
Mother's Level of Knowledge about Prevention of ARI with Incidence of ARI in Children under Five at Posyandu the Working Area Botania Health Center Batam City

Eka Agustin^{1*}, Angga Putri², Ratna Dewi Silalahi³, Kiki Rizki Dasaryandi⁴

^{1,2}Department of Nursing Science, Faculty of Medicine, Universitas Batam,
Riau Islands, Batam 29464, Indonesia.

^{3,4}Department of Nursing Profession, Faculty of Medicine, Universitas Batam,
Riau Islands, Batam 29464, Indonesia.

ekaagtiyas@yahoo.com; angga_ferlito@yahoo.co.id; ratnadewi84@universitas.ac.id;
kiki.rizki1991@gmail.com.

*Corresponding Author:

Eka Agustin Ayuningtyas
Email: ekaagtiyas@yahoo.com

Abstract

Acute Respiratory Infection (ARI) is a major health problem that continues to occur in Indonesia. Based on data from the 2020 Batam Health Office, the Botania Health Center is the highest with 8,660 cases of toddlers under 5 years. The purpose of knowing the relationship between the level of knowledge of mothers about the prevention of ARI with the incidence of ARI in infants. The research design is descriptive analytic with a cross-sectional approach. The population is all mothers who have children aged 1-60 months or 0-5 years with a sample of 42 respondents by purposive sampling. Data collection using a questionnaire sheet via Google form. The results showed that the majority of mothers had less knowledge about ISPA prevention (38.1%). The majority of ARI incidence rates are more than half in toddlers (61.9%). The results of the Chi-Square test showed a p-value of 0.03 (<0.05) meaning that there was a significant relationship between the level of mother's knowledge about ISPA prevention and the incidence of ISPA in toddlers at the Posyandu in the working area of the Botania Health Center. It is hoped that the results will become material for continuing to increase mother's knowledge about ISPA in toddlers.

Keywords: ISPA; Prevention; Knowledge

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Eka Agustin^{1*}, Angga Putri², Ratna Dewi Silalahi³, Kiki Rizki Dasaryandi⁴

^{1,2}Department of Nursing Science, Faculty of Medicine, Universitas Batam, Riau Islands, Batam 29464, Indonesia.

^{3,4}Department of Nursing Profession, Faculty of Medicine, Universitas Batam, Riau Islands, Batam 29464, Indonesia.

ekaagtiyas@yahoo.com; angga_ferlito@yahoo.co.id; ratnadewi84@universitas.ac.id; kiki.rizki1991@gmail.com

*Corresponding Author:

Eka Agustin Ayuningtyas
Email: ekaagtiyas@yahoo.com

Abstrak

Tingkat Pengetahuan Ibu Tentang Pencegahan ISPA dengan Kejadian ISPA pada Balita di Posyandu Wilayah Kerja Puskesmas Botania Kota Batam. Infeksi Saluran Pernafasan Akut (ISPA) merupakan masalah kesehatan utama yang terus terjadi di Indonesia. Berdasarkan data Dinkes Batam 2020, Puskesmas Botania yang tertinggi dengan 8.660 kasus balita dibawah 5 tahun. Tujuan diketahuinya hubungan tingkat pengetahuan ibu tentang pencegahan ISPA dengan kejadian ISPA pada balita. Desain penelitian deskriptif analitik dengan pendekatan cross-sectional. Populasi adalah seluruh ibu yang memiliki anak usia 1-60 bulan atau 0-5 tahun dengan sampel 42 responden secara purposive sampling. Pengumpulan data dengan lembar kuesioner melalui Google form. Hasil penelitian menunjukkan bahwa mayoritasnya ibu dengan pengetahuan kurang tentang pencegahan ISPA (38,1%). Angka kejadian ISPA mayoritas lebih dari setengah pada balita (61,9%). Hasil uji Chi-Square terdapat p-value 0,03 (<0,05) artinya ada hubungan yang signifikan antara tingkat pengetahuan ibu tentang pencegahan ISPA dengan kejadian ISPA pada balita di Posyandu wilayah kerja Puskesmas Botania. Diharapkan hasil menjadi bahan untuk terus meningkatkan pengetahuan ibu tentang ISPA pada balita.

Kata Kunci: ISPA; Pencegahan; Pengetahuan

Introduction

Children's health is an important thing that is always the focus of parents, because children are in a stage of development and growth where special attention is needed for parents. Children are not small forms of adult bodies. Body functions are very different from adults (Peter in Stela, 2016).

Experts classify toddler age as a stage of child development that is quite vulnerable to various disease attacks. The following are health problems including diseases that often occur in children under five, namely acute respiratory infections (ARI), pneumonia (Infodatin, 2015).

Toddlers are individuals who are still in a period of growth and development. The immune system at this age is still relatively low compared to later ages. An immature immune system in toddlers causes toddlers to be susceptible to infection, one of which is ISPA. Prevention of ARI is closely related to a person's immune system. ISPA is very vulnerable to toddlers. that is why cases of ISPA as a disease with a very high prevalence in the world also show a very high child mortality rate compared to other diseases (Stela, 2016).

Acute respiratory infection (ARI) is a major cause of morbidity and mortality due to infectious diseases in the world. Nearly 4 million people die from acute respiratory infections each year, of which 98% of these deaths are caused by lower respiratory tract infections. Mortality rates are very high for infants, children and the elderly, especially in low- and middle-income countries. Acute respiratory infections are one of the most common causes of consultation or treatment in health care facilities, especially in pediatric services (WHO, 2020).

Acute respiratory infection (ARI) is an upper or lower respiratory tract disease, usually contagious, which can cause a wide spectrum of disease ranging from asymptomatic or mild infection to severe and fatal disease, depending on environmental factors, host factors. However, ISPA is often defined as an acute respiratory disease caused by an infectious agent that is transmitted from human to human. The onset of symptoms is

usually rapid, ie within a few hours to several days. Symptoms include fever, cough and often sore throat, coryza (runny nose), shortness of breath, wheezing or difficulty breathing (Masriadi, 2017).

The World Health Organization (WHO) mentions the incidence of acute respiratory infections (ARI) with under-five mortality rates above 40 per 1000 live births or 15% -20% per year in under-fives. ISPA disease often occurs in children. Episodes of cold cough in toddlers in Indonesia are estimated to be 3-6 times per year (4 times per year on average), meaning that an average toddler gets cold cough attacks 3-6 times a year (Masriadi, 2017).

In Indonesia, ARI cases still rank first as the cause of death in the infant and toddler group with a prevalence of 25% and 14.9% malnutrition morbidity. Nutritional status is an important risk factor for ISPA, poor nutritional status will decrease the immune system and increase the risk of infectious diseases (Sulastini, 2018).

Parents have an important role in the child's growth period, as well as in the process of preventing and controlling ARI. The roles of parents include: role as child care provider, child socialization, educational role, and affective role. The reason why parents play an important role for children's health is because a child's life is determined by the family environment (Stela, 2016).

The incidence of ARI is closely related to parents' knowledge of ARI, because parents are the main person

in charge of maintaining children's welfare (Wahyuti, 2012). One of the reasons for the high incidence of ARI in infants in Indonesia is the lack of knowledge of mothers about ARI. Knowledge is the result of knowing and this happens after people sense a certain object so that this knowledge can influence mothers about ISPA, so it will be directly related to reducing the incidence of ISPA (Intan, 2014).

In preventing ARI in toddlers, parents must understand the signs and symptoms of ARI, causes, and factors that make it easier for toddlers to get ARI. Lack of parental knowledge about ARI causes a high incidence of ARI in toddlers and makes parents not treat their children when they are exposed to ARI, thereby exacerbating the condition of the infection experienced by children (Rahajoe in Yunita 2015).

In Batam City, based on SP2TP/SIMPUS reports from Health Centers throughout Batam City during 2017, an overview of the 10 biggest diseases was obtained which reflected disease patterns that were experienced by the people of Batam City and the most common disease in 2017 was ISPA disease (Acute Respiratory Infection).

Based on these data, there were 58,147 ISPA sufferers in Batam City. The climate in the city of Batam is uncertain, the humidity level is quite high, the mobility of the population is dynamic and various other factors are the determinants that allow for the high incidence of ISPA in Batam City

(Batam City Health Office, 2018). The number of ISPA cases in 2018 was 63,929 cases, this confirms that ISPA continues to increase every year.

Data from the Batam city health office for 2020 shows that the total population under five is 138,930. In 2020, 54,860 toddlers aged less than 5 years suffered from ISPA, both pneumonia and not pneumonia. 5,529 of them are estimated to suffer from pneumonia and as many as 21,113 infants visit the puskesmas within one year with complaints of coughing or difficulty breathing.

Age 1 to <5 years is the majority of patients who come for treatment with complaints of coughing and difficulty breathing. The highest incidence of ARI in toddlers is in the Batam Kota sub-district with an estimated number of 14,383 toddler pneumonia cases in toddlers under the age of 5 years and the number of toddlers visiting with cough or difficulty breathing is 2,965 toddlers.

Based on data from the Batam City Health Office's ARI Control Program Manager in 2020, the Botania Health Center had the highest ISPA incidence in toddlers aged less than 5 years in Batam City, namely 8,660 cases consisting of 7,747 non-pneumonic ARI cases and 913 pneumonia ARI cases.

There were 1,845 visits by toddlers with coughs or difficulty breathing. From the data obtained from the monthly report of the ISPA Control Program at the Botania Health Center from February to April 2020,

the following data was obtained: in February there were 1,775 cases of ISPA in children under five years of age with details of 1,732 non-pneumonia ARI cases and 43 pneumonia ARI cases, in March there were 2,098 cases of ARI in children under five years of age with details of 1,987 cases of ARI not pneumonia and 111 cases of ARI pneumonia, and in April there were 652 cases of ARI in toddlers aged less than 5 years with details of 619 cases of ARI not pneumonia and 33 cases of ARI pneumonia.

Based on the results of observations made by researchers on June 24, 2020 at the Botania health center with a mother who came for treatment because her 2-year-old child had a cough, she explained that she did not know how to treat her child's cough when the symptoms started, so she decided to go to the puskesmas.

The researchers also conducted interviews with cadres at the posyandu in the working area of the Botania Health Center and obtained results in the form of cadres explaining that the Puskesmas had provided counseling about ISPA to mothers, during the pandemic the posyandu was closed but there was a WhatsApp group to provide information to mothers. Some mothers also often ask in the group about how to handle their children if they experience symptoms of respiratory infections, especially during the Covid-19 pandemic. Mothers worry if their child's illness gets worse.

Based on the description above, researchers are interested in conducting research on the relationship between mothers' level of knowledge about preventing acute respiratory infections (ARI) and the incidence of ARI in toddlers at Posyandu in the working area of the Botania Health Center.

Methodology

Study Design. The research design used descriptive analytic with a cross sectional approach. The population in this study were all mothers who had children under five years old at Posyandu in the working area of the Batam City Health Center with inclusion criteria, mothers who had children under five with congenital respiratory disease, namely asthma. The sampling technique used purposive sampling method. The number of samples in this study were 42 respondents who had children under the age of 5 years from February to April 2020.

Measures. Instruments used is a questionnaire sheet. This questionnaire contains a list of questions that will be distributed to respondents, namely all mothers with children under five aged 0-5 years whose children have not and have had acute respiratory infections (ARI), respondents will fill in the questions on the Google form. Measuring tools at the level of mother's knowledge are broken down as follows: high 76-100% correct, medium 56-75% correct, low <56% correct. Questionnaire about the level of knowledge of the mother with 14 questions with each answer score is worth 1-4 and the ARI incident

questionnaire with a score of 1 if it is ARI and a score of 0 if it is not ARI.

Analysis. Data analysis was conducted using SPSS. Data on mother's level of knowledge about ISPA with the incidence of ISPA in toddlers are presented in the form of frequency and percentage distributions, while the relationship between variables was analyzed using the Chi-square test. Decisions are based on numbers value, if the $p\text{-value} < 0.05$ which means there is a relationship between variables independent with dependent, while the $p\text{-value} > 0.05$ which means there is no relationship between independent variables with variables dependent.

Ethical Consideration. Ethical approval was obtained from the Faculty of Medical, Universitas Batam.

Results

Presentation of data and results of this study are presented with a frequency distribution, narration tables and diagrams to see the independent variable the level of knowledge of mothers about ISPA with the dependent variable the incidence of ISPA in toddlers by doing a chi square test.

Based on research that held from February to April 2021 with a total of 42 respondent. Based on the results of table 1. below it can be seen that of the 42 respondents that more than half were aged <20 years to 30 years as many as 27 people (64.3%), the age range of 31 to 40 years was 12 people (28.6%) and a

small proportion >41 years old as many as 3 people (7.1%).

Based on table 2. Shows that from 42 respondents the majority (46.5%) 20 people with higher education backgrounds, 19 high school education people (44.2%), 2 junior high school education people (4.7%) and a small proportion of 1 person (2.3%) with elementary education background.

Based on table 3. shows that from 42 respondents more than half (60.5%) 26 people worked as housewives, 6 civil servants (14%), 4 entrepreneurs (9.3%), private employees 3 people (7.0%) and other jobs as many as 3 people (7.0%).

Based on table 4. shows that from The majority of the 42 respondents were toddlers, namely 15 infants aged 1-12 months (34.9%), 1 infant aged 13-24 months (2.3%), 8 infants aged 25-36 months (18.6%), 10 babies aged 37-48 months (23.3%) and 49-60 months old 8 people (18.6%).

Based on table 5, it can be seen that of the 42 respondents, the majority had less knowledge, 16 people (38.1%), a high level of knowledge, 12 people (28.6%) and a sufficient level of knowledge, 14 people (33.3%).

Next, table 6 can be seen from the 42 toddlers, more than half of the toddlers in the Posyandu working area of the Botania Health Center, 26 toddlers (61.9%) experienced ARI incidents while not ARI in a small proportion of toddlers, namely 6 toddlers (38.1%).

Furthermore, table 7 shows that of the 42 respondents who had a high level of knowledge, 6 respondents (50.0%) had ARI and 6 respondents do not have ARI (50.0%). Meanwhile, 5 respondents (35.7%) had an adequate level of knowledge with ARI and 9 respondents (64.3%) did not have ARI. Then respondents with less knowledge level as many as 26 respondents (61.9%) experienced ARI and 16 respondents (38.1%) did not experience ARI.

From the results of the Chi-square test, a p value of 0.03 (<0.05) means that H_a is accepted and it can be concluded that there is a significant relationship between the level of mother's knowledge about the prevention of ARI in toddlers and the incidence of ARI in toddlers in the Posyandu working area of the Botanical Health Center Batam City.

Table 1. Frequency distribution of mother's age who have children under five at posyandu working area at Botania Health Center Batam City (n = 42).

| Mother's age | Frequency | Percentage (%) |
|-----------------|-----------|----------------|
| 1. <20-30 years | 27 | 64.3 |
| 2. 31-40 years | 12 | 28.6 |
| 3. >41 years | 3 | 7.1 |
| Total | 42 | 100 |

Source: primary data processed in 2020

Table 2. Frequency distribution of mother's education who have children under five at posyandu working area at Botania Health Center Batam City (n = 42).

| Mother's education | Frequency | Percentage (%) |
|-----------------------|-----------|----------------|
| 1. SD | 1 | 2.3 |
| 2. Junior High School | 2 | 4.7 |
| 3. Senior High School | 19 | 44.2 |
| 4. College | 20 | 46.5 |
| Total | 42 | 100 |

Source: primary data processed in 2020

Table 3. Frequency distribution of mother's occupation who have children under five at posyandu working area at Botania Health Center Batam City (n = 42).

| Mother's occupation | Frequency | Percentage (%) |
|----------------------|-----------|----------------|
| 1. Civil servant | 6 | 14.0 |
| 2. Housewife | 26 | 60.5 |
| 3. Self-employees | 4 | 9.3 |
| 4. Private employees | 3 | 7.0 |
| 5. Other | 3 | 7.0 |
| Total | 42 | 100 |

Source: primary data processed in 2020

Table 4. Frequency distribution of toddler age who have children under five at posyandu working area at Botania Health Center Batam City (n = 42).

| Toddler age | Frequency | Percentage (%) |
|-----------------|-----------|----------------|
| 1. 1-12 months | 15 | 34.9 |
| 2. 13-24 months | 1 | 2.3 |
| 3. 25-36 months | 8 | 18.6 |
| 4. 37-48 months | 10 | 23.3 |
| 5. 49-60 months | 8 | 18.6 |
| Total | 42 | 100 |

Source: primary data processed in 2020

Table 5. Frequency distribution mother's level of knowledge about the prevention of ARI of toddler at posyandu working area at Botania Health Center Batam City (n = 42).

| Mother's level of knowledge | Frequency | Percentage (%) |
|-----------------------------|-----------|----------------|
| 1. High | 12 | 28.6 |
| 2. Enough | 14 | 33.3 |
| 3. Less | 16 | 38.1 |
| Total | 42 | 100 |

Source: primary data processed in 2020

Table 6. Frequency distribution ARI Incidence in toddler at posyandu working area at posyandu working area at Botania Health Center Batam City (n = 42).

| ARI Incidence in Toddler | Frequency | Percentage (%) |
|--------------------------|-----------|----------------|
| 1. Not ARI | 16 | 38.1 |
| 2. ARI | 26 | 61.9 |
| Total | 42 | 100 |

Source: primary data processed in 2020

Table 7. Relationship mother's level of knowledge about the prevention of ARI with Incidence of ARI in Children under five at posyandu working area at Botania Health Center Batam City (n = 42).

| Mother's level of knowledge | ARI Incidence in toddler | | | | Total | % | p-value |
|-----------------------------|--------------------------|------|-----|------|-------|-----|---------|
| | Not ARI | % | ARI | % | | | |
| 1. High | 6 | 50.0 | 6 | 50.0 | 12 | 100 | 0.03 |
| 2. Enough | 9 | 64.3 | 5 | 35.7 | 14 | 100 | |
| 3. Less | 1 | 6.3 | 15 | 93.8 | 16 | 100 | |
| Total | 16 | 38.1 | 26 | 61.9 | 42 | 100 | |

Source: primary data

Discussion

Mother's Knowledge about ARI Prevention.

According to Masturoh and Anggita in Putri 2020 explained that knowledge is the result of knowing and this happens after people sense a certain object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste and touch by themselves.

In preventing ARI in toddlers, parents must understand the signs and symptoms of ARI, causes, and factors that make it easier for toddlers to get ARI. Lack of parental knowledge about ARI causes a high incidence of ARI in infants and makes parents not treat their children when they are exposed to ARI, thereby exacerbating the condition of the infection experienced by children (Rahajoe in Yunita 2015).

Based on the data obtained from the research results in table 5. at the Posyandu working area of the Botania Health Center Batam City in 2020 the level of maternal knowledge is high as many as 12 people (28.6%), the level of knowledge is sufficient for 14 people (33.3%) and the level of knowledge is less 16 people (38.1%).

Based on the theory and data from the research results that have been conducted, the researcher concludes that a mother's knowledge can be influenced by several factors including age, employment status, and education. The level of mother's knowledge about prevention of ARI in toddlers is at a high level of knowledge, sufficient and lacking

whether there is ARI or not. On the questionnaire results sheet, the questions that were answered with scores of 2 and 1 were question number 5, namely I cook and wash my hands using clean water.

From the research results the majority of respondents work as housewives allowing mothers more time to do household chores such as cooking with clean water all the time, but from the research results there are still many mothers who have not done this. In question number 7 on the questionnaire, namely I keep my child away from cigarette smoke or burning smoke, the majority of the respondents answers are sometimes or never. And in question number 8 with the following content, I cover my mouth when I want to cough or sneeze when near a child, I get the majority of answers, sometimes and never from respondents.

This research is in line with previous research conducted by Lis Hartanti (2014) in which of the 63 respondents 34 people (54%) had a sufficient level of knowledge, 10 people (15.9%) had a moderate level of knowledge and 19 people (30.1) high level of knowledge. Likewise, the research conducted by Nurwahidah (2019) from 20 respondents showed that the mother's knowledge category was lacking, namely 10 respondents (50%), sufficient, namely 8 respondents (40%), and good, namely 2 respondents (10%).

ARI in Toddlers.

According to Suprajitno in Intan (2014) explains that a disease that many children suffer, both in developing and developed countries and are already able and many of them need to be hospitalized because the disease is quite serious. Diseases of the respiratory tract in infancy and childhood can also cause disability into adulthood.

Behavioral factors in the prevention and control of ARI in infants and toddlers, in this case, are the practice of handling ARI in the family, whether it is done by the mother or other family members. The family is the smallest unit of society that gathers and lives in one household, interdependent and interacting with one another. If one or several family members have health problems, the mother will affect other family members (Maryunani in Yunita 2015).

Based on the data obtained from the research results in table 6. at Posyandu in the working area of the Botania Batam City Health Center in 2020 it shows that the incidence of non-ARIs in toddlers is 16 (38.1%) and the incidence of ARI in toddlers is 26 (61.9%).

This research is in line with previous research conducted by Nia Aprilia (2019) with 60 respondents, most of the toddlers experienced ARI, namely 39 people (65%). Research conducted by Wiwin (2020) which uses this type of research is analytic with a sample size of 79 toddlers. The results of the study show that the percentage of ARI incidents in

toddlers at the Tamalanrea Jaya Health Center, Makassar City, is 70.9%.

Based on the theory and data from the research results that have been conducted, the researcher can conclude that acute respiratory infection disease (ARI) in toddlers at Posyandu in the working area of the Botania Health Center is still high. Toddler age is the age when the body's immunity has not been formed as perfectly as in adults. Toddlers are very susceptible to infection by diseases, one of which is acute respiratory infection (ARI), which is transmitted through droplets in the air.

Relationship mother's level of knowledge about ARI prevention and ARI incidence in toddlers.

One of the reasons for the high incidence of ARI in infants in Indonesia is the lack of knowledge of mothers about ARI. Knowledge is the result of knowing and this happens after people sense a certain object so that this knowledge can influence mothers about ISPA, so it will be directly related to reducing the incidence of ISPA (Notoatmodjo in Intan 2014).

Prevention of ARI is one way to minimize ARI that attacks toddlers. As a parent, you have knowledge about ARI so that how to prevent ARI can be used in caring for the health of your toddler. The results of the analysis of this study used the chi square test on the 3x2 table with an error rate (alpha) of 5% after the calculation was carried out, the chi square value ($p = 0.03$) which means

the p value (<0.05) so from the above results it can be concluded that H_0 is rejected and H_a is accepted, meaning that there is a significant relationship between the level of mother's knowledge about ARI prevention and the incidence of ARI in toddlers at the Posyandu in the working area of the Botania Health Center.

The results of this study are in accordance with research conducted by Estherina, Aries (2015) entitled Mother's knowledge about ARI prevention reduces the incidence of ARI in toddlers. This study used a cross sectional study with 54 respondents with the result that mothers with good knowledge were more dominant in the incidence of ARI in toddlers once in the last 1 year as many as 10 respondents (47.6%), mothers with fairly dominant knowledge of ARI cases 2 times in the last year as many as 8 respondents (33.3%), while mothers with less dominant knowledge of the incidence of ISPA experienced by toddlers 4 times in the last 1 year as many as 4 respondents (44.4%) were subjected to the Spearman's Rho statistical test obtained $p=0.002$, $p<0.005$ means that H_1 is accepted and H_0 is rejected, so there is a relationship between mother's knowledge about ARI prevention and the incidence of ARI in infants.

Based on the theory and data from the results of the research above, the researcher can conclude that the majority of respondents who have a low level of knowledge experience ARI incidents in their children under five. Most of the respondents do not

fully know the preventive measures that can be taken to prevent acute respiratory infections (ARI) because ARI is a disease that attacks the respiratory tract and is still a problem that has high cases in the city of Batam.

ISPA cannot be considered a trivial disease because this disease is very susceptible to attack infants and toddlers because the respiratory system is not fully developed. Immunity or endurance in infants and toddlers is also still susceptible to being attacked by bacteria or viruses that cause ISPA.

Mother's knowledge about the prevention of ARI has an effect on the incidence of ARI in toddlers as in this study it is known that there are still many mothers with a lack of knowledge in the prevention of ARI which results in the incidence of ARI in toddlers at the Posyandu working area of the Botania Health Center Batam City in 2020.

Conclusions

Based on the results of research conducted by researchers to find out the relationship between the level of knowledge of mothers about the prevention of ARI and the incidence of ARI in toddlers at Posyandu in the working area of the Botania Health Center, that the majority (38.1%) of respondents who had less knowledge, more than half of toddlers (61.9%) experienced ARI incidents and there was a significant relationship between the level of mother's knowledge about ISPA prevention and the incidence of ARI in toddlers at Posyandu in the

working area of the Botania Health Center 2020. Where after analyzing using chi-square the results obtained were a p value of 0.03 (< 0.05).

Recommendations for further research, it is expected to add more variables that are more varied, because there is still much that can be researched related to ISPA such as the factors that influence the incidence of ISPA.

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