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The Roast Tradition (*se'i/nu*) and Acute Respiratory Infection in Infants

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ABSTRACT

The *se'i/nu* tradition is one tradition that is still maintained by the local community on the island of Timor, where the process of postpartum care of mothers and newborn babies traditionally involves smoking up to 40 days or 3 months using charcoal / embers. (The smoking process involves requiring the new mother and her newborn baby to sit or lay above embers from biomass fuel inside a traditional house). The purpose of this study was to investigate the association of the smoking tradition (*se'i/nu*) with the incidence of acute respiratory infections in infants at the Eban district health center in North Central Timor. The type of research was analytical. The design used was an observational study. The sampling technique in this study used the total population. The sample size was 42 people. The dependent variable was the incidence of acute respiratory infection, and the independent variable was the smoking tradition (*se'i/nu*). The results showed that there is a correlation between the smoking tradition (*se'i/nu*) and the incidence of acute respiratory infection (ARI) in infants at the Eban clinic $P = 0.016$ ($P < \alpha$).

Keywords: Roast tradition, Acute respiratory infection, Infants

INTRODUCTION

Background

Among the 240 million Indonesian people, it is estimated that there are still community groups that are categorized as communities that retain local culture. These community groups are spread over 33 provinces consisting of 370 tribes / sub-tribes. One community group that still retains local culture is located in the central part of the island of Timor, in the North Central Timor District, with the smoking tradition⁽¹⁾.

Based on preliminary observations through in-depth interviews with initial postpartum mothers and officer(s) of the initial Sub-District office, the *se'i/nu* tradition is an activity of caring for the postpartum mother in the house (*ume kbubu*) by a shaman or someone who is believed to have experience taking care of the mother giving birth (parents, in-laws). Treatment for the postpartum mother takes the form of smoking and restrictions on certain foods. Because there is already a ban on the *se'i/nu* tradition, postpartum smoking and restrictions of various types of food are rarely found in the *Atoni Meto* tribe⁽²⁾.

During the smoking, the mother and baby will always inhale the polluted air, because the fuel used is biomass fuel (firewood). This combustion usually releases contaminants and pollutants in the form of dust particles (suspended particulate matter/SPM), carbon dioxide (CO₂), sulphur oxide (SO_x), formaldehyde (HCHO), nitrogen oxide (NO_x), carcinogenic compounds such as polycyclic aromatic hydrocarbons, carbon monoxide (CO), nitrogen oxide (NO), and other free radicals⁽³⁾. Inhalation of these substances can cause health problems ranging from respiratory irritation to lung disorders⁽⁴⁾.

The incidence of acute respiratory infections in infants less than 1 year old in 2014 amounted to 85 people. In 2015 the incidence of acute respiratory infections in infants less than 1 year old was as many as 96 people. By 2016 there were 116 babies less than 1 year old who had acute respiratory infections. In 2017 from January to March, 21 babies less than 1 year old suffered acute respiratory infections⁽⁵⁾.

The high incidence of acute respiratory infections in infants and postpartum mothers who underwent the smoking tradition (*se'i/nu*) made the investigators want to research the association between the tradition (*se'i/nu*) and acute respiratory infections (ARI) in infants in Eban Health Center.

Purpose

The purpose of this study was to analyze the association of roast radition (*se'i/nu*) with the incidence of acute respiratory infections in infants.

METHODS

The type of research was analytical research. The design used was observational analytic study with cross sectional approach. The population in this study was the mother giving birth and was still in the postpartum period in the work area of the Eban clinic. The sample in this research was the mother giving birth who was still in the postpartum period from July to September, 2017. Determination of the sample used was a total population equal to 42 respondents. Some sample criteria are post-partum mothers from the 10th to 40th days, babies who are willing to be examined with parental consent.

The independent variable in this study is the smoking tradition (*se'i / nu*), while the dependent variable is the incidence of acute respiratory infections (ARI) in infants. The data collection tool in this study was a questionnaire that contained questions about the smoking tradition, the questionnaire and observation sheets for acute respiratory infections. The statistical test used was chi square (Fisher's Exact) to know the relationship of the smoking tradition (*se'i / nu*) to the incidence of acute respiratory infection (ARI) in infants in the Eban district health center in North Central Timor.

RESULTS

An overview of the working area of the Eban Community Health Center. The Eban Community Health Center is a health center in the North Central Timor District. Geographically, the North Central Timor District is adjacent to the country of the Democratic Republic of East Timor. The working area of the Eban Community Health Center is 32 km from the center of North Central Timor district. Administratively, the working area of the Eban Community Health Center is divided into 13 villages with a total population of 14,187 people.

Table 1. Distribution of malaria in Seram Island

Variable	Smoked	Non Smoked
Mother's Age		
20-30 years	15 (45.45%)	5 (55.55%)
Mother's Age		
over 30 years	18 (54.54%)	4 (44.44%)
Mother's Education		
low (elementary-middle school)	28 (84.85%)	1 (11.11%)
Mother's Education		
high (high school-college)	5(15.15%)	8 (88.88%)
Mother's Work		
Homemaker	30 (90.90%)	3 (33.33%)
Mother's Work		
Private	2 (6.06%)	2 (22.22%)
Mother's Work		
Government Employee	1 (3.03%)	4 (44.44%)
Family Income		
Below regional minimum wage (<i>UMR*</i>) (<850.000 IDR,-)	26 (78.78%)	1 (11.11%)
Family Income		
Above regional minimum wage (<i>UMR*</i>) (>850.000 IDR,.)	7(21.21%)	8 (88.88%)

Based on statistical test results, there was a known association between smoking (*se'i / nu*) and the incidence of acute respiratory infections in infants (p -value = 0.016). The relationship of these variables can be seen from the value p value $< \alpha$, which means there was a association between the smoking tradition (*se'i / nu*) and the incidence of acute inflammatory tract infections (ARI) in infants. OR (odd ratio) in the variable of the incidence of acute. respiratory infections in infants was 7.429. This means that the smoking tradition (*se'i / nu*) had an increased risk of acute respiratory infections in infants.

Table 2. The result of t-test

Variable	p-value	OR	CI	
			Lower	Upper
Occurrence of Acute Respiratory Infection (ARI) in Infants	0.016	7.429	1.473	37.453

DISCUSSION

Based on the statistical test results, we found there is a relationship between the smoking tradition (*se'i / nu*) and the incidence of acute respiratory infections ($p = 0.009 < \alpha$). The next OR value is 7.429. This means that the smoking tradition (*se'i / nu*) is at increased risk of acute respiratory infections in infants undergoing the smoking (*se'i / nu*) traditions.

This study is in line with the research conducted by Soerachman et al (2013) which mentioned that in 10 mothers who performed the smoking tradition (*se'i*) in the South Central Timor district, it was found that there were signs and symptoms of acute respiratory infection (ARI) in their infants, such as cough, and cold for 6 days. This condition was caused by the effect of inhaling the smoke that is constantly in the *Lopo* house during the smoking tradition⁽⁴⁾.

Another study was conducted by Rahayu et al (2017), in the Aceh community. The existence of a postpartum culture or tradition as conducted by the local people of Aceh is known as *Sale*. The *sale* is done by using hot coals placed on a fire and then using a bed or a cot made of wood or bed rods that are cracked, so that steam and heat can enter. It is believed to speed up the process of healing the postpartum mother, but aspects of the *sale* health tradition resulted in postpartum mothers and post-natal infants experiencing shortness of breath and respiratory distress⁽⁶⁾.

Subsequent research conducted by L. Naehar, et al (2007), suggests that more than 4000 compounds have been identified from the results of burning biomass (firewood). Some of these compounds include carbon monoxide and ozone which result in asphyxia or shortness of breath. Dust particles or particulate matter cause oxidative stress, inflammation, or inflammation and allergies. After that, further investigation is done by looking at the lung function of respondents who are exposed to smoke from burning biomass (firewood). The exposed group showed significantly lower lung function test results than the control group or the unexposed group⁽³⁾.

A similar study was also conducted by Athena (2014); the results showed that, of mothers with infants who experienced the smoking tradition (*se'i*) in the past year, many had respiratory disturbances (respiratory tract)⁽¹⁾.

The health of the household is predicted to play a significant role in the high proportion of infants experiencing the *s'ei* as a result of the physical condition of the house and the use of biomass fuel (solids) that can degrade air quality inside the room. Relatively high humidity will accelerate the rate of SO_x and NO_x reactions with water vapor to form sulfuric acid (H₂SO₄) and nitric acid (HNO₃). Both acids play a role in the etiology of respiratory disease progression and impaired lung function.

A different study conducted by Pershagen et al (2009) examined the effects of the distance of the residence that uses firewood for kitchen activities on respiratory symptoms or disorders. Respondents had a chronic obstructive disorder that is subject to very clear hypersensitivity to allergens in the air. The results of this study show that there is no relationship between pollutant levels including NO₂ and respiratory symptoms that can be seen. In addition, Euler et al (2007) also found no significant association between ambient NO₂ exposure and chronic and respiratory symptoms in approximately 7,445 adults living in California. Millstein et al (2004) evaluated 19 asthmatic child patients to see the connection between forced expiratory volume within the first second (FEV₁) and indoor and outdoor air pollution. The NO₂ level is monitored by the central monitor while the dust particles are measured using their own monitor and a central monitor. The results showed no significant changes associated with NO₂ in FEV₁. Next, Farrow et al studied the effects of NO₂ exposure on the babies of 1200 women. The average NO₂ rate is 6.8 parts per billion (ppb) in the room and 12.6 ppb outdoors. Researchers found no association between NO₂ and respiratory infant respiratory symptoms.

CONCLUSION

Based on the result of this study it could be concluded that there is a relationship between the smoking tradition (*se'i / nu*) and the incidence of acute respiratory infections in infants at the Eban Health Center. A suggestion in this research is modification of how to do the smoking tradition (*se'i / nu*) where the process of warming the mother and baby is done in a healthy house.

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