022 2,553 people were affected by ISPA. Specifically for toddlers in 2019, there were 516 people, in 2020 there were 881 people, in 2021 there were 508 people, in 2022 there were 667 people and in the quarter of 2023 there were 176 people.

Research results according to (Urgadana, 2019) showed that 104 (78.19%) house conditions were in the unhealthy category and 127 cases of ISPA were found. The results of the Chi Square Statistical Test obtained χ^2 value $0.001 < 0.05$ so it can be stated that there is a relationship between the physical environmental conditions of the house and the incidence of acute respiratory tract infections in fishing families in the Kenjeran Coastal area of Surabaya.

Apart from that, this area was chosen as a research location because similar research had never been conducted and there were many ISPA sufferers in the working area of the Sausu Community Health Center, Parigi Moutong Regency. Based on the background of the problem above, the author is interested in conducting research in the Working Area of the Sausu Health Center with the title "The Relationship between Occupant Density and the Incidence of ISPA in Toddlers in the Working Area of the Sausu Health Center, Parigi Moutong Regency"

METHOD

The research design uses case control where the effect (disease or health status) is identified at this time and then risk factors are identified or occur at another time. In a case control study a group of cases (patients who suffer from the effect or disease being studied) is compared with a control group (those who do not suffer from the disease or effect). In this study, we want to know whether a particular risk factor really influences the occurrence of the effect being studied by comparing the frequency of exposure to that risk factor in the case group with the control group. (Notoatmodjo 2021)

This research will be carried out in May-June 2023. This research will be carried out in the working area of the Sausu Community Health Center, Sausu District, Parigi Moutong Regency. This research will be carried out in May-June 2023. This research will be carried out in the working area of the Sausu Community Health Center, Sausu District, Parigi Moutong Regency. The population in this study was 176 toddlers in the first quarter of 2023 in the Puskesmas work area. In this study not all members of the population.

In this study, the samples taken were 62 toddlers. Meanwhile, the number of control group samples taken in this study was the same as the case group, namely 62 people, the control group was given the same treatment, the sample in this study was 124 people. The sample size was determined using (Lemeshow 1990). In this study, the samples taken were 62 toddlers. Meanwhile, the number of control group samples taken in this study was the same as the case group, namely 62 people, the control group was given the same treatment, the sample in this study was 124 people. The sampling technique used in this research is Simple Random Sampling, namely a random sampling method where each population has an equal chance of being selected as a sample. (Lubis, 2019)

The sample in this study was divided into two groups consisting of mothers who had toddlers with ISPA and groups of mothers who had toddlers without ISPA who had met the inclusion and exclusion criteria. (Rahma Dani, 2022). There are 2 inclusion criteria in this study, namely cases and controls, namely:

a) Case Criteria:

Toddlers suffering from ISPA. resides in the Sausu area. A toddler who had suffered from ISPA and sought treatment at the Sausu Community Health Center.

b) Control Criteria

In an area with a case or near a house, a maximum radius of 20 meters from the house of a toddler suffering from ISPA. Toddlers who have never suffered from ISPA. Can be found during research. People who are willing to carry out research at home. If an ISPA sufferer whose home address cannot be found, it can be replaced with a nearby house with poor house sanitation criteria or not in accordance with the applicable requirements in Decree of the Minister of Health of the Republic of Indonesia No. 829 of 1999 concerning Housing Health. (Sartika, 2022).

The independent variable in this research is the condition of the house. The dependent variable in this research is ARI in toddlers. Primary data is data obtained directly

by researchers through observation sheets and questionnaires which include the results of interviews with the family, in this case the toddler's parents as the head of the family (independent variable). Field observations to see the condition of the homes of ISPA sufferers in toddlers using observation sheet tools. Secondary data Data regarding the number of ISPA sufferers in toddlers obtained by researchers from reports from Central Sulawesi Province, Parigi Moutong Regency and Sausu Community Health Center.

Editing (checking), namely the data that has been obtained is edited to double check or correct it to find out the truth. Coding, where data obtained from research results is collected and coded. Tabulating data, namely data that has been corrected and then grouped in table form. The collected data was analyzed using the SPSS Version 16.0 computer program. The analysis used is bivariate analysis, namely analysis to see the relationship between independent and dependent variables. This analysis was carried out using the chi square test, because the data scale used is nominal, and to determine whether or not there is a relationship with the dependent and independent variables. Presentation of data can be done in the form of tables and narratives so as to make it easier to analyze whether or not there is a relationship between home conditions and the incidence of ISPA in toddlers.

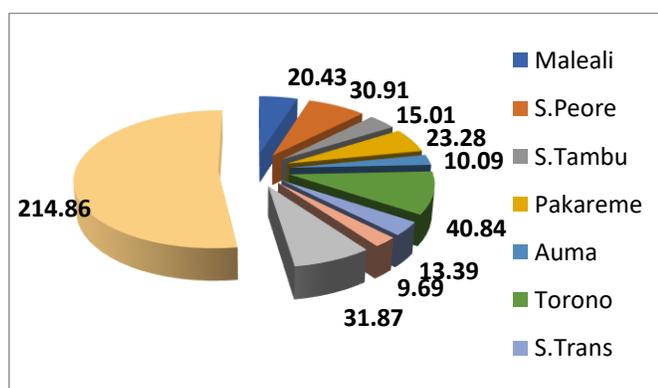
FINDING AND DISCUSSION

Result

General description of the geographical location of the research

The Sausu Health Center is located in Sausu Trans Village, Sausu District, which has been operating since 1993. The working area of the Sausu Health Center is 410.32 Km² with a distance of ± 56 Km from the Regency Capital.

Figure 1. Sausu Community Health Center Area According to Village in 2022 (in KM²)



The working territory of the Sausu Community Health Center is delineated by the following boundaries:

1. Borders Balinggi District in the north.
2. Borders Poso Regency in the south.
3. East: Tomini Bay borders

4. West: Palolo subdistrict borders

Climate Variables

The Sausu subdistrict, similar to other regions in Parigi Moutong Regency, experiences two distinct seasons: summer and monsoon season. The period of summer spans from April to September, whereas the season of precipitation runs from October to March.

Governance

The Sausu Community Health Center operates within a 410.32 km² area in the Sausu District, which comprises ten villages inhabited by a total population of 26,484.

Demographics

In 2022, the Sausu Health Center Working Area is projected to accommodate 26,484 individuals, of which 5,928 will be heads of household.

Results of Research

The findings of a study conducted from 16 June to 22 June 2023 examined the correlation between resident density, smoking habits, and the prevalence of acute respiratory infections in toddlers within the operational region of the Sausu Community Health Center in Parigi Moutong Regency, Central Sulawesi Province.

A. Analisis Univariat

Density Room Occupant

Table 1. Distribution Frequency Density residence rooms in the work area Public health center Sausu Parigi Moutong Regency Central Sulawesi Province

Density Occupant Room	Frequency	Percentage (%)
Does not meet the condition	83	66.9
Fulfil Condition	41	33.1
Amount	124	100

Source: Primary Data, 2023

Based on table 2.2. Showing that percentage respondents who have density residence room category No fulfil condition as many as 83 people (66.9%), and percentages respondents who have density residence room category fulfil condition as many as 41 people (33.1%).

Habit Smoking in the House

Table 2 Distribution Frequency Habit Smoking Indoors in Work Areas Public health center Sausu Parigi Moutong Regency Central Sulawesi Province with Incident Infection Channel Respiration Acute (ARI) in Toddlers

Habit Smoking in the House	Frequency	Percentage (%)
Smoke	113	91.1
Do not smoke	11	8.9
Amount	124	100

Source : Primary Data, 2023

Based on table 2.3. Showing that percentage respondents who have Habit Smoking In The House category smoke as many as 113 people (91.1%), and percentages respondents who have Habit Smoking in the House No smoking category as many as 11 people (8.9%).

B. Analysis Bivariate

Analysis bivariate used For know connection between two variables . The variable in question that is variable *dependent* (Density Inhabitants and Habits smoke in home) and variables *independent* (ARI events). Following This is results bivariate analysis between variable *dependent* and variable *independent*

Density Occupant

Table 3. Connection Density Occupant With Incident Infection Channel Respiration Acute ISPA in Toddlers in Work Areas Public health center Sausu Parigi Moutong Regency Central Sulawesi Province

Density Occupant	ISPA incident				Total	P-Value	
	Controls		cases				
	N	%	N	%			
Does not meet the Condition	45	36.2	38	30.6	83	66.9	0.252
Fulfil Condition	17	13.7	24	19.2	41	33.1	
Total	62	50	62	50	124	100	

Source : Primary Data, 2023

Based on Table 3.1 Shows that percentage most respondents _ is respondents who with incidence of ISPA category *control* and own density residents category No fulfil condition that is as many as 45 people (36.2%), meanwhile percentage the fewest respondents is respondents with incidence of ISPA category *case* and have density residents category Fulfil condition that is as many as 17 people (13.7%). Based on statistical test results *Chi-Square* is obtained results *P-Value* is 0.252. *P-Value* > 0.05, so H_0 is accepted and H_a is rejected . It means No There is connection between Density Occupant With Incident Infection Channel Respiration Acute ISPA in Toddlers in Work Areas Public health center Sausu Parigi Moutong Regency Central Sulawesi Province .

Habit Smoking in the House

Table 3. Connection Habit Smoking In The House With Incident Respiration Acute ISPA in Toddlers in Work Areas Public health center Sausu Parigi Moutong Regency Central Sulawesi Province

Habit Smoking in the House	ISPA incident				Total		P-Value
	Controls		Cases		N	%	
	N	%	N	%			
Smoke	57	46	56	45.2	113	91.1	1,000
Do not smoke	5	4	6	4.8	11	8.9	
Total	62	50	62	50	124	100	

Source : Primary Data, 2023

Based on table 3.2 Shows that percentage most respondents _ is respondents with incidence of ISPA category *control* and own Habit smoke in House category smoke that is as many as 57 people (46%), meanwhile percentage the fewest respondents is respondents with incidence of ISPA category *case* and have habit smoke in House category No smoke that is as many as 5 people (4%). Based on statistical test results *Chi-Square* is obtained results *P-Value* is 1,000. *P-Value* > 0.05, so H_0 is accepted and H_a is rejected . It means No There is connection between Habit smoke in House category With Incident Infection Channel Respiration Acute ISPA in Toddlers in Work Areas Public health center Sausu Parigi Moutong Regency Central Sulawesi Province .

DISCUSSION

Density Bedroom Occupancy

Relationship outcomes Density residents is wide floor in House shared with amount member family residents the . Density residents in One House stay will give influence for its inhabitants . The size of the house is not comparable with amount its inhabitants will causing overcrowding. This matter No Healthy because it's on the side cause lack of consumption oxygen , also if one member family suffer something disease infection especially pulmonary TB will easy infectious to member another family , because a the average sufferer can transmit to two to three people inside his house . Mukono (2015)

Based on results study about density residents toddler 's room ARI sufferers , respondents with incidence of ISPA category *control* and own density residents category No fulfil condition that is as many as 45 people (36.2%), meanwhile percentage the fewest respondents is respondents with incidence of ISPA category *case* and have density residents category Fulfil condition that is as many as 17 people (13.7%). If There is member suffering family _ disease channel Respiratory should No Sleep room with member family other , for ensure sufficient air volume . _ With thereby the more Lots amount residents room Sleep so the more fast air room experience gas pollution or bacteria . With many occupants , then

rate oxygen in room decreased and was followed by an increase in CO₂ and impacts increase in CO₂ in room is decline quality air in room . (WHO, 2021)

Ministry of Health (2017) Density residents categorized as become fulfil standard (2 people per 8 m²) and density height (more than 2 people per 8 m² with provision child .

According to results Study Rudianto (2013), who pointed out No There is connection between density residents with incident ARI disease in toddlers . Density residents adequate rooms _ condition health , if wide minimum space ≥ 8 m² and not recommended for two people inside One room Sleep except child under 5 years old . Density too residential _ high or not enough ventilation cause humidity House increased (Nindya , 2005)

Habit Smoking in the House

Research result habit smoke in home for toddlers ARI sufferers Show that percentage most respondents _ is respondents with incidence of ISPA category *control* and own Habit smoke in House category smoke that is as many as 57 people (46%), meanwhile percentage the fewest respondents is respondents with incidence of ISPA category *case* and have habit smoke in House category No smoke that is as many as 5 people (4%).

This is supported by a _ research that states that living toddler _ same house with member smoking family _ at risk 5,743 times more big suffer pneumonia compared with toddlers in the same house with member families who don't smoking (WHO, 2012).

Research result This The same with research conducted by Maryani (2012) on connection between condition environment home and habits smoke member family with incidence of ISPA in toddlers in the village Bandarhajo Semarang City, that No there is connection between habit smoke with incidence of ARI in toddlers . Where $p= 0.001$. Habit old man smoking inside _ House make toddler as smoker always passive _ exposed to cigarette smoke . A house owned by the owner have smoking habit chance increase the incidence of ARI was 7.83 times compared with House toddler whose parents No smoking inside _ home (Rahmayatul , 2013).

CONCLUSION

Based on data obtained from all respondents, the level of perception of FKIP students at Tanjungpura University in the English Education study program is relatively high, at 70%, this reflects that as many as 70% of students have a high enough enthusiasm for the implementation of online learning during the covid19 pandemic. this is proven by the calculation of 5 aspects that contribute to the implementation of the online learning. on the aspect of learning completeness getting a score of 67% this aspect is classified as high. Second, for the aspect of the ability of teachers in managing learning the results are 69% which is quite high. the third, the infrastructure that supports learning gets a score of 69% this aspect is also quite high. Furthermore, the aspect of learning activities with a percentage of 66% is high. And lastly, the aspect of student achievement with a percentage of 75% and in the high category.

English education students at FKIP Untan showed acceptance of the implementation of online learning due to the ease of accessibility and showed positive and

negative perception. Positive perception including understanding the material that is felt easier to understand, student have edaquate infrastructure to follow online learning, an increas in dicipline and self-reliance. Meanwhile, negative perceptions include students facing problems in internet network connectivity, the number of assignments that are calculated, and also the interaction between lecturers and students.

REFERENCES

- Anon. 2019. "Dinas Kesehatan Parigi Moutong."
- Anon. 2020. "Dinas Ksehatan Parigi Moutong."
- Anon. 2021a. "Dinas Kesehatan Parigi Moutong."
- Anon. 2021b. "Nurkhalisah Haris." *Faktor Yang Berhubungan Dengan Kejadian Infeksi Saluran Pernapasan Akut (Ispa) Pada Balita Di Wiilayah Kerja Puskesmas Padongko Kabupaten Barru.*
- Depkes Ri, 2004. 2021. *Faktor Risiko Lingkungan Fisik Rumah Terhadap Kejadian Infeksi Saluran Pernapasan Akut (Ispa) Pada Balita (Literature Review.*
- Hamidah, Ardhin Yuul. 2018. "Arartikel." *Hubungan Kesehatan Lingkungan Rumah Dengan Kejadian Infeksi Saluran Pernapasan Akut (Ispa) Pada Balita Di Desa Pulung Merdiko Ponorogo.*
- Lemeshow. 1990. "Rumus Penelitian Besar Sampel Lemeshow." 29–43.
- Lubis, Ade Syahrena. 2019. "Artikel." *Faktor – Faktor Yang Berhubungan Dengan Kejadian Ispa Di Wilayah Puskesmas Sentosa Baru Medan.*
- Notoatmodjo, 2018. 2021. "Jurnal." *Hubungan Perilaku Merokok Orang Terdekat Puskesmas Cempaka Banjarmasin 6(2).*
- Noviana Riski. 2022. "Jurnal." *Hubungan Kondisi Fisik Rumah Dan Kebiasaan Merokok Dalam Rumah Dengan Kejadian Infeksi Saluran Pernapasan Akut Di Wilayah Kerja Puskesmas Madurejo 33(1):1–12.*
- Profil Kesehatan Provinsi Sulawesi Tengah. 2021. "Dinas Kesehatan Provinsi Sulawesi Tengah." 1–377.
- Profil Kesehatan Sulawesi Tengah. 2019. "Dinas Kesehatan Provinsi Sulawesi Tengah." 1–222.
- Rahma Dani. 2022. "Jurnal." *Hubungan Sanitasi Fisik Rumah Dengan Kejadian Infeksi Saluran Pernapasan Akut (Ispa) Pada Balita Di Wilayah Kerja Puskesmas Rasimah Ahmad Bukittinggi.*
- Saleh, Muhammad, And Syahratul Aeni. 2017. "Jurnal." *Hubungan Sumber Polutan Dalam Rumah Dengan Kejadian Infeksi Saluran Pernaafasan Akut Pada Balita Di Kecamatan Mariso Kota Makassar.*
- Sartika. 2022. "Jurnal." *Faktor Risiko Kondisi Fisik Rumah Dan Perilaku Merokok Anggota Keluarga Dengan Kejadian Ispa Pada Balita Di Wilayah Kerja Puskesmas Bajo Barat Kabupaten Luwu.*
- Setiadi. 2013. "Kerangka Konsep Penelitian Menurut Para Ahli."
- Tengah, Profil Kesehatan Provinsi Sulawesi. 2020. "Dinas Kesehatan Provinsi Sulawesi Tengah." 1–324.

- Urgadana, Tiara Noviyanti. 2019. "Jurnal." *Hubungan Antara Kondisi Lingkungan Fisik Rumah Dengan Kejadian Infeksi Saluran Pernafasan Akut Pada Keluarga Nelayan Didaerah Pesisir Kenjeran Surabaya* 8(5):55.
- Wijaya, Vera. 2021. "Jurnal." *Analisis Kondisi Lingkungan Rumah Dengan Kejadian Ispa Pada Balita Di Wilayah Kerja Uptd Puskesmas Gumawang Kab. Oku Timur.*