PROCEEDINGS OF THE

EDUCATION RESEARCH Colloquium 2018

BETWEEN

FACULTY OF EDUCATION, UNIVERSITI TEKNOLOGI MALAYSIA (UTM)

& UNIVERSITAS NEGERI MAKASSAR, INDONESIA

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Cetakan Pertama/ First Printing 2018

Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

Abdul Halim Abdullah, 1983–.
2018 PROCEEDINGS OF THE EDUCATION RESEARCH COLLOQUIUM BETWEEN FACULTY OF EDUCATION, UNIVERSITI TEKNOLOGI MALAYSIA (UTM) & UNIVERSITAS NEGERI MAKASSAR, INDONESIA / Abdul Halim Abdullah et al.

ISBN 978-967-2171-12-6

Editor: **Abdul Halim Abdullah et al.**
Cover Design: **Fadhilah Othman**

Published in Malaysia by

Faculty of Education
UNIVERSITI TEKNOLOGI MALAYSIA
81310 UTM Johor bahru, JOHOR, MALAYSIA

http://educ.utm.my/

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Faculty of Education,
Universiti Teknologi Malaysia

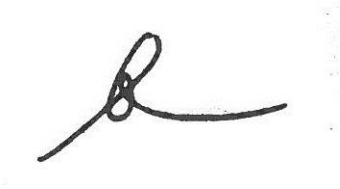
Foreword by the
Dean of Faculty of Education, UTM

Assalamualaikum w.b.t and Good Day

Ladies and gentlemen,

It is my pleasure to welcome you to the Education Research Colloquium between Faculty of Education, Universiti Teknologi Malaysia (UTM) & Universitas Negeri Makassar (UNM), Indonesia. This colloquium is a platform for both institutions to sustain a harmonious and stable global society and to promote international cooperation and exchange. As we know, UTM participated in a wide variety of collaborative relationships with universities, institutions and individuals in many countries. I am confident that through this colloquium, relationship and friendship between FP UTM and UNM will become stronger. I would like to take this opportunity to congratulate all presenters in this colloquium. I am sure that the variety and depth of the research presented at this colloquium will be appreciated by the audiences. In summary, I believe that this colloquium is just a start for a more fruitful and continuous collaboration between FP UTM and UNM.

Thank you



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CONTENT

Relation between Physical Condition and the Incidence of Pneumonia in Children Under Five in Urban Village in Palu, Central Sulawesi, Indonesia

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Abstract:

Pneumonia was dubbed as a major assassin of infant mortality, and under five in Indonesia, estimated pneumonia deaths in Indonesia reached five cases among 1000 infants / children under five die each year, or 12,500 casualties mount or 416 cases a day. Home and neighborhood sanitation is closely related to the incidence of infectious diseases, especially respiratory infections, house window does not meet the requirements, the house is damp and the walls and the morning sun is difficult to enter the house also easier for children stricken with pneumonia. This study aimed to know the relationship ventilation, humidity, natural lighting and the type of floor with the incidence of pneumonia in children under five in Palu City. This type of research case-control analytic approach, done at East Palu, District with a sample of 63 cases and 63 controls. The analysis used were univariate and bivariate with the chi-square test. The results showed that there is three physical house variable associated with the incidence of pneumonia disease in children under five in the city of Palu. The variables are the condition of home ventilation, natural lighting, and humidity. While the type of floor of the house is not associated with the incidence of pneumonia in children under five. The results of this study illustrate that people who have a habit to open windows every day can reduce the risk of pneumonia. The condition of the open window produces good air circulation and low humidity, thus preventing culture of germs.

Keywords : The physical condition of the house, and the incidence of pneumonia in children under five

1.0 Introduction

The purpose of health development in Indonesia aims to provide health services to obtain healthy living ability for society in order to realize the optimal health status. Indicators of a community's health status can be seen from the healthy level, sickness, and death of the population. Mortality and disease incidence rates for unhealthy household residents are usually dominated by diseases caused by germs, such as pneumonia.

Pneumonia is a disease often reported as the 10 major diseases in developing countries. According to a 2008 World Health Organization (WHO) report, pneumonia deaths worldwide are around 19% or around 1.6 to 2.2 million, of which about 70% occur in developing countries, especially in Africa and Southeast Asia. Data WHO 2016 showed that the worldwide death rate from pneumonia in children under 5 years of age is as significant. 15%. Data in Indonesia shows that the death of pneumonia in Indonesia reaches five cases among 1000 babies / toddlers die each year, or 12,500 victims per month or 416 cases. Pneumonia or

respiratory infection due to household conditions such as malnutrition, overcrowding, parental smoking and household air pollution.

Inadequate ventilation of the house affects the health of residents. The obstructed air exchange from outside into the house cause the increased risk of disease caused by bacteria. Inadequate ventilation also causes increased humidity of the room due to the process of liquid evaporation from the skin. Therefore high humidity of the room will be a suitable medium for the proliferation of bacteria that cause disease Pneumonia. The house with limited air exchange has bad air conditioning as a result of kitchen smoke or cigarette smoke.

The infants and children who often smoked the smoke in the home more susceptible to upper infection respiratory tract. Furthermore, the humidity condition of the house also allows children attacked by Pneumonia. In Chine, the incidence childhood pneumonia with high prevalence associated with ambient particulate air pollution and house condition.(Havens, Jary, Patel, Chiume, & Mortimer, 2015)(Jiang *et al*., 2018). Furthermore, the reduced housing conditions in households indicated that limited access to clean water and humidity of home-related to the health status of the family.(Tasnim, Dasvarma, & Mwanri, 2017).

This study aims to reveal the relationship between the condition of the home with the incidence of pneumonia in children under five in the city of Palu. Location of study in East Palu District as the region with the highest incidence of Pneumonia in 2017.

2.0 Method

This research is observational analytic research with case-control approach. The research was done by direct observation in the field and measurement using the tool, then the data were analyzed by Univariate and Bivariate analysis by using Chi-Square test to find out the relationship between ventilation, humidity, natural lighting, and type of floor with the incidence of pneumonia, the data in this study is presented in the form of tables and narratives about everything related to research.

3.0 Result and Discussion

3.1 Univariate Analysis

This analysis is conducted to determine the frequency distribution of each of the variables studied, both independent and dependent variables (Table 1)

Table 1. The Sample Characteristic by Univariate Analysis

Variable	Category	Frequency	Percentage
Age	1-12 months	21	16,7
	13-24 months	18	14,3
	25-36 months	32	25,4
	37-48 months	46	36,5
	>48 months	9	7,1
Gender	Boys	70	55,6
	Girls	56	44,4
Conditions of home ventilation	Eligible	91	72,2
	Not Eligible	35	27,8

Variable	Category	Frequency	Percentage
Conditions of home Natural Lighting	Eligible	84	66,7
	Not Eligible	42	33,3
Humidity	Eligible	104	82,5
	Not Eligible	22	17,5
Type of home floor	Eligible	113	89,7
	Not Eligible	13	10,3

Table 1 shows that the age of children with the highest frequency is 37-48 month age group of 46 people (36.5%) and the least are age group> 48 months as many as 9 people (7.1%). Most of the male sex were 70 (55.6%), and women were 56 (44.4%). The condition of the toddler's house is generally well viewed from home ventilation, natural lighting, humidity and the type of floor that generally qualifies.

3.2 Bivariate Analysis

The bivariate analysis aims to obtain the relationship between independent variables and dependent variables. (table 2)

Table 2: Bivariate analysis of house conditions and the incidence of pneumonia

Variable	Category	Sufferer (%)	Unsufferer (%)	P-value	Conclusion
Conditions of home ventilation	Eligible	44	56	0.047	Condition of home ventilation related to the incidence of pneumonia
	Not Eligible	65.7	34.3		
Conditions of home Natural Lighting	Eligible	45.2	54.8	0.035	Condition of home natural lighting related to the incidence of pneumonia
	Not Eligible	72.7	27.3		
Humidity	Eligible	42.9	57.1	0.038	Condition of home humidity related to the incidence of pneumonia
	Not Eligible	64.3	35.7		
Type of home floor	Eligible	46.9	53.1	0.079	Type of home floor did not relate to the incidence of pneumonia
	Not Eligible	76.9	23.1		

4.0 Discussion

4.1 The Relationship of Ventilation with the Incidence of Pneumonia in Children Under Five

The result of statistical analysis with Chi-square test for the relationship of house ventilation with the incidence of pneumonia disease in children under five resulted in p = 0,049. The value is smaller than a value (0.05). It concludes that there is a relationship between home ventilation with the incidence of pneumonia disease in children under five. The ventilation area is not eligible caused the room does not allow for good air exchange, and the airflow inside the room remains fresh. Based on observation of window researchers at home respondents are not opened on average and still a lot of windows on the home of respondents made of glass that can not be opened, so the process of air exchange in the house is not lancer, and there is also a small size is the size of ventilation is recommended should be 10% floor area.

4.2 The Relationship of Humidity with the Incidence of Pneumonia in Children Under Five

The result of statistical analysis with Chi-square test for house humidity relationship with the incidence of pneumonia disease in children under five obtained p-value = 0.031 is smaller than a value (0.05). Thus there is a significant relationship between house humidity with the incidence of pneumonia disease in children under five. Respondents affected by pneumonia had a house-eligible moisture of 104 homes (82.5%) and unsuitable house humidity of 22 houses (17.5%). Humidity is considered reasonable if it meets 40-60% and is bad if it is less than 40% or more than 60%. The observation of humidity researchers that less or more air humidity in the home becomes a good medium for the growth of bacteria that cause pneumonia.

Humid houses allow rats and cockroaches to carry bacteria and viruses that can all play a role in triggering respiratory illness and can multiply within the home (Korelia, 2017)

4.3 The Relationship of Natural Lighting with the Incidence of Pneumonia in Children Under Five

The result of statistical analysis with Chi-square test for the correlation between natural lighting in the house with the incidence of pneumonia disease in children under five, got p-value = 0,039 smaller than value 0,05. The analysis result indicated that there is a significant correlation between house lighting with the incidence of pneumonia disease at the toddler. Respondents affected by pneumonia had house lighting that fulfilled the requirements of 84 houses (66.7%) and unfit house lighting for 42 houses (33.3%). According to observation resulted that natural lighting in the home is closely related to the window size. Small window size does not allow the entry of sunlight into the house. The lack of sunlight that enters the house is a good place to live and breed the seeds of disease.The home with sufficient lighting, both natural light (sunlight) and artificial light can affect air humidity. In addition, Sunlight is very important for human health, because it can kill pathogenic bacteria in the house., (Krieger & Higgins, 2002)

4.4 Relationship Type of Floor with the Incidence of Pneumonia in Children Under Five

The result of statistical analysis with Chi-square test for the relationship between the house floor and the incidence of pneumonia disease in children under five obtained p-value (0.079) higher than the value of a (0.05). The result indicated that there is no significant relationship between the house floor with the incidence of pneumonia in toddlers. Respondents exposed to pneumonia had eligible home floors of 113 houses (89.7%) and unqualified home floors of 13 houses (10.3%). The result of observation at the research location shows that most of the houses have the floor with the low quality concrete material. This material is easily broken and damaged and potentially produce dust in the house.

The incidence of pneumonia is strongly associated with bacterial growth in an environment. Houses with low air ventilation can allow the rapid development of bacteria. Dust in a house containing bacteria is difficult to circulate with the outside air under the proper ventilation conditions. The dust contained in the room contains about 5 million bacteria per gram. Bacteria that often float in the air are bacteria that live in the human respiratory tract released by sneezing, coughing, breathing or while talking. Pneumonia and

tuberculosis are potentially contagious in the home with conditions that do not meet health requirements.

5.0 Conclusion

The results showed that there is three physical variable house associated with the incidence of pneumonia disease in children under five in the city of Palu that is the condition of home ventilation, natural lighting, and humidity. While the type of floor of the house is not associated with the incidence of pneumonia in children under five. The results of this study illustrate that people who have a habit to open windows every day can reduce the risk of pneumonia. The condition of the open window produces good air circulation and low humidity, thus preventing culture of germs.

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