

# The Role of Clean and Healthy Behavior in Prevention of Acute Respiratory Infection in South Tagulandang District, Sitaro Islands Regency

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## ABSTRACT

Acute Respiratory Infection (ARI) is still a public health problem in Indonesia, specifically in the islands. Data shows that this disease is most prominent in the Sitaro Islands Regency. Risk factors known are environmental factors, individual factors, and behavioral factors. The aim of this study was to determine the level of public knowledge about Clean and Healthy Behavior (CHB) also to increase and develop awareness about prevention of ARI through CHB counseling in South Tagulandang District. The study design was quasi experimental research and conducted in 6 villages located in the South Tagulandang District. The number of samples are 106 respondents with proportional random sampling. This study used pre-test and post-test questionnaires to measure the level of knowledge before and after counseling. Data were analyzed with univariate and bivariate analysis (paired t-test). Results showed that before counseling, most respondents were at the “poor” level amounted to 67 people (63.2%) and after counseling, as many as 84 respondents (79.2%) were at “good” level of knowledge. The paired t-test results found p value of 0.000 with a moderate correlation ( $r = 0.561$ ), so there were significant differences before and after counseling in the community of South Tagulandang District. We recommend the District Health Office and local health centers should be more active in organizing Health Promotion Program, especially the Clean and Healthy Behavior and provide more media of health promotion for the community.

**Keywords:** acute respiratory infection, clean and healthy behavior, coastal community

## 1. INTRODUCTION

The decline of the infant mortality rate was one point out of Acute Respiratory Infections (ARI) is a major health problem in Indonesia because of the high incidence, mostly occurred on children and infants. ARI often ranks first as a cause of death in infants and toddlers. ARI ranks third largest cause of death in the world (7.1%) and the first cause of death in developing countries (11.2%) [1]. Indonesia ranks sixth after India, China, Pakistan, Bangladesh and Nigeria with number of cases reaching 6 million per year [2]. ARI is also a disease that frequently in the list of 10 diseases stand out in health centers and hospitals in Sulawesi Utara [3].

ARI is an acute infection process lasting for 14 days, which is caused by microorganisms and attacks one part, and or more of the airways, starting from the nose (upper channel) to the alveoli (lower channel), including its adnexal tissue, such as sinus, ear cavity middle and pleural [4]. ARI begins with fever accompanied by one or more symptoms, sore throat or pain when swallowing, runny nose, dry cough or phlegm. Infection can be transmitted by humans through blood, body fluids, secretions, excretions, incomplete skin. Some people may look healthy even

though their blood or body fluids can spread the infection, and standard precautions must be taken when providing services, whatever the patient's diagnosis [5].

The occurrence of ARI varies according to several factors that exist in the surrounding environment. Dissemination and impact related to environmental conditions for example, air pollutants, occupancy density (family members), humidity, cleanliness, season and temperature, availability and effectiveness of health services and infection prevention measures to prevent the spread (for example, vaccines, breastfeeding, access to health care facilities adequate, as well as the capacity of the isolation space), host factors, such as age, smoking habits, host ability to transmit infections, immune status, nutritional status, previous infections or simultaneous infections caused by other pathogens, general health conditions, and pathogenic characteristics, such as transmission, infectiousness, virulence factors (for example, toxin-coding genes), and the amount or dose of microbes (inoculum size) [6]. ARI cases are often found in coastal areas that are vulnerable to uncertain weather, humidity that changes at night and day and temperatures in the coastal area.

Law of the Republic of Indonesia Number 1 of 2014 [7] states that coastal areas are transitional areas between terrestrial and marine ecosystems that are affected by changes on land and at sea. The coastal area is a high

capacity area so it became a priority area for industrial development, tourism and a place where human activities are concentrated (where 65% of Indonesians live), as a result this region is vulnerable to environmental damage.

The occurrence of environmental based diseases such as diarrhea, ARI / pneumonia and tuberculosis in Indonesia is still a public health problem especially in coastal areas [8]. The smallest environment is home. An unhealthy home environment will affect the incidence of ARI [9].

Households as a vehicle for family members in carrying out daily activities play an important role in the incidence of ARI, specifically in infants where the risk factors are mostly in the home environment [10]. Clean and Healthy Behavior (CHB) of household is an effort to empower household members to know, want and be able to practice clean and healthy behavior and play an active role in the health movement in the community [11]. But in its implementation, CHB is still difficult to be implemented maximally by the majority of the Indonesian people. The results of the National Health Research (Riskesdas) in 2013 showed the population that had met the good CHB criteria was 38.7%. That number dropped to 32.3% from 294,959 households that were inspected [12].

South Tagulandang district is one of three districts on Tagulandang Island. The incidence of ARI in the area of Sitaro Islands Regency itself ranks first among 10 prominent diseases based on the data of the local District Health Office. The importance of applying CHB in the household is expected to be influential in preventing the occurrence of ARI. Based on the description above, the purpose of this research is to increase awareness of the importance of preventing ARI through counseling activities of the implementation of CHB in the household setting to the community in the South Tagulandang District, Sitaro Islands Regency.

## 2. METHOD

The study design was a quasi-experimental design (one group pre-test post-test). This design does not have a comparison group (control), but it has been made the first observation (pre-test) that allows researchers to test changes that occur after an experiment [13]. This study was conducted in 6 villages of South Tagulandang District, Sitaro Islands Regency, namely Humbia Village, Kisihang Village, Birakiama Village, Buha Village, Batumawira Village, and Birarikei Village. The study was conducted in May to October 2019. The population in this research is residents who live in the territory of the South Tagulandang District. Sampling used proportional random sampling technique. The sample size in this study was calculated based on the Lemeshow formula of 106 respondents. The variables studied in this study were clean and healthy behavior of the community in the household setting. Instruments used include questionnaires regarding CHB indicators in the household setting, standing banners, posters, leaflets, and videos about the application of CHB in the household setting. Data sources are primary data obtained through direct interviews with respondents using

a questionnaire while secondary data were obtained from the District Health Office, the Central Statistics Agency, and the Village Government. Obtained data is then processed and analyzed with univariate and bivariate. Univariate analysis is performed with descriptive analysis to see the characteristics of each variable studied. Bivariate analysis was performed using paired t-test to measure whether there were statistical differences before and after counseling about CHB in the communities in the South Tagulandang District, Sitaro Islands Regency ( $p \text{ value} < \alpha$ ). The confidence level used is 95% ( $\alpha = 0.05$ ).

## 3. RESULTS AND DISCUSSION

Siau Tagulandang Biaro Islands Regency or often abbreviated with Sitaro is one of the regencies in the province of North Sulawesi and located at the coordinates of 2°07'48" - 2°48'36" north latitude and 125°09'36" - 125°29'25" east longitude. Administratively, Sitaro Islands Regency area is 275.95 km<sup>2</sup>, which consists of 47 islands where as many as 12 islands have been inhabited and 35 islands have not been inhabited. Sitaro Islands Regency divided into 10 districts, where in the year 2018 of a number of districts are divided again into the 83 villages and 10 sub-districts. The district with the largest area is East Siau district with 55.94 km<sup>2</sup>, while the sub-district with the smallest area is Central Siau district with 11.80 km<sup>2</sup>. South Tagulandang district itself has an area of 21.63 km<sup>2</sup> with Kisihang as the Capital District and 6 villages. Total population of Sitaro Islands Regency based on the Central Statistics Agency data in 2018 is 65 225, which consists of 32,694 males (49.37%) and 33,531 women (50.63%). Total population of the South Tagulandang District amounted to 4,354 inhabitants, with the composition of 2,115 men and 2,239 women in the year 2018 [14].

### 3.1. Number of Cases of 10 Most Diseases in Sitaro Islands Regency

Table 1. Ten Most Diseases in the Sitaro Islands Regency

Type of Disease	Number of cases
Acute Respiratory Infection	1,783
Hypertension	866
Gastritis	478
Allergic Skin Disease	382
Bronchitis	244
Muscles Diseases	240
Accident and emergency	171
Tonsillitis	38
Diabetes mellitus	34
Dental Caries	29
Total	4,265

Table 1 shows that infection of Acute Respiratory Infection (ARI) is a disease with the highest number of cases in the Sitaro Islands Regency, while Dental Caries is a disease with the lowest number of cases in the Sitaro Islands Regency [15].

### 3.2. Description of Respondents Characteristics

#### A. Age Group of Respondents

The division of age groups in the form of a description of the respondents' distribution by age group can be seen in Table 2.

Table 2. Distribution of Respondents by Age Group

Age group	Total	
	n	%
18-24 years	22	20.8
25-34 years	20	18.9
35-44 years	27	25.5
45-54 years	23	21.7
55-64 years	14	13.2
Total	106	100

The age group of respondents indicate that the group of 35-44 years is the majority with a percentage of 25.5% and the group of 55-64 years is the lowest with a percentage of 13.2%.

#### B. Education Level of Respondents

An overview of the distribution of respondents by education level can be seen in Table 3.

Table 3. Distribution of Respondents by Education Level

Education Level	Total	
	n	%
Elementary school	25	23.6
Middle school	28	26.4
High school	36	34
Diploma	5	4.7
Bachelor / Master / Doctor	12	11.3
Total	106	100

The education level of respondents indicate that the level of high school is the majority with a percentage of 34% and the level of education diploma is the lowest with a percentage of 4.7%.

### 3.3. Clean and Healthy Behavior of Respondents

#### A. Univariate Analysis

The pre-test and post-test questionnaire carried out at the time of the study consisted of 2 parts, namely the first section to measure indicators of knowledge and the second section to measure attitude indicators.

#### 1) Respondents Knowledge about Clean and Healthy Behavior (CHB)

The level of knowledge respondents about CHB are measured at the time before counseling and after counseling with a questionnaire study. An overview of the level of respondents' knowledge about CHB can be seen in Table 4.

Table 4. Level of Respondents' Knowledge about CHB

Intervention	Knowledge level				Total	
	Good		Poor			
	n	%	n	%	n	%
Before Counseling	39	36.8	67	63.2	106	100
After counseling	84	79.2	22	20.8	106	100

Table 4 shows that before counseling, most respondents were at the "poor" level of knowledge with 67 respondents (63.2%) and after counseling, most respondents were at the "good" level of knowledge with 84 respondents (79.2%).

#### 2) Respondents' Attitudes About Clean and Healthy Behavior (CHB)

The attitude of the respondents about CHB are measured at the time before and after counseling with a questionnaire study. An overview of respondents' attitudes about CHB can be seen in Table 5.

Table 5. Level of Respondents' Attitude about Clean and Healthy Behavior

Intervention	Attitude Level				Total	
	Good		Poor			
	n	%	n	%	n	%
Before Counseling	43	40.6	63	59.4	106	100
After counseling	86	81.1	20	18.9	106	100

Table 5 shows that before counseling, most respondents were at the "poor" attitude with 63 respondents (59.4%) and after counseling, most respondents were at the "good" attitude with 86 respondents (81.1%).

#### B. Bivariate Analysis

Bivariate analysis is done to see whether there is a significant difference in statistics by using paired t-test to

compare the total score of respondents before and after counseling. The results of the paired t-test analysis can be seen in Table 6.

Table 6. Bivariate Analysis Results

Variable	n	Mean	SD	p-value	r
Knowledge about CHB					
Before Counseling	106	50.57	23.455	0.000	0.561
After counseling	106	78.21	20.784		

Out of 106 respondents who were observed, it can be seen that the average score of questionnaires before counseling was 50.57 and the average score of questionnaires after counseling is 78.21. Statistically, there are significant differences between the average score of the questionnaires before and after counseling with p value of 0.000 and the correlation (r) of 0.561.

#### 4. CONCLUSION

There are significant differences before and after counseling about clean and healthy behavior at the community of South Tagulandang District. We recommend the District Health Office and local health centers should be more active in organizing Health Promotion Program, especially the Clean and Healthy Behavior and provide more media of health promotion for the community..

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