



The Relationship Between Home Environment and the Incidence of ARI Disease in Coastal Communities on Maitara Island, Tidore Islands

Abd Hakim Husen

Biomedical Science, Faculty Of Medicine, Khairun University, South Ternate, North Maluku, Indonesia

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ABSTRACT

Clean and healthy living behavior population is one effort Prevent the occurrence of ARI by pay attention to the house and healthy environment. This research was a quantitative study with cross sectional design. Sample was the a coastal community on Maitara Island North Tidore District. The total sample was 30 people, It was determined using purposive sampling method. Data was collected by interview and direct observation. Questioned was used as the instrument. Data analyzed using univariate and chi square analysis. Data analysis had been done using SPSS software. The results of bivariate analysis using the chisquare test, obtaining a p value of 0.000 ($p < 0.05$), illustrates that home environmental factors have a significant relationship with a history of ARI. The home cleanliness is a crucial aspect of reducing the incidence of acute respiratory Infection.

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Corresponding Author:

Abd Hakim Husen,
Kedokteran,
Fakultas Kedokteran Universitas Khairun Ternate,
Jl. Yusuf Abdurahman Gambesi, South Ternate, North Maluku 97719, Indonesia
Email: abdhakim@unkhair.ac.id

1. Introduction

The National Health System, hereinafter abbreviated to SKN, is health management carried out by all components of the Indonesian nation in an integrated and mutually supportive manner to ensure the highest level of public health is achieved. Health development aims to increase awareness, will and ability to live healthily for everyone in order to achieve the highest level of public health. (Feronica Aprillia Romauli et al., 2021).

Morbidity rates due to tropical diseases continue to increase from year to year, including in coastal areas. According to Law No.1 of 2014, Coastal areas are transition areas between land and sea ecosystems which are influenced by changes on land and at sea. Coastal areas are areas that have a high carrying capacity so that this area is a priority area for industrial development, tourism and so on and a place where human activities are concentrated (where 65% of Indonesia's population lives) (Irma & Harleli, 2023).

As a result, this area is vulnerable to environmental damage. The incidence of environmental-based diseases such as diarrhea, ARI/pneumonia and pulmonary TB in Indonesia is still a public health problem. ISPA is the most frequent disease in the first list of the 10 most common diseases in the Maitara Village Health Center, Tidore Islands City.

Acute respiratory infection (ARI) is one of the diseases that is the main cause of death in the world and is still a problem in Indonesia (Manalu & Sembiring, 2020). Based on WHO data in 2020, There are 10 main causes of death in the world, It is said that of the 56.9 million deaths worldwide, 54% were caused by these 10 causes of death, one of which is lower respiratory infections which are the largest

contributor to deaths from the infectious disease category, namely 3 million deaths in 2020 (Zolendo et al., 2022).

Airway disease which is popularly known as acute respiratory infection (ARI) is a disease that often occurs in the community, it can also be said with the community, because they almost always experience acute respiratory infections when there is a change in weather, season, and even lack of sleep. Some people consider this disease normal because it can heal itself, by resting or by drinking enough. In this case, this disease is very high and contributes to morbidity and mortality (Bedho et al., 2023). ARI is one type of environmental-based infectious disease (Miftahul Munir, Sugiyono, Adibah Enggar, 2024). Acute Respiratory Infection (ARI) is an acute respiratory disease with various symptoms that can be caused by many factors. ARI is an infection that lasts up to 14 days. The 14 days limit is used for some diseases that can be classified in the ARI, and this process can last more than 14 days (Shafira et al., 2023).

The condition of the home environment greatly affects the health of the occupants of the house, One of the causes of respiratory disease is a poor physical condition of the house. Respiratory disease can be transmitted due to inadequate ventilation. Respiratory disease and all diseases that spread through the air are easily transmitted to others if the house does not meet health requirements (Fera & Sriwahyuni, 2020). A healthy home is a home that has certain requirements, it doesn't have to be big and luxurious, but a healthy house meet the following criteria, namely the house building must have lighting, space to move sufficient, has ventilation and is away from noise (Rosalina et al., 2023).

The supporting factor for the occurrence of acute respiratory infections is also the condition of the coastal environment. Coastal areas are areas that have a high carrying capacity so that this area is a priority area for industrial development, tourism and so on and places where human activities are concentrated (where 65% of Indonesia's population lives), As a result, this area is vulnerable to environmental damage. The incidence of environmental-based diseases such as ARI in Indonesia is still a public health problem (Yusuf et al., 2018).

Clean and healthy living behavior population is one effort Prevent the occurrence of ARI by pay attention to the house and healthy environment. From the results of previous research by (Husen & Rahman, 2023) showed that there were 54 respondents (50.9%) suffering from ARI on the coast of Maitara Island, North Tidore District. As an indicator welfare of coastal communities, long-term development goals Indonesia's health is increased awareness, will and the ability to live a healthy life for every Indonesian citizen including coastal communities an increase in degree is realized public health in the future front.

2. Method

This research is an observational survey research with a cross sectional study approach. The population in this study were residents in the coastal area of Maitara Island with a sample of 30 people taken in stages. Determination of areas was carried out non-randomly, namely by purposive sampling with the main criteria being areas located on the coast. Next, after obtaining the selected village. Then individual samples were selected for residents and heads of households as respondents using random sampling using a simple random sampling technique. Data collection was carried out using questionnaires and observation sheets according to complaints, disease symptoms experienced by the community and supported by secondary data from the Community Health Center.

3. Result

Data collected from the sample consisted of gender, age, history of ARI, and home environment. Characteristics sample such as gender, age, History of ARI disease and home environment can be seen in table 1.

Table 1.
Distribution of Respondent Characteristics

Characteristics	Frequency (f)	Percent %
Gender		
Men	9	30,0
Woman	21	70,0
Age		
20-30 years	12	40,0
31-40 years	18	60,0
History of ARI disease		
ARI	6	20,0
No ARI	24	80,0
House Environmental Health		
Healthy	22	73,3
Unhealthy	8	26,7
Total	30	100%

Based on the table above obtained from the sample in this study, men have a percentage of 30% and women have a percentage of 70%. Furthermore, based on the age group, the most respondents were 31-40 years old, namely 60.0% and the least age group was 20-30 years old, namely 40.0%. Based on a history of ARI disease, was 20.0% suffering from ARI, while respondents who did not suffer from ARI were 80.0%. Meanwhile, the distribution of respondents based on a healthy home environment was 73.3% and unhealthy was 26.7%.

Table 2.
The Relationship between Home Environmental Factors and History of ARI

House Environmental	History of ARI Disease						p
	ARI		No ARI		Total		
	n	%	n	%	n	%	
Healthy	22	73,3	0	0,0	22	73,3	0,000
Unhealthy	2	6,7	6	20,0	8	26,7	
Total	24	80,0	6	20,0	30	100	

The table above shows the results of bivariate analysis using the chisquare test, obtaining a p value of 0.000 ($p < 0.05$), illustrates that home environmental factors have a significant relationship with a history of ARI.

4. Discussion

Nearly all health centers list ARI among the top 10 ailments each year. ARI may be a contributing factor in death in specific age groups. The physical environment of the home, in particular, can have an impact on the development of ARI disease (Sakriani & Supardi, 2023). Determining the physical environment of the home's exposure to the occurrence of ARI is the goal of this study. Testing the data based on the Chi-Square test obtained p-value = 0.000 $< \alpha = 0.05$, so there was rejection of the null hypothesis, with the home environment being significantly related to the incidence of ARI.

Several studies state that air pollution originating from the kitchen has made a major contribution to ARI This is in line with the results in this study (Hairat, 2019) which showed that there were 9 (20.5%) toddlers who had a healthy home environment but suffer of ARI. The researchers assume that this could be caused by the transition from the dry season to the rainy season and a family history of ARI. An uncontrolled increase in population density was associated with a less organized community in terms of social, cultural, and health aspects (Lutpiatina et al., 2022).

According to the researchers, unhealthy homes will cause a lot of pollution, including house air pollution, which is rarely cleaned, windows that are not opened every day so that air circulation is not good. This will cause accumulation of dust in homes where dust is one of the causes of ARI due to dust

pushing cilia into the airway will stimulate the mucous glands to produce large amounts of mucus, which obstructs the airways until the child becomes coughed and suffocated. Poor air circulation will cause the environment to become very humid, which is not suitable for breathing because more water vapor enters the airways, which causes ARI. A healthy home will provide a sense of comfort and clean air so that avoid ARI (Ratnaningsih & Lusiana, 2020).

This study was supported by (Sakriani & Supardi, 2023) Which says that the physical condition of the house is significantly related to the incidence of ISPA, such as lighting, ventilation, kitchen smoke holes, the roof of the house and the smoking behavior of family members. These factors are risk factors for causing ARI. The risk factors that cause ARI can be prevented with cross-sector collaborative efforts to further intensify health education and environmental modification efforts that are friendly to health. Efforts that can be made to minimize the incidence of ARI are to control the risk of ARI, namely by not smoking in the house, keeping the house from being humid, and making good home ventilation so that it can minimize the occurrence of ARI, for policyholders to conduct a healthy home survey and help the underprivileged in maintaining a healthy home environment, as well as providing education about the dangers of smoking in the house by family members (Rizaldi, 2023).

5. Conclusion

The home cleanliness is a crucial aspect of reducing the incidence of acute respiratory , infection. Based on the research results, it was concluded that home environmental factors were related to the incidence of ARI. This is because the family living in the house as a group can cause, prevent, ignore or correct health problems in it.

Risk factors for ARI disease are environmental factors. The environment in question is air pollution both indoors and outdoors as well as home sanitation. Environmental factors include, indoor air pollution (cigarette smoke and smoke from burning fuel for cooking in high concentrations), house ventilation and residential density, The environment in the house interacts closely with the daily residence of family members. If the environment in the house where a family gathers and takes shelter is unhealthy due to an infection attack by bacteria or viruses, it can cause various diseases, one of which is ARI.

Eradicating ISPA cases requires cooperation from all parties, namely the participation of the community, especially mothers, doctors, medical professionals and health cadres to support the success of reducing mortality and morbidity rates in line with national development expectations. Education to the public about ISPA needs to be improved and carried out continuously, and it is hoped that the management and eradication of ISPA cases which are currently being implemented, will be further improved.

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