

Family Health Behavior Against Alleged Acute Respiratory Infections in Preschool Children

Hayyu Putri Utami¹ (corresponding author), Farida Wahyu Ningtyias², Candra Bumi³

¹Postgraduate School of Public Health Science, Universitas Jember, Indonesia; hayyuputiru@gmail.com

²Faculty of Public Health, Universitas Jember, Indonesia; farida.fkm@unej.ac.id

³Faculty of Public Health, Universitas Jember, Indonesia

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ABSTRACT

Acute respiratory infections is the main cause of morbidity and mortality on children. The incidence of ARI in Indonesia is still high. Family health practice is one of the factors causing ARI. This study aims to analyze the effect of family health practice on suspected ARI in preschool children. This study uses a quantitative approach by type of observational research and cross sectional research design. This research was conducted in kindergarten in working area of Kedungrejo Muncar Health Center and conducted in August-September 2019. The samples of this study were 103 preschool children in a kindergarten in working area of Kedungrejo Muncar Health Center, Banyuwangi Regency, East Java Province. It used random sampling. The analytical method used was logistic regression analysis. The analysis results of this study was for family health behavior that had an affect the suspected ARI in preschool children practice, they were opening windows every morning and evening ($p = 0.037$), hand washing behavior ($p = 0.014$), behavior of not closing mouths and nose when coughing ($p = 0.004$). Family health behavior that did not have an influence on suspected ARI in preschool children, they were behavior of smokingg in the home by family or guests ($p = 0.545$), behavior of wearing masks when coughing or during a cold ($p = 0.337$), behavior of burning trash near the home ($p = 0.955$), the practice did not immediately bring the child to a health care facility if ARI was accompanied by fever ($p = 0.378$).

Keywords: family health behavior; preschoolers; acute respiratory infections

INTRODUCTION

Background

Acute Respiratory Infections (ARI) is the main cause of morbidity and mortality in children⁽¹⁻³⁾. ARI cases constitute 50% of all diseases in children under 5 years old and 30% in children 5-11 years old⁽⁴⁾. More than half (55%) of deaths of children under 5 years old caused by ARI symptoms are from 15 Low and Middle Income Countries (LMIC) including Indonesia. ARI incidence rate in children under five years old in East Java in 2013 was 6%, and in 2018 it increased by 17%. East Java bacome second rank after West Java⁽⁵⁾. Banyuwangi as the most innovative regency in 2018 and 2019 in Indonesia is expected to be able to make a major contribution in reducing the ARI incidence, however Banyuwangi in 2013 was ranked 30th of Acute respiratory infections (ARI) in children, it has a significant increase in 2018 which ranked 6th of ISPA occurrence in children from 39 cities / districts in East Java⁽⁵⁾. Muncar is the most populous region in Banyuwangi, with a population of 133,484 people, according to Priambodo, (2011) Muncar District is the largest fish producing center in East Java, so that most of the people work as fishermen and factory workers. Hikamah and Mubarak (2012) in their research stated that the disease that was often complained by people in Kedungrejo Muncar area was coughing and itching⁽⁶⁾. In 2018, almost half of children under five years old in the working area of Kedungrejo Muncar Community Health Center (Puskesmas) having ARI was 43,005% and in 2018, the ARI became the first of 10 diseases that often occurred in the working area of the Kedungrejo Muncar Health Center⁽⁷⁾.

H. L Blum (1974) argues, health level is influenced by four kinds of factors namely heredity, health service factors, behavioral factors and environmental factors⁽⁸⁾. In general there are 3 factors that influence ARI, they are environmental factors, individual factors, and behavioral factors⁽⁹⁾. In 2009, the Ministry of Health through the Health Research and Development Agency has formulated the Community Health Development Index (IPKM) to describe the health of the Indonesian people. In 2013, the IPKM was elaborated into seven sub-indexes, they were toddler health, reproductive health, health services, health behaviors, non-communicable diseases, infectious diseases, and environmental health. Health behavior is one of the indicators of coverage in increasing the index of infectious diseases, so there must be an increase in the scope of indicators of health behavior⁽¹⁰⁾.

Mother's education has an influence on childhood health, it can be related to behaviors in maintaining health^(11,12). Family behavior has an influence on the health of children. Around 42% of children in Central Java

have health complaints with the most complaints due to ARI, it caused by lack of family health behavior. Besides that, the health behavior of each person has differences among each region, students who are on the edge of the city need a lot of training in health care behaviors including behavior in hand hygiene or behavior in food^(4,13). Changes of health behavior to better way can also be done by conducting counseling. Conducting right counseling materials can give a good results. The Media can be flipcharts and leaflets will be very helpful in counseling. Counseling with lecture method will be more effective for high and low educated people⁽¹⁴⁾.

ARI or acute respiratory infection is a disease that attacks the respiratory tract. Anatomically, ARI can be divided into 2 parts, they are upper ARI and lower ARI, with an anatomical border is a part of the throat called the epiglottis. Acute upper respiratory infections that need to be aware of are inflammation of the throat or pharyngitis and inflammation of the middle ear or otitis. Pharyngitis caused by certain bacteria (*streptococcus hemolyticus*) can be complicated by heart disease (endocarditis), whereas untreated ear inflammation can cause deafness. acute lower respiratory infections that need to be aware of is pneumonia⁽¹⁵⁾. Human behavior is all human activities, both those that can be directly observed or those that cannot be observed by outsiders. Healthy behavior is the behavior of a person related to one's efforts or activities to maintain and improve their health⁽¹⁶⁾. According to Notoatmodjo, 2012 the classification of healthy behaviors is divided into 3 groups namely health maintenance behaviors, search behavior and use of health service systems or facilities, or often called health seeking behavior, environmental health behavior.

Based on the preliminary study above, researchers are interested in examining family health behavior against suspected ARI in preschoolers in kindergartens in the Kedungrejo Muncar Community Health Center.

Goal

The general objective in this research is to analyze and examine the effect of family health behavior on suspected ARI in preschool children. Specific objectives in this study are to explain family health behavior in preschoolers and analyze the effect of family health behavior on suspected ARI in preschoolers.

Hypothesis

There is an influence of family health behavior on suspected ARI in preschool children

METHODS

This study used a quantitative approach to the type of observational research and cross sectional research design. This research was conducted in a kindergarten in the working area of Kedungrejo Muncar Health Center, Banyuwang, East Java and was conducted in August-September 2019. The sample in this study amounted to 103 preschoolers of kindergarten in working area of Kedungrejo Muncar Health Center.

There were 7 independent variables, they were behavior of smoking in the home by family or guests, behavior of opening windows every morning and evening, behavior of washing hands, behavior of wearing a mask when coughing or during a cold, behavior of not immediately bringing a child to a health care facility if a child is infected ARI with fever, behavior of burning rubbish near the house, mother's behavior did not cover the nose and mouth when coughing / sneezing and 1 dependent variable is suspected ARI.

The data collection in this study was that the sample would be interviewed for family health practices using a questionnaire. The analytical method used was logistic regression analysis.

RESULTS

Characteristics of preschoolers and descriptive analysis of family health behavior in preschoolers in kindergartens in Kedungrejo Muncar Community Health Center.

Table 1. Descriptive analysis of family health behavior

No	Family health behavior	Frequency	Percentage
1	Behavior of smoking in the home done by family or guest		
	Nobody ever smokes in the house	37	35.9
	Rarely (10 cigarettes)	33	32.0
	Often (11-21 cigarettes)	33	32.0
2	Behavior of Opening Windows Every Morning & Evening		
	Not open the windows	46	44.7
	Open the windows every morning	17	16.5
	Open windows every morning and evening	40	38.8
3	Behavior of Hand washing		
	Wash your hands when they remember	39	37.9
	Wash your hands at 5 critical times using soap if there is soap	26	25.2
	Washing hands at 5 critical times always use soap Mencuci	38	36.9
4	Behavior of Wearing A Mask When having Cough Or Cold		
	Never wear a mask when having cough or cold	49	47.6
	Wear a mask when having cough or cold but do not replace it every 8 hours	39	37.9
	Always wear a mask when having a cough or cold and replace it every 8 hours	15	14.6
5	Behavior of Not Immediately Bring Children to Health Care Facilities They Have ARI accompanied by fever		
	Parents do not bring children to the health center but they buy drugs at the pharmacy or shop	23	22.3
	Parents bring children after more than 2 days to 1 week the children do not recover	46	44.7
	Parents bring their children if they get ARI immediately.	34	33.0
6	Behavior of Burning Trash		
	Always burning trash near the house	35	34.0
	Sometimes	42	40.8
	Never	26	25.2
7	Behavior of not closing mouth and nose when coughing		
	Never/somestimes	22	21.4
	When remember only	48	46.6
	Always	33	32.0
	Total	103	100.0

Table 2. Descriptive analysis of the suspected ARI

Suspected ARI Occurrence	Frequency	Percentage
Yes	38	36.9
No	65	63.1
Total	103	100.0

Table 3. Descriptive Analysis of Family health behavior

		ARI		
		Yes	No	Total
Family health behavior	Bad	0	0	0
	Medium	26	34	60
	Good	39	4	43
	Total	65	38	103

Table 4. Hypothesis Testing Results

No	Independent Variable	p	Odd ratio
1	Behavior of smoking in the home by family or guests	0.545	
2	Behavior of opening windows every morning and evening	0.037*	0.536
3	Behavior of hand washing	0.014*	0.453
4	Behavior of wearing a mask when having cough or cold	0.337	
5	Behavior of not bringing a child to a health care facility when they have ARI accompanied by fever immediately	0.955	
6	Behavior of burning rubbish near the house	0.738	
7	Practice of not closing mouth and nose when coughing	0.004*	2.512

DISCUSSION

A person's behavior about health is influenced by the knowledge, attitudes, beliefs, traditions of the person or community concerned, the availability of facilities, attitudes and behavior of health workers towards health also supports and reinforces the formation of behavior⁽¹⁷⁾. Changes in health behavior towards a more positive direction can also be done by conducting counseling⁽¹⁴⁾. Providing right counseling materials can give quite good results. In addition, everyone's health behavior have differences among each region, children who live in the edge of the city need more training in health maintenance behaviors including behavior of hand hygiene or behavior of food^(4,13).

Based on the table above, from 103 preschoolers it can be seen that the majority of children have an suspected ARI of 63.1%, and the remaining 36.9% of children do not have suspected ARI. In this study, it was found that there were more children with suspected ARI than children with no suspected ARI because of the possibility of health practices in the working area of the Kedungrejo Muncar Community Health Center, which were still mostly in the moderate category at 58.3%. H. L Blum (1974) argues, the degree of health is influenced by four kinds of factors, they are heredity, health service factors, behavioral factors and environmental factors⁽⁸⁾. In general there are 3 factors that influence ARI, they are environmental factors, individual factors, and behavioral factors⁽¹⁵⁾.

According to Notoatmodjo (2010), healthy behavior is the behavior of a person related to one's efforts or activities to maintain and improve his health. Health behavior is basically a person's response to a stimulus related to illness and disease, health service system, food, and environment⁽¹⁸⁾. These stimuli consist of the 4 elements they are pain, diseases, health service systems, and environment⁽¹⁹⁾.

Family health behavior that influence the suspected ARI in preschool children in this study are behavior of opening windows every morning and evening, hand washing, practice not closing mouth and nose when coughing. Practices that do not have an influence on the ARI in preschool children are, smoking practices at home by family or guests, practice wearing a mask when you cough or when you have a cold, behavior of burning trash near the house, practice of not immediately bringing a child to a health care facility if ARI is sick with fever.

Behavior of opening windows every morning and evening has an influence on the suspected ARI in preschool. These results are directly proportional to the research of Siti Sundari et al (2014) which states that the behavior of opening a window has an effect of 2.81 times on the occurrence of ARI in infants⁽⁶⁾. The results of the study are different from the results obtained by Safitri and Keman in Labuhan village, Labuhan Badas sub-district Sumbawa Regency which in his research got the result that opening a window did not have a significant effect on the ARI. The window should also be impermanent so that it can be opened every day so that air can flow in and out smoothly⁽²⁰⁾. Opening a window is important for air exchange. Besides the window also serves for the entry of sunlight from outside. ventilation can affect the air inside the house. Windows do not function optimally if they are always closed. The room which window has never been opened and closed makes the room stuffy and humid so it can allow the growth of pathogenic microorganisms^(21,22). Krieger and Higgins (2002) state that opening a window can affect ventilation and lighting in the home so that it can affect humidity inside the house. Humidity is closely related to ventilation because air circulation that is not smooth will affect the temperature of the air in the house becomes low so that the humidity is high. A house that has high humidity allows for rats, cockroaches and fungi that all have a major role in the pathogenesis of respiratory diseases⁽²³⁾.

Behavior of washing hands has an influence on the suspected ARI in preschool children. The results of this study are directly proportional to the research of Ika Dharmayanti et al (2017) which states that washing hands has an important role in increasing the value of infectious diseases subindexes, one of them is ARI wHand washing is the most important prevention and control method. The purpose of washing hands is to reduce the number of microorganisms on the hands and to prevent their spread to non-contaminated areas⁽²⁴⁾. Washing hands has the aim to prevent the spread of infectious diseases such as diarrhea, ARI, and avian influenza (AI). Washing hands is proven to be an effective way for preventive health efforts⁽²⁵⁾.

Behavior of not closing the mouth and nose when coughing has an influence on the suspected occurrence of ARI in preschool children.

The behavior of not closing the mouth and nose when coughing or sneezing can increase the occurrence of ARI by 2,512 times. This research is directly proportional to the Dinaravony Krismeandari research⁽²⁷⁾ which states that there is a relationship between the coughing behavior of family members and the occurrence of ARI in under-fives in Puskesmas now. ARI can be transmitted through droplets (saliva splashes) that come out when the patient sneezes, cough, without closing your mouth or wearing a mask, breathing air that contains germs will be inhaled by healthy people⁽²⁶⁾. Transmission can also occur through contact or hand contamination by respiratory secretions, nose, and mouth of sufferers⁽²⁵⁾. Basically, health behavior of each person has differences between each region^(4,14).

Behavior of smoking in the home by family or guests has no influence on the suspected ARI in preschool children. These results are directly proportional to the study of Dinaravony Krismeandari (2015) which states that smoking habits of family members are not related to ARI in infants with a value ($p = 0.899$), which means that there is no influence between smoking habits of family members with ARI in toddlers⁽²⁷⁾. The results of this study are inversely proportional to the research of Dessy Irfi Jayanti et al (2018) which states that behavior of smoking has an influence on the incidence of ARI in infants⁽²⁸⁾. Cigarette smoke can affect the ARI for both active or passive smokers. Analysis conducted by WHO (World Health Organization) (2006), shows that the adverse effects of cigarette smoke is greater for passive smokers than active smokers. According to Rao (2011) When smokers burn a cigarette and smoke it, smoke of cigarette smoked by smokers is called primary smoke. and smoke coming out of the end of the cigarette (the burning part) is called sidestream smoke. Side smoke has been shown to contain more tobacco combustion compared to primary smoke. This side smoke contains carbon monoxide five times greater, tar and nicotine, nickel 3 times greater, ammonia 46 times, Nitrosamine as a cause of cancer the levels reaches 50 times greater in side smoke compared with the main smoke levels. Procarcinogenic cigarette smoke, (4 methylnitrosamino) -1- (3-pyridil) 1- (butanone), nicotine, neuroteratogen, CO, tar and polycyclic when exposed to infants can damage the respiratory tract even to the lungs. If it happens continuously it can cause irritation of the respiratory tract and can even reach the lungs. If the irritation is followed by bacteria, or pathogenic bacteria, it will cause infection. So the infant can get ARI or even lung tuberculosis. Pollution caused by cigarette smoke and burning smoke will enter the bronchi and the respiratory tract cause fever, cough and cold, headaches, and so on, because the smoke contains dangerous toxins⁽²⁹⁾. This is inversely proportional to this study that behavior of smoking in the home by family or guests has no influence on the suspected ARI in preschool children. That is because when smoking a family or guest is not close to the child so the smoke from the cigarette is not sucked by the child and the sampling is done only one time.

Behavior of wearing a mask when coughing or when the flu has no effect on the suspected occurrence of ARI in preschoolers. These results are directly proportional to the study of Cut Nelly Juwita et al (2015) which states that the use of masks with the incidence of acute respiratory infections (ARI) does not have a significant effect⁽²⁹⁾. This research is contrast to the research of Samir Benkouinten (2014) which states that the use of masks has an influence with the occurrence of ARI because the pathogen can spread from one person to another easily⁽³²⁾. The use of masks can minimize the spread of pathogens from one person to another. Mask is one type of personal protective equipment. The use of personal protective equipment is one way to prevent accidents or the spread of disease, and technically the mask is not perfect to protect body but it can reduce the severity and spread of disease. Protective equipment does not eliminate the danger. This equipment can reduce the amount of contact with the danger of spread of pathogens⁽³¹⁾. According to Puspita 2011 mask is a respiratory protective device that can provide protection against sources of danger in the air, where the spread of pathogens can also in the air. This is inversely proportional to this research which is found that wearing a mask does not have an influence on the suspected ARI in preschool children. This is inversely proportional to the research which found that wear a mask does not have an influence on the suspected ARI in preschool children. this is caused by the use of masks that do not meet the procedure.

Behavior of burning rubbish near the house does not have an influence on the suspected of ARI in preschool children. The results of this study are proportional to the study of Dinaravony Krismeandari (2015) which states that the behavior of burning garbage has nothing to do with the occurrence of ARI in children⁽²⁷⁾. The research is inversely proportional to the research of Siti Sundari et al (2014) states that behavior of incineration near the house has an influence on the occurrence of ARI in children which is 1.13 times greater than mothers who do not have the habit of burning rubbish near the house⁽⁶⁾. Incineration is difficult to control if there are strong winds, rubbish charcoal, ash, dust, and smoke will be carried to the surrounding places which will eventually cause health problems to humans⁽³²⁾. Incineration is one of the air pollution, in general pollutants that pollute the air are dust, smoke and gas. Gas and smoke are obtained from combustion or oxidation of fuel constituents. Gas that is as a pollutant if inhaled can cause a direct impact such as coughing or shortness of breath. The pollutant gases consist of CO gas (carbon monoxide), CO₂ gas (carbon dioxide), SO₂ gas (sulfur dioxide / sulfur dioxide), NO₂ gas (nitrogen dioxide), particulates (smoke/soot), hydrocarbons (HC), chlorofluorocarbons (CFC), lead (Pb)⁽³³⁾. This is inversely proportional to this research, it is found that behavior of burning rubbish near the house has no influence on the suspected ARI in preschool children. It caused by the distance of the house from the burning of waste which is quite far, so the smoke from burning garbage is not inhaled directly by the respiratory tract.

Behavior of not immediately bring a child to a health care facility if an ARI suspect with fever has no influence on the suspected ARI in preschool children. These results are similar to the results of Maryunanik⁽⁹⁾ which states that the practice immediately brings children to health services if ARI suspect gets fever, it will only reduce the severity or the degree of severity, it does not affect the occurrence of ARI but only reduces the degree of severity in children who previously had ARI. These results are inversely proportional to the research

of Siti Sundari, et al.⁽⁶⁾, which states that behavior of bringing children to health care facilities has an influence on the occurrence of ARI. Mothers who do not immediately bring their children to a health facility if a sick ISPA child is accompanied by heat are 4.36 times more likely to suffer from a more severe ARI even for the possibility of ARI pneumonia than a sick child is immediately taken to a health care facility⁽⁶⁾.

CONCLUSION

Most family health behavior in the working area of the Kedungrejo Muncar Community Health Center have a moderate health practice category and even not maximal. Most preschoolers have suspected ARI at 63.1%, and the remaining 36.9% preschoolers have no suspected ARI. Variables of family health behavior that have an influence on suspected ARI in preschool children in the working area of Kedungrejo Muncar Health Center, they are practice of opening windows every morning and evening, behavior of washing hands, behavior of not covering mouth and nose when coughing or sneezing while family health behavior that having no influence on the allegations ARI occurrence in preschool children in the working area of Kedungrejo Muncar Health Center, they are behavior of smoking in the home by family or guests, behavior of wearing masks when coughing or when the flu, behavior of burning rubbish near the house, behavior of not immediately bringing children to health care facilities when sick ISPA with fever.

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