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Relationship Between the Exposure of Cigarette Smoke with the Event of Activities Respiratory Achievement Infrastructure in Between the Interpatient Patient in 2017 in Kaliwates District JEMBER Regency

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Background: smoking is a part of life of the people in Indonesia, the evidence is not difficult to find a person or family with this habit, especially at house. Increase the number of smokers, more people are affected by the smoke who called passive smoking. The impact of cigarette smoke exposure on toddler health include slow lung growth, more susceptible to bronchitis and respiratory tract and ear infections and asthma.

Objective. To determine the relationship cigarette smoke exposure in the incidence of *Acute Respiratory Infections* (ARI) in toddlers at Kaliwates Hospital Jember Regency.

Methods. This study was an analytical study using cross sectional design with a sample of toddler aged 2 months-5 years in Kaliwates Hospital of Jember Regency as many as 154 toddlers. The data using questionnaires.

Results: Based on the analysis results can be seen that $p < 0.05$ and a correlation coefficient calculation 0,537 shows that Correlation Between Cigarette smoke exposure in the incidence of *Acute Respiratory Infections* (ARI) in toddlers at Kaliwates Hospital Jember Regency with moderate strength.

Conclusions. Most of toddlers get smoke exposure and experience ARI not pneumonia.

KEYWORDS: Cigarette smoke exposure Acute respiratory tract infections.

I. INTRODUCTION

Smoking habits in Indonesian society is something that is considered not a big thing, it is very easy to meet smoking habits from adults to young children, men to women, both electric cigarettes and traditional cigarettes. Data from the Central Bureau of Statistics (SUSENAS, 2001) shows the number of beginner smokers aged 5-9 years increased sharply from 0.4% (2001) to 2.8% (2004). The trend of beginner smokers at the age of 10-14 years also increased sharply, from 9.5% (Susenat, 2001) to 17.5% (Risksedat, 2010). (Ministry of Health RI, 2012). Data from the Association of Indonesian Public Health Experts (IAKMI) in East Java said that the number of smokers in children and adolescents in East Java reached around 2,839,115. This number consists of smokers under the age of 10 years around 11.5% of the total population of East Java at that age or equal to 687,755 children. While the number of smokers aged 10-14 years is around 23.9% or 728,108 children. The sad number occurs in children aged 15-19 who reached 46% or 1,423,252 of the total population of East Java at that age in 2015, as many as 3,094,028 people. Cigarettes are cylinders of paper of a length between 70 to 120 mm (varying by country) with a diameter of about 10 mm containing tobacco leaves that have been chopped. Cigarettes are burned at one end and allowed to simmer so that the smoke can be inhaled through the mouth at the ends. In one cigarette is estimated to contain more than four thousand chemical compounds, which are pharmacologically proven to be toxic, can cause mutations (mutagenetic), and cancer (carcinogenic). Three main poisons in cigarettes are nicotine, tar and carbon monoxide. (Sugito, 2007). The common effects experienced by passive smokers in a room full of cigarette smoke range from mild irritation to the eyes and throat to the heaviest is a heart attack (Udumbara, 2004)

Acute Respiratory Infection (ARI) is an upper or lower respiratory tract disease, which can cause a variety of spectrum of diseases that range from asymptomatic disease or mild infection to severe and deadly diseases, depending on the cause pathogen, environmental factors, and host factors (WHO, 2007).

Based on the results of interviews through a questionnaire conducted on 154 underfive families with ARI, information was obtained that 101 of them were smokers. Therefore, seeing from the results of the interviews obtained, researchers were interested in conducting a study of Exposure to Cigarette Smoke with Acute Respiratory Infections (ISPA) in Toddlers in Inpatients in 2017.

To determine the relationship of cigarette smoke exposure with the incidence of Acute Respiratory Tract Infection (ARI) in infants among patients who were hospitalized in Kaliwates General Hospital in Jember Regency in 2017.

The research benefits are knowing the effects of exposure to cigarette smoke on the incidence of Acute Respiratory Infection, socializing to the public, clinicians and related parties to think more about cigarettes and the dangers of exposure to cigarette smoke for the health of children and toddlers.

II. METHOD

The type and design of this research is analytic survey research, which is research that tries to explore how and why the health phenomenon occurs. The research design uses a cross sectional survey design, which is a study to study the dynamics of the correlation between risk factors and effects, by means of approach, observation or data collection at once (point time approach) (Notoatmodjo, 2010: 38).

Statistical test used contingency coefficient correlation test (Dahlan, 2012: 168). If the results of the study found that the expected cell is less than 5 then the test used is an alternative test, namely the Kolmogorov-smirnov test.

III. RESULT

1. Univariate Analysis

a. Overview of exposure to cigarette smoke

Table 1 : Distribution of frequency of exposure to cigarette smoke among families of hospitalized patients in October 2017 at Kaliwates General Hospital, Jember Regency

Expose cigarette smc	f	%
There is exposure	101	65.58
There is no exposure	53	34.42
Total	154	100.00

b. Overview of smoking habits

Table 2; Distribution of smoking habits among families of hospitalized patients at Kaliwates General Hospital, Jember Regency in 2017

Smoking habit	f	%
In the room	133	86.36
Outdoors	21	13.64
Total	154	100.00

c. Overview of ARI events

Table 3; Frequency distribution of the incidence of ARI among inpatients at Kaliwates General Hospital, Jember Regency in 2017

ARI event	f	%
ARI	109	70.78
Pneumonia	10	6.49
Severe pneumonia	35	22.73
Total	154	100.00

IV.DISCUSSION

a. Expose cigarette smoke

From 154 respondents, it was found that most of the respondents were exposed to cigarette smoke, which was 101 respondents or 65.58% and the remaining only 53 respondents (34.42%) who had no exposure to cigarette smoke. Based on these data it can be concluded that most children under five get exposure to cigarette smoke. Although only spending a few cigarettes per day if for a long time, these harmful substances will be stored and accumulated in the body which causes various diseases. Because in a cigarette contains niko-tin, tar, cyanide, benzene, ammonia, carbon monoxide, cadmium and other harmful substances. (Husaini, 2006).

While about the place of smoking habits of family members that researchers get, out of 154 respondents showed that most family members smoke inside the house as many as 101 families (65.58%), the rest of the family members who smoke outside the house is 53 families with pro-sentase 34.42%. It can be concluded that most respondents' families smoke inside the house.

Based on the theory that researchers get the percentage of occurrence of ARI in infants, one of them is caused by exposure to cigarette smoke in the environment around the baby. Because, there is a smoker or more at home will increase the risk of family members who suffer from illness, such as respiratory problems, worsen asthma and aggravate angina pectoris disease and can increase the risk of getting ARI attacks, especially in infants. Children whose parents smoke are more susceptible to respiratory diseases such as flu, asthma, pneumonia and other respiratory tract diseases. Dangerous gases in cigarette smoke stimulate the formation of mucus, accumulated dust and bacteria cannot be excreted, causing chronic bronchitis, paralysis of elastin fibers in the lung tissue which results in reduced lung pump power, air retained in the lungs and resulting in air bag rupture. (Widiawati in Kabar Priangan, 2012)

b. ARI Occurrence in Toddlers

Research conducted on 154 infants inpatient at Kaliwates General Hospital showed that there were 109 toddlers (70.78%) who had ARI, 10 toddlers (6.49%) who suffered pneumonia, and the remaining 35 children (22.73%) who suffering from severe pneumonia. Based on the theory obtained by researchers, ARI is an infectious disease that attacks the upper and lower respiratory tract including cold coughs, ear pain (otitis media), bronchitis and pneumonia and lasts up to 14 days (sujayanto, 2006). There are many precipitating factors for the occurrence of ARI in infants, one of the triggers is the presence of indoor air pollution (exposure to cigarette smoke) (Sujayanto, 2006).

c. The relationship between exposure to cigarette smoke and the incidence of ARI in infants

From the results of cross-tabulation between exposure to cigarette smoke and the incidence of ARI in infants under five years of hospitalization with 154 respondents, it was found that ARI in infants was 109, severe pneumonia was 35, while pneumonia was 10 children. From these data it can be developed again that those who experienced exposure to asp cigarettes were as many as 101 toddlers while those who were not exposed to exposure were 53 toddlers.

Cigarette smoke is not only dangerous for smokers, but also dangerous for those around them who indirectly suck (passive smoking). The risk of cigarette smoke for adult passive smokers is that there is a risk of lung cancer, babies conceived by passive smokers have the potential to have abnormalities, and children from smokers are more susceptible to respiratory infections. (Wasis and Irianto, Sugeng Yuli, 2006)



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ISPA classification according to age group 2 months - 5 years, namely:

- a. Severe pneumonia, namely coughing and or difficulty breathing with withdrawal of the lower chest wall into the chest (chest indrawing)
- b. Pneumonia, which is coughing and / or difficulty breathing with rapid breathing with a rapid breathing limit in children aged 2 months to less than one year is 50 times or more in one minute and 40 times or more per minute.
- c. Cough is not pneumonia, which is a cough sufferer who is not accompanied by rapid breathing and no pull of the lower chest wall into (P2ISPA Program)

The content of sidestream smoke is more dangerous than mainstream smoke. The content of carcinogenics in it reaches four times that of mainstream smoke. Its ammonia content reaches 46 times the mainstream smoke and also other content that is higher than the mainstream.

Thus, passive smokers are more susceptible to various dangers of smoking when inhaling sidestream fumes, namely cigarette smoke which is produced by itself and not the result of the suction of its owner compared to if they smoke mainstream smoke, or smoke produced from active smokers (Husaini, 20017).

Smoking habits in the home is one of the more worrying health problems in Indonesia. Of course, with the increasing number of smokers, it means that more people suffer from health problems due to smoking or inhaling cigarette smoke (for passive smokers).

The presence of a smoker or more at home will increase the risk of family members who suffer from illness, such as respiratory problems, worsen asthma conditions and aggravate angina pectoris disease and can increase the risk for ARI attacks, especially in infants. Children whose parents smoke are more susceptible to respiratory diseases such as flu, asthma, pneumonia and other respiratory diseases.

Dangerous gases in cigarette smoke stimulate the formation of lenders, dust, accumulated bacteria that cannot be excreted, causing chronic bronchitis, paralysis of elastin fibers in lung tissue which results in reduced lung pump power, air retained in the lungs and resulting in air bag rupture (Widiawati in Kabar Priangan, 2012)

The source of cigarette smoke in the room (indoor) is more dangerous than outside the room (outdoor) because most people spend 60-90% of their time for a full day in the room. Populations that are susceptible to cigarette smoke are children, because they breathe air more often than adults. The children's organs are also still weak, so they are vulnerable to interference and are still developing so that if they are affected then the development of their organs is not as appropriate (Depkes, 2008)

The immediate impact of ETS is eye, nose and throat irritation and headaches. 30 minutes of exposure to cigarette smoke is enough to reduce blood flow to the heart, resulting in acute changes in heart function and a decrease in the average heart rate, thereby increasing the risk of heart disease. How much cigarette smoke is breathed in each particular place varies, depending on the number of smokers, cigarettes smoked, the size of the room and the type of ventilation. So, it is difficult to determine the consequences separately (Depkes, 2008).

However, children or toddlers whose parents or family members smoke in the home are those who do not experience ARI. This is due to several factors, such as a good toddler's immune system that can counteract the ARI-causing bacteria that enter the respiratory organs from cigarette smoke, toddlers are not near family members who are smoking or the toddler is not at home so that they are not exposed directly by cigarette smoke.

Whereas for families who smoke outside the home or toddlers who have no exposure to cigarette smoke, the percentage for toddlers attacked by ARI is very small, but it is undeniable that this can still happen. The possibility that caused the toddler to be infected with ARI is an environmental factor that is less supportive such as air pollution. Dust is one of the causes of air pollution - ARI, because dust that enters the respiratory tract will carry bacteria that can infect the respiratory tract so that increased mucus production causes dust and accompanying bacteria to accumulate in the respiratory tract which will cause changes anatomy of the respiratory tract so that the function of the lungs changes and respiratory infections such as ARI occur. (Misnadiarly, 2008). And there are many other factors that can be a risk factor for ARI in addition to environmental factors.



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V. CONCLUSION

1. Most of the toddlers who were hospitalized in Kaliwates General Hospital in 2017 were exposed to cigarette smoke with a percentage of 65.58% or 101 toddlers
2. Most of the children under five who were hospitalized at Kaliwates General Hospital in 2017 experienced ARI, not Pneumonia with a percentage of 70.78% or 109 toddlers, 10 toddlers (6.49%) experienced pneumonia, and the rest experienced severe pneumonia, namely 35 toddlers (70 , 78%).
3. There is a relationship with the strength of the moderate relationship between exposure to cigarette smoke with the incidence of ARI in infants in Kaliwates Jember General Hospital at 65.58% of the total respondents.

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