EUROPEAN
ACADEMIC
RESEARCH

Relationship between Characteristics of Toddlers and Family Health Behavior against Pneumonia in Toddlers in the Work Area of Muara Bungo II Public Health Center in 2015

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Abstract

The purpose of this study was to analyze the relationship between the characteristics of toddler and family health behavior with the incidence of pneumonia in toddler in the work area of the Muara Bungo II Public Health Center in 2015. This type of research is observational-analytic, this research was conducted using a case control approach research design. The study was conducted in the work area of Muara Bungo II Public Health Center, Bungo Regency in April 2014-February 2015. The population of this study were 55 toddlers affected by the disease. The sample of cases was all toddlers who were diagnosed with pneumonia as many as 55 toddlers. The control sample was toddlers who did not suffer from pneumonia with a set number of 1: 1 with a sample of cases namely as many as 55 toddlers. The total sample is 110 toddlers. Bivariate data analysis was performed by Chi-Square statistical test, with a significant level (a) used was 0.05. The results showed variables that have significant relationship with the incidence of pneumonia in toddler namely immunization status (p-value = 0.006, OR = 0.336), knowledge (p-value = 0.022, OR = 0.412), attitude (p-value = 0,000, OR = 0.147) and action (p-value = 0.001, OR = 0.250). Variables that have no relationship with the incidence of pneumonia in toddler are the age of toddler (p-value = 0.699, OR = 0.861), and birth weight (p-value = 0.084, OR = 0.512). To the Bungo District Health Office, it is recommended that a strategic plan be made with efforts to tackle pneumonia in toddlers in the long term, health workers of health

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centers to be more active in educating and providing education to families especially mothers who have toddlers about signs and symptoms and prevention the incidence of pneumonia in toddler. Collaborating with community organizations such as: Posyandu cadres, study groups to improve family knowledge, especially mothers who have toddlers about the importance of how to treat pneumonia in infants.

Key words: family behavior, pneumonia, toddler

INTRODUCTION

Pneumonia is an acute infection process that affects the lung tissue (alveoli) usually caused by the entry of bacterial germs, which are characterized by clinical symptoms of cough, high fever, accompanied by rapid breathing or pulling the lower chest wall inward. Pneumonia is the main killer of children under five in the world, compared to other diseases such as diarrhea, measles, malaria and AIDS.[1]

Pneumonia caused by germs, viruses, bacteria, fungi, malnutrition, low immune system, not drinking breast milk, environment that can facilitate the occurrence of disease.[3] Low socio-economic factors increases the mortality rate. The main cause of pneumonia in toddler is bacteria, the most common is the bacterium *streptococcus pneumonia.*[5] Pneumonia is caused by *streptococcus pneumonia* 50% of the total deaths of children under five in the world and 30% by *Haemophylus Influenza* type B (Hib), others are viruses and other causes. The high incidence of pneumonia is inseparable from pneumonia risk factors.[5]

According to (WHO) in 2012, Pneumonia is one of the causes of death in children throughout the world. Every year pneumonia kills around 1.6 million toddlers or around 14% of all toddler deaths worldwide. This figure is higher than 2% of

deaths due to HIV / AIDS, 8% malaria, and 1% measles. The data illustrates the highest risk of death of children under the age of 5 taking place during the neonatal period which is the first 28 days of life (40%) including preterm birth, asphyxia and infection born.[2]

The Asia-Pacific region is estimated at 860,000 toddlers die every year or about 98 children die every hour. Pneumonia is the number one toddler predator in developing countries. The most common cause of death is pneumonia in toddler less than 2 months old.[2] Fifteen countries with the highest number of new pneumonia cases were India 43.0%, China 21.1%, Pakistan 9.8%, Bangladesh 6.4%, Nigeria 6.1%, Indonesia 6.0%, Ethiopia 3.9 %, Congo 3.9%, Vietnam 2.9%, Philippines 2.7%, Sudan 2.0%, Afghanistan 2.0%, Tanzania 1.9%, Mianmar 1.8%, Brazil 1.8%.[3]

Pneumonia in Indonesia is the third leading cause of death after cardiovascular and tuberculosis.[4] The pneumonia mortality rate for toddler is estimated at 21%. More than 400 children who die every day in Indonesia, are children from poor and most marginalized families, and many of them are victims of easily preventable and treatable diseases such as pneumonia and diarrhea.

According to 2013 Basic Health Research (Riskesdas) data, pneumonia morbidity in infants was 2.2%, toddlers were 3%, while pneumonia deaths in infants were 29.8% and toddlers were 15.5%.[2] Toddler mortality due to illness is a major public health problem that contributes to the high infant mortality rate: Pneumonia 15.5%, Enterocolitis 10.7%, Meningitis 8.8%, DHF 6.8%, Measles 5.8%, Sinking 4.9%, TB 3.9%, Malaria 2.9%, Leukemia 2.9% and others 12.6%.[4]

According to the Profile of the Bungo District Health Office in 2013 the incidence of pneumonia was in the third place from eleven districts in Jambi province. With the number of toddlers 303,757, and the estimated number of pneumonia

sufferers in toddlers 30,698 in Jambi province. Bungo Regency has 17 sub-districts and 18 health centers with 31,761 toddlers and 3,176 pneumonia sufferers and patients found and treated with 1,111 under-fives 35.0% and one of the sub-districts where the incidence of pneumonia in toddlers is still in Bungo Dani Subdistrict Muara Bungo II Public Health Center with 2,640 toddlers and the number of 254 pneumonia sufferers and all handled by health workers.[9]

Bungo Regency has one Regional General Hospital and three Private Hospitals, 18 public health centers (Puskesmas) and 57 BPS / Clinics. Of the 18 Puskesmas in Bungo Regency, the incidence of Pneumonia is still high, which is found in the work area of Muara Bungo II Health Center consisting of 5 villages, namely Sungai Arang Village, Talang Pantai, Sungai Pinang, Pulau Pekan and Sungai Kerjan. In 2013 there were recorded 254 infants and toddlers affected by pneumonia, and in the last three months, namely April 18 toddlers, May 16 toddlers and June 21 toddlers, and a total of 55 toddlers affected by pneumonia.[9]

The initial survey conducted by observers and interviews with 10 mothers who had toddlers in the work area of Bungo Dani II Health Center was generally seen from the family health environment from the condition of toddlers' family homes. houses that do not meet the requirements, house occupancy density, use of mosquito coils, cooking fuel (wood and stoves), family smoking habits (indoor air pollution) and in that sub-district there is one palm oil mill which is still active for processing palm oil, The smoke and waste from the factory disrupted air pollution and the environment in the work area of Bungo Dani II Health Center.

The purpose of this study was to analyze the relationship between the characteristics of toddler and family health behavior with the incidence of pneumonia in infants in the work area of the Muara Bungo II Health Center in 2015.

RESEARCH METHOD

This type of research is observational-analytic, this research was conducted using a case control approach research design that aims to analyze the relationship of family health behavior with the incidence of pneumonia in toddler who use a retrospective approach.[11]

The study was conducted in the work area of Muara Bungo II Public Health Center, Bungo Regency in April 2014-February 2015. The population of this study were 55 toddlers affected by the disease. The sample of cases was all toddlers who were diagnosed with pneumonia as many as 55 toddlers. The control sample was toddlers who did not suffer from pneumonia with a set number of 1: 1 with a sample of cases namely as many as 55 toddlers. The total sample is 110 toddlers. The sample group in this study consisted of 2 (two) groups, namely the case group and the control group.[12]

The data used are primary and secondary data. Bivariate data analysis was performed by Chi-Square statistical test, with a significant level (α) used was 0.05.

RESULTS AND DISCUSSION

Univariate Data Analysis

The results of the study obtained the highest number of characteristics of mothers in the case group were 4 people, namely as many as 13 families (23.6%), and the least number of children was 1, 8 and 10 people, namely as many as 1 family (1.82%) . In the control group the highest number of children was 2 people, namely as many as 20 families (36.4%), and the lowest number of children was 9 people, namely as many as 1 family (1.82%).

The results of research on maternal knowledge in the case group showed that most of the knowledgeable were as

many as 34 people (61.8%). In the control group most of the knowledgeable mothers were 33 people (60.0%).

The results of the study of maternal attitudes in the case group showed that most of the negative attitude was 49 people (89.1%). In the control group most of the mothers had a negative attitude of 30 people (54.5%).

The results of the study of maternal actions in the case group showed that most of the actions were poor as many as 40 people (72.7%). In the control group, most of the good mothers' actions were 33 people (60.0%).

Bivariate Analysis

The analysis of the results of the study using the Chi-Square test showed that the age of toddler had no relationship with the incidence of pneumonia in infants in the Bungo District Muara Bungo II Health Center, $p = 0.699 > 0.05$, whereas OR = 0.861 (95% CI = 0.403 -1,838), because the OR value <1 then the age of the toddler is not a risk factor for the incidence of pneumonia in toddlers.

Table 1. Relationship between Age of Toddlers and the incidence of Pneumonia in Toddlers

Age of Toddler	Incidence of Pneumonia				Total		P	OR
	Case		Control					(95%CI)
	n	%	n	%	n	%		
≤ 2 months	22	47.8	24	43.6	46	41.8		0.861
2 months - < 5 years	33	51.6	31	56.4	64	58.2	0.699	(0.403-1.838)
Total	55	100	55	100	110	100		

The relationship between the age of a toddler and the incidence of pneumonia using the Chi-Square statistical test showed no association with the incidence of pneumonia, where the p-value = 0.699 > 0.05, which means that the age of toddlers in the work area of Muara Bungo II Public Health Center in Bungo Regency was not related pneumonia in toddlers. Odds Ratio was 0.861 (95% CI = 0.403-1.838) which means the age of toddlers ≤2 months is very risky with the incidence of pneumonia,

compared to the age of toddlers ≥2 months this is caused because children under 2 months have immature immunity, and respiratory still relatively narrow. The prevalence of pneumonia incidence is higher in the younger age group.

The results of this study are in line with research conducted by Gani, entitled The Strategy for Reducing Pneumonia Incidence in Toddler Children in Banyuasin III and Betung Subdistricts South Sumatra 2004, getting results that there is no relationship between age of toddlers and the incidence of pneumonia in statistical tests at get p-value = 0.210, where P> 0.05. This shows that there is no relationship between the age of the toddler and the incidence of pneumonia in toddler in South Sumatra.[15]

Age of toddler ≤ 2 months which is very risky with the incidence of pneumonia, compared to the age of toddlers ≥ 2 months this is caused because children ≤ 2 months have immature immunity and the respiratory is still relatively narrow. The prevalence of pneumonia incidence is higher in the younger age group. Age of toddler ≥ 2 months to 5 years is a period of child development can be disrupted if parents or family do not maintain environmental cleanliness and provide good nutritional status to their toddler.

Table 2. Relationship between Immunization and Pneumonia in Toddlers

Immunization	Incidence of Pneumonia						*P*	OR (95%CI)
	Case		Control		Total			
	n	%	n	%	n	%		
Complete	38	69.1	27	49.1	65	59.1		0.431
Incomplete	17	30.9	28	50.9	45	40.9	0.033	(0.198-0.940)
Total	**55**	**100**	**55**	**100**	**110**	**100**		

The results of the study of the relationship of immunization with the incidence of pneumonia using Chi-Square statistical tests showed that immunization was significantly associated with the incidence of pneumonia, p-value = 0.033 <0.05, while OR = 0.431 (95% CI = 0.198-0.940), because OR <1,

immunization is not a risk factor for pneumonia. The age of toddlers in the case group shows that the majority of toddler immunizations are incomplete (72.7%). In the control group, most immunizations were complete (52.7%).

In line with the research conducted by Gani (2004), that incomplete immunization status is associated with an increased risk of developing pneumonia in toddlers, toddler suffering from pneumonia may be due to incomplete basic immunization status so that the proportion of toddler with immunization is incomplete in case group 69% and control 30%, this certainly proves that immunization is significantly associated with the incidence of pneumonia (p = 0,000) p <0.05, meaning that toddler suffering from pneumonia may be due to the influence of incomplete basic immunization status.

Mothers who have toddlers should be obliged to provide complete immunization to their children, so that toddlers are not easily susceptible to disease and disrupt the growth and development of their children. Mothers and families must be willing and understand the benefits of immunization for toddler, following the Integrated Family Planning and Health Services Post (Posyandu) activities. Health workers should provide counseling and education to mothers about health for families and toddlers so that the problem of child and toddler morbidity and mortality can be reduced.

Table 3. Relationship between Birth Weight and Pneumonia in Toddlers

Birth Weight	Incidence of Pneumonia				Total		P	OR (95%CI)
	Case		Control					
	n	%	n	%	n	%		
≤ 2500 gram	20	36.4	29	52.7	49	44.5		0.512
≥ 2500 gram	35	63.6	26	47.3	61	55.5	0.084	(0.239-1.099)
Total	**55**	**100**	**55**	**100**	**110**	**100**		

Relationship between birth weight and incidence of pneumonia using Chi-Square statistical test showed that birth weight had no significant relationship with the incidence of pneumonia, p-

value = 0.084 <0.05, while OR = 0.512 (95% CI = 0.239-1.099), because the OR value is> 1, birth weight is not a risk factor for pneumonia. Birth weight in the case group showed that most birth weight was 2500 grams (63.6%) compared to 2500 grams (36.4%). In the control group most birth weight was ≤ 2500 grams (52.7%). This event probably caused that birth weight> 2500 grams suffered pneumonia by nutritional status, immunization status and early supplementary feeding.

In line with the research conducted by Gani entitled The Strategy for Reducing Pneumonia Incidence in Toddlers in Banyuasin III and Betung Subdistricts, South Sumatra 2008, from the statistical test results it was found that toddler with birth weight <2500 grams had no association with the incidence of pneumonia and were not a risk factor for the incidence of pneumonia in Banyuasin District (OR = 0.78). This event may be caused by a toddler who is born> 2500 grams suffering from pneumonia caused by a factor of malnutrition (84.7%), non-exclusive breastfeeding (81.6%). Immunization status is incomplete (69%) and early supplementary feeding (81.6%) which causes a decrease in the child's immune system so that it is susceptible to respiratory infections and kitchen smoke pollution factors (74.5%), cigarette smoke (82.7%), and residence which is dense (80.6%) which allows toddler to be exposed continuously to chemicals produced by combustion and is a good place for bacteria to breed and transmit quickly to family members, especially children with low immune system.[13]

Table 4. Relationship between Knowledge and Pneumonia in Toddlers

Knowledge	Incidence of Pneumonia				Total		P	OR (95%CI)
	Case		Control					
	n	%	n	%	n	%		
Good	21	38.2	33	60.0	54	49.1		0.412
Poor	34	61.8	22	40.0	56	50.9	0.022	(0.191-0.886)
Total	55	100	55	100	110	100		

The relationship of knowledge with the incidence of pneumonia using the Chi-Square statistical test showed that knowledge was significantly related to the incidence of pneumonia, p-value = 0.018 <0.05, while the OR value = 0.412 (95% CI = 0.191-0.886), because OR values 1 then knowledge is not a risk factor for the incidence of pneumonia. Mother's knowledge in the case group showed that most of the knowledge was not good (61.8%). In the control group, most mothers had good knowledge (60.0%).

Knowledge can be known if someone has been related to the object, most of the knowledge can be obtained from seeing and hearing. Knowledge is the beginning of the introduction of an object that is observed, so that if poor knowledge of an object will affect the actions to be taken.[14]

The results of this study are in line with the research by Muchlis [13], that there is a relationship between the knowledge of mothers and the incidence of pneumonia in toddler, it is known that the results of the proportion analysis of respondents who have poor knowledge with the incidence of pneumonia (28.6%) while those who have good knowledge with the incidence of pneumonia (23.8%) and who have sufficient knowledge with the incidence of pneumonia (66.7%). Statistical test results obtained p-value = 0.043, where p <0.05. This shows that there is a relationship between the knowledge of mothers and the incidence of pneumonia in toddler in IRNA Child of Dr. Mohammad Hoesin Hospital Palembang.

This is in line with research conducted by Kartini[15]. Relationship between attitude knowledge, actions of mothers in home support care for pneumonia in toddler in the working area of Wonoayu health center, which states that the higher a person's knowledge of pneumonia, the lower the incidence of pneumonia, and vice versa if someone has low knowledge about pneumonia , the higher the incidence of pneumonia.

Table 5. Relationship between Attitudes and Pneumonia in Toddlers

Attitudes	Incidence of Pneumonia				Total		P	OR (95%CI)
	Case		Control					
	n	%	n	%	n	%		
Positive	6	10.9	25	45.5	31	28.2		0.147
Negative	49	89.1	30	54.5	79	71.8	0.000	(0.054-0.399)
Total	**55**	**100**	**55**	**100**	**110**	**100**		

The relationship of attitude to the incidence of pneumonia in toddler using Chi-Square statistical test showed that attitudes were significantly associated with the incidence of pneumonia, p-value = 0.011 <0.05 while OR = 0.348 (95% CI = 0.149-0.814), because OR <1 hence attitude is not a risk factor with the incidence of pneumonia. The attitude of mothers in the case group showed that the majority were negative (80.0%), and in the control group most of the mothers were positive (58.2%).

Attitude is a reaction or response that is still closed from someone to a stimulus or object. Attitude is not yet an action or activity but is a predisposition to the action of a behavior. That attitude is still a closed reaction, not an open reaction or open behavior. Attitude is readiness to react to objects in a particular environment as an appreciation of objects.[18]

The results of this study are in line research conducted by Muchlis in IRNA Child of Dr. Mohammad Hoesin Hospital Palembang who obtained the results of analysis of respondents who had a negative attitude with the incidence of pneumonia (62.5%) while those who had a positive attitude with pneumonia in infants (20.8%). The statistical test results p-value = 0.02 where p <0.05. This means that there is a relationship between the attitude of mothers and the incidence of pneumonia in infants. The better the mother's attitude towards children's health, it will reduce the risk of pneumonia in infants. Conversely, if the mother's attitude is worse towards the health of her child, then the risk of pneumonia in infants will be higher.[13]

The attitude of mothers towards toddlers is a habit that mothers do to their children in their daily lives, their attitude is also influenced by their environment. Attitudes indicate agreement or disagreement, likes or dislikes someone.[17]

Table 6. Relationship between Actions and Pneumonia in Toddlers

| Action | Incidence of Pneumonia | | | | | | P | OR |
| | Case | | Control | | Total | | | (95%CI) |
	n	%	n	%	n	%		
Good	15	27.3	33	60.0	48	43.6		0.250
Not-good	40	72.7	22	40.0	62	56.4	0.001	(0.112-0.557)
Total	**55**	**100**	**55**	**100**	**110**	**100**		

The results of the study using the Chi-Square test showed that the action was significantly associated with the incidence of pneumonia in toddler, the value of p = 0.001 <0.05, while the OR value was 0.250 (95% CI = 0.112-0.557), because the OR value <1, then the action good is a protective factor against the incidence of pneumonia in toddler.

The results of this study are in line research conducted by Muchlis in IRNA Child of Dr. Mohammad Hoesin Hospital Palembang The results of this study are conducted by Muchlis in IRNA Child of Dr. Mohammad Hoesin Hospital Palembang who got the results there was a relationship between the actions of mothers and the incidence of pneumonia in toddlers obtained a proportion of respondents who acted well with the incidence of pneumonia in toddler (19%) while those who did not have good actions (57.9%). Statistical test results p-value = 0.027, where p <0.05. This shows that there is a relationship between the actions of mothers and the incidence of pneumonia in toddlers. Action or practice is an activity carried out by respondents in an effort to prevent pneumonia.[13]

Human behavior is all activities and human activities, both those that can be experienced directly, or those that cannot be observed by outsiders. formulate that action is a response or reaction of someone to stimulus (external stimulation). Therefore this action occurs through the process of

the stimulus to the organism or knowledge, and then the organism responds or determines the attitude.[18]

Research Implications

The implications that can be formulated from the findings and facts of this study are as follows: 1) Family and society. 2) Reproductive Health Sciences.

Research Limitations

This research is a quantitative study using only bivariate statistical tests, so it is very limited to explore all the factors that influence the incidence of pneumonia in toddlers. It is difficult to find the characteristics of mothers who have the same toddler, namely between mothers who have a toddler case and mothers who have a toddler control, especially in terms of age of toddler and equated with birth weight.

CONCLUSION

The results study of the relationship between family health behavior and the incidence of pneumonia in toddler is related to knowledge, attitudes, actions and immunization status.

To the Bungo District Health Office, it is recommended that a strategic plan be made with efforts to tackle pneumonia in toddlers in the long term, health workers in health centers to be more active in educating and providing education to families especially mothers who have toddlers about signs and symptoms and prevention the incidence of pneumonia in toddler. Collaborating with community organizations such as: Posyandu cadres, study groups to improve family knowledge, especially mothers who have toddlers about the importance of how to treat pneumonia in infants.

It is recommended to mothers to follow the development of health information, especially regarding toddler health, both

through counseling and from print and electronic media, and are always active in participating in posyandu activities.

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