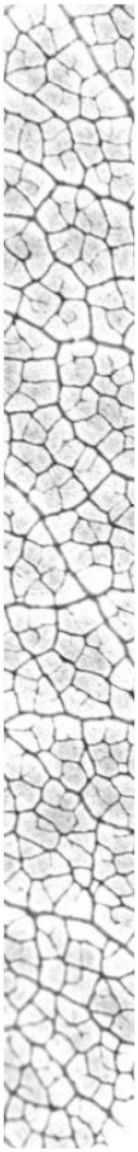
5. The Clean And Healthy Lifestyle Behaviors And Healthy Housing Influenced The Incident Of Acute Respiratory Infection In Childhood

by Muhammad El Kautsar

Submission date: 03-Jun-2021 02:36PM (UTC+0800)
Submission ID: 1599498109
File name: ced_The_Incident_Of_Acute_Respiratory_Infection_In_Childhood.pdf (764.55K)
Word count: 4062
Character count: 22345



EurAsian Journal of BioSciences
Eurasia J Biosci 14, 4837-4842 (2020)

The clean and healthy lifestyle behaviors and healthy housing influenced the incident of acute respiratory infection in childhood

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Abstract

Introduction: Based on preliminary surveys in this study, it was found 86.7% of respondents suffered from acute respiratory infection experienced 4 times reinfection within 3 months and 50% of respondents rarely consumed balanced nutritious food. **Aims:** to find the correlation between clean and healthy lifestyle behaviours, healthy housing and the frequency of accute respiratory infection in children under the age of 1-4 years. **Method:** a cross-sectional study was used by involving mothers or caregivers with infants aged 1-4 years in Malang Regency. A questionnaire was applied as research instrument. Data obtained were conducted by a nonparametric contingency coefficient test with IBM SPSS v17. **Result:** Statistical analysis shows that there is a significant correlation between family members who smoke (p-*value*=0.021) and the level of home density (p-*value*=0.03) with the frequency of acute respiratory tract infections in toddlers. While the relationship of other variables such as the sex of children under five (p-*value*=0.799), clean and healthy lifestyle behaviour: delivery at primary health care (p-*value*=0.084), exclusive breastfeeding(p-*value*=0.940), routinely visiting Integrated Healthcare Center (p-*value*=0.396), hand washing behaviour (p-*value*=0.523), consuming healthy food (p-*value*=0.247), and infant's activity(p-*value*=0.096), healthy housing: ventilation (p-*value*=0.396) and lighting (p-*value*=0.767) have no a significant correlation with incident of accute respiratory infection in infants. **Conclusion**: There is a correlation between family members who smoke and the level of home density with the frequency of accute respiratory infection in children under the age of 1-4 years.

Keywords: clean and healthy lifestyle behaviours, healthy housing, frequently of accute respiratory infection, children, health behavior

Kautsar ME, Anggraeni N, Sari VP, Mboe RBA, Widyasari A, Azwan ZA, Amatillah A, Jie PI, Sulistiawati, Bambang R (2020) The clean and healthy lifestyle behaviors and healthy housing influenced the incident of acute respiratory infection in childhood. Eurasia J Biosci 14: 4837-4842.

INTRODUCTION

Acute Respiratory Infection is a disease mostly affected on children in the age of 5-14 years, the prevalence of infected between men and women seems almost the same, namely 510,714 and 506,576 respectively. Housing is an influential factor, where more people in urban areas are infected than in rural areas (Health 2018). This disease is caused by a small substance (smaller than bacteria) - called virus - that causes infection and transmitted from one person to another through coughing or sneezing (Ellita 2013).

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According to WHO (2001), a house is a physical structure or building for shelter, where the environment is useful for physical and spiritual health and social conditions both for the health of families and individuals (World Health Organization 2008). Thus it can be said

Received: October 2019
Accepted: March 2020
Printed: October 2020

Table 1. The distribution of clean and healthy lifestyle behaviors, healthy housing, and acute respiratory infection

	Yes		No	
Clean and healthy lifestyle Behaviors	n	%	n	%
Delivery at primary health care	50	98	1	2
Exclusive breastfeeding	24	47.1	27	52.9
Regularly visiting Integrated Healthcare Center	43	84.3	8	15.7
Wash hand behavior	35	68.6	16	31.4
Consuming healthy food	51	86.3	7	13.7
Exercise	44	86.3	7	13.7
Smoking at home	39	76.5	12	23.5
Healthy Housing				
Good Lighting	46	90.2	5	9.8
Ceramic floor	48	94.1	3	5.9
Room Ventilation >10%	8	15.7	43	84.3
Large of home >8 m^2/ person	15	29.4	36	70.6
Acute respiratory infection in children within 3 months	38	74.5	13	25.5

that a healthy housing is a building for shelter and rest as well as a means of family coaching that fosters healthy living physically, mentally and socially, hence all family members can work productively. Healthy housing have criteria to prevent the occurrence of acute respiratory tract infections consisting of: the walls of the house, the floor of the house, air ventilation, residential density and lighting must be in accordance with the requirements of a healthy home so that humidity does not occur. Healthy housing factors can prevent the growth of a variety of bacteria and pneumonia viruses (Nurjazuli 2009). Based on preliminary survey, approximately 86.7% of respondents suffered from acute respiratory infections 4 times in the last 3 months, and 50% of them consumed balanced nutritious food in low levels.

The study aims to find the relationship between clean and Healthy Behavior, Healthy Housing and the frequency of acute respiratory infections in children under the age of 1-4 years.

METHOD

Participant

A cross sectional with observational analytic approach was used in this study. The population was children aged under 5 years in Sumber Mlaten sub-village, Kalirejo sub-district, Lawang sub-district, East Java in 2019. The sample was taken using the total sampling method and meets the inclusion criteria which include: families of children aged 1-4 years who are willing to become respondents (mother/caregiver/other family), present during data collection

Data Collection and Analysis

The research instrument was a questionnaire that had been tested for validity in previous studies. Questionnaire questions included data on parental education, parental occupation, and sex of children under five years, infection status, clean and healthy lifestyle behaviours, and criteria for a healthy home referring to the Republic of Indonesia Ministry of Health (2016). The research period was conducted for 7 days, starting from 8 December 2019 to 14 December 2019.

The data collected was performed by processing stages which include cleaning, editing, coding and entry. After the data entered, we analyzed using a bivariate test with chi-square test and contingency coflication test to determine the correlation between clean and healthy lifestyle behaviours, Healthy Homes and accute respiratory infection in Children aged under five years. The data was analysed using statistical software program Statistical Package for the Social Science (SPSS) version 17.0 (SPSS.Inc., Chicago, IL).

Ethics Statement

This study was approved by the Ethics Committee of the Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia. Written informed consent was obtained from participants prior to their enrolment in this study.

RESULT

Based on inclusion criteria's, overall participants in this study were 51 participants divided by mother and caregiver of children. The socio-demographic data included basic variables of mother or cargiver and children. Participants who have aged between 18-35 years and having primary school history have the percentage as much as 60.8% and 41.2%, respectively. Meanwhile, the number of participants were mostly unemployed status about 82.4%. The highest children age in this study was 2 years, namely 35.3% and female's children were the majority of children which counted as many as 56.9%. The immunization status were dominated by children who have completed immunization status, namely 94.1% (**Fig. 1**).

Table 1 represented three variable which divided into clean and healthy lifestyle behaviors, healthy housing and incidence of acute respiratory infection in children within 3 months. According to clean and healthy lifestyle behaviors, it revealed that about 98% of participants visited primary health care as the method to deliver their children, 52.9% of participants have no given exclusive breastfeeding to their children. Moreover, approximately 84.3% of participants were routinely visiting integrated healthcare center, 68.8% of participants had gotten used to washing their hands

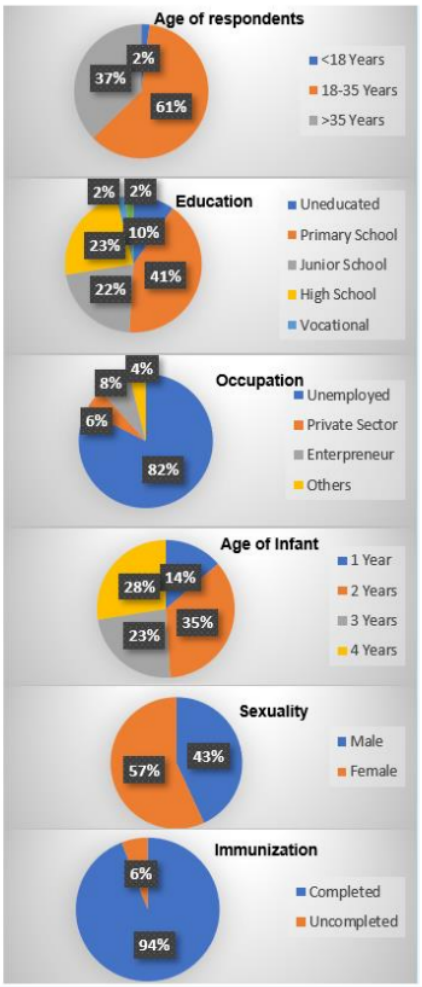

Fig. 1. Socio Demography Participants

using clean water. All participants declared that they had provided enough nutrition for their children (100%) and almost all participants have a settled job (86.3%). The smoking at home was done by 76.5% of participants. Healthy housing consisted by several factors, including natural lighting to the room which experienced by 90.2% of participant, floor of housing using tiles or ceramics had have by 94.1%. Furthermore, as much as 84.3% of house has ventilation area <10%, and density <8m^2/person was 70.6%.

Bivariate analysis shows several factors associated with incident of acute respiratory infection in children aged 1-4 years (**Table 2**). Parents who have smoked habit at home were more likely to increase the incident of acute respiratory infection in children compared to parents who had no smoked (p-*value*=0.021). Further,

Table 2. Statistical Analysis between variables

	Experiencing acute respiratory infection in infant within last 3 months		*P* Value
	Yes	No	
Total family members			
>4	4	4	0.083
<4	34	9	
Immunization status			
Complete	36	12	0.748
uncomplete	2	1	
Exclusive Breastfeeding			
Yes	18	6	0.940
No	20	7	
Regularly visiting Integrated Healthcare Center			
Yes	33	10	0.396
No	5	3	
Parents smoking behavior			
Yes	26	13	0.021
No	12	0	
Delivery at primary health care			
Yes	38	12	0.084
No	0	1	
Wash hand behavior			
Yes	27	8	0.523
No	11	5	
Infant activity			
Yes	31	13	0.096
No	7	0	
Consuming healthy food			
Yes	38	13	0.247
No	0	0	
Large of home			
>8 m^2/ person	7	8	0.003
<8 m^2/ person	31	5	
Room Ventilation			
<10%	33	10	0.396
>10%	5	3	
Room lighting			
Sunshine	34	12	0.767
no	4	1	
Kind of floor			
Ceramic	35	13	0.296
None	3	0	

population density which was <8m^2/person, was more likely to increase the incident of acute respiratory infection in children compared to population density under 8m^2/person (p-*value*=0.003). Whereas, variables related to children, such as total family members, immunization status, excusive breastfeeding and regularly visiting integrated healthcare center showed no correlation with the incident of acute respiratory infection as the p-values were above the minimum standard, namely 0.083, 0.748, 0.940, 0.396, respectively. With regard to clean and healthy lifestyle behaviors variables, included: delivery at primary healthcare, washing hand, children activity, and consuming healthy food were less likely affected on the incident of acute respiratory infection, which recorded p-value as much as 0.084, 0.523, 0.096, 0.247, respectively. While, other healthy housing components, such as: room ventilation, room lighting, kind of floor have less likely significant correlation he incident of acute respiratory infection, which the p-*value* were 0.396, 0.767, 0.296, respectively.

DISCUSSION

Bivariate analysis showed that there was no significant relationship between hands washing behavior with the incidence of acute respiratory infections in children aged 1-4 years. This is in accordance with previous studies which produced a significant relationship between the incidences of acute respiratory infections with hand washing behavior. However, there was no significant relationship between exclusive breastfeeding (p=0.01; OR=0.113), use of latrines (p=0.00; OR=0.93), daily giving of vegetables and fruit (p=0.01; OR=0.311), and not smoking in the house (p=0.00; OR=0.113) with acute respiratory infection occurrence in children under the age of 12-59 months (Prayitno 2019). Acute respiratory infections is the leading cause of death for children under five and hand washing habits can reduce respiratory infections by more than 50% (Kementerian Kesehatan RI 2014; Merk et al. 2014).

We found as many as 31 children under five (61%) had acute respiratory infections in the last 3 months who actively played both outside and inside the house. Chi Square analysis results obtained ρ value of 0.096. These results indicate that there is no positive effect of playing activity with the incidence of acute respiratory infections in children under the age of 1-4 years. This is contrast with study that revealed a relationship between physical activity and morbidity, especially in the respiratory tract. The results of the study explained that subjects who did less activity were more susceptible to illness or often experienced pain compared to those who did many activities (Tomatala et al. 2019). Regular physical activity is one way to maintain the immune system. Various studies have confirmed the beneficial effect of exercise activities on the components of the immune system. Regular physical activity also teaches the body to distribute blood better to muscles during activity (Purwanto 2011). Physical activity and regular exercise and sufficient quantities, can help maintain optimal health for those concerned (Kepmenkes RI 1999).

The results showed that there was no significant influence between regularly visiting integrated healthcare center and acute respiratory infection in children under five in Sumber Mlaten Hamlet. This contradicts with other studies to 51 respondents that the incidence of acute respiratory infection in infants and regular visiting to integrated healthcare center have a signification of attachment (Fatmawati 2017). Visiting integrated healthcare center is a form of Community-Based Health Efforts which manage and organize from, by, for and with the community in organizing health development, in order to empower the community and provide facilities to the community in obtaining basic health services. To accelerate the reduction in maternal and infant mortality rates (Direktorat Jendral P2PL 2011).

In this study, we found that the correlation between breastfeeding and acute respiratory infection was not significant with a significance value of 0.94 (p> 0.05). The results of this study are consistent with research in 2011 which showed that there was no relationship between exclusive breastfeeding and the incidence of acute respiratory infection in children aged 6 months to 24 months (Lestari 2011). However, this study differs from other studies that there is a relationship between duration of exclusive breastfeeding exclusively with acute respiratory infections (Prameswari, G. 2009). Breastfeeding has a protective effect of acute respiratory infection during the first year, but with increasing age of children under five years the level of immunoglobulin in breast milk will decrease so that if breastfeeding is given longer does not have much effect on body resistance to overcome microorganisms that cause acute respiratory infection (Endiyani et al. 2009).

Smoking habits of parents showed highly likely affected the incident of acute respiratory infection in children as it exposure to cigarette smoke. This data is supported by previous studies that shows that there is a positive influence between exposure to cigarette smoke to acute respiratory infection in children under five (Riyanto & Kusumawati 2016; Hidayangsih et al. 2017; Mahendra & Farapti 2018). Basically, smoking is one of the risk factors for acute respiratory infection in children under five, especially in East Java. Based on the results of Basic Health Research (Riskesdas) in 2007, showed the prevalence of acute respiratory infection at 6.4%, while in Malang Regency the prevalence of acute respiratory infection was 4.3% (Department of Health in Malang 2013). According to WHO (2008), the adverse effects of cigarette smoke on Passive smokers are greater than active smokers. Side stream smoke or side smoke caused by the activity of passive smokers, is proven to contain more tobacco burners than mainstream smoke. This side smoke is proven to contain carbon monoxide 5 times larger, tar and nicotine 3 times, ammonia 46 times, nickel 3 times, nitrosamine as a cause of cancer levels reached 50 times greater in side smoke compared with the main smoke levels (World Health Organization 2008).

These results indicate no significant effect on childbirth in health professionals and the incidence of acute respiratory infection in children under five. Women treated by traditional healers do not tend to get good early breastfeeding initiation so that neonates can lose important nutrients in colostrum which may cause health problems in the future (Virarisca et al. 2019). Childbirth performed by health professionals, doctors, midwives or paramedics has a stake in the prevention of infections and other hazards that can threaten the safety of babies and mothers (Direktorat Jendral P2PL 2011) placenta does not come out, bleeding and infant death. However,

due to ignorance of information, participants did not realize that the impact was very dangerous to their health (Lestari 2014). In neonatal births, the first hour of life is very important in neonates' life. There are interventions to be done by health workers who understand the condition of the neonate, including paying attention to nutrition, seeing whether there are congenital abnormalities, providing support to the respiratory tract, cardiovascular system, and preventing infection. If the treatment has not done properly, it can interfere with the growth, development and health of children in the future(Sharma 2017).

Population density in house has significant association with incident of acute respiratory infection in children and another have proven the similar result as this finding (Firdaus & Ahmad 2013). Mostly of respiratory problems, such as acute respiratory infection, were affected with overcrowding, indoor and poor condition of the houses (Firdaus & Ahmad 2013).

The results of the bivariate analysis interpreted that there is no significant correlation between lighting with acute respiratory infection incident in children under five. This finding is contrast with previous study in Indonesia which showed the significant correlation between indoor air pollution including lighting source in home, and incident of acute respiratory infection in children under five years (Hidayangsih et al. 2017). A healthy housing requires sufficient light, both artificial lighting and natural lighting from the sun (Agustina & Mado 2018).

The type of floor has no associated with acute respiratory infection in children under five as it showed from bivariate analysis which contained <0.005. This is different from study that revealed the variable of the type of house floor which cumulatively can be interpreted to have a significant relationship between the type of floor with the incidence of acute respiratory infection in children under five (Agustina & Mado 2018). The same thing was expressed in study that showed the condition of the house floor with the occurrence of acute respiratory infection in children under five years old in the Work Area of the Salibabu Public Health Center in Talaud Islands Regency had a significant relationship with the value (ρ = 0,000). The type of house floor affects the incidence of acute respiratory infection in children under five as houses that have ceramic or tile floor types tend to be better because they are easy to clean and not damp. Conversely, only casted floors tend to be damp, not waterproof, and can be a breeding ground for bacteria or viruses that cause acute respiratory infection (Bee et al. 2015).

CONCLUSION

In the criteria for a healthy home, there is a relationship between the points of population density and the incidence of acute respiratory infection in children under five, while in other criteria (giving birth in health workers, giving exclusive breastfeeding, routinely bringing to the primary care, washing hands, giving nutritious food) is not found a correlation. The correlation between smoking points in the house and the incidence of acute respiratory infection in children under five years old have proven, while in the other criteria (Ventilation Area, Natural Lighting, and Floor Type) is no correlation.

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