



# Risk Factors for the Event of Pneumonia in Toddlers at Konawe Regency Hospital

Fajar Kurniawan<sup>1\*</sup>, Anoluthfa<sup>2</sup>, Juli Purnama Hamudi<sup>3</sup>, Sulfi. A Yusuf<sup>4</sup>, Rizka Mutmainnah<sup>5</sup>, Julian Jingsung<sup>6</sup>, Andriyani<sup>7</sup>

## Abstract

Pneumonia cases in Konawe Regency which were given treatment in 2017 reached 8.71% and pneumonia was the 3rd (three) position of the 10 (ten) biggest diseases in Konawe Regency, in 2018 it was known that the number of cases had increased and those handled had decreased by the amount is 8.0% and is in the position of 1 (one) out of 10 (ten) largest diseases. Data on pneumonia cases at the Konawe District Hospital is known that in 2018 there were 327 (31.68%) Pneumonia cases, of the total 1032 under-five visits and in 2019 an increase was 156 (13.87%) pneumonia cases from 1124 under-five and in 2020 pneumonia cases totaled 503 (40.49%) of 1242 toddlers, pneumonia cases in Konawe District Hospital. The purpose of this study was to determine the risk factors that cause pneumonia in children. This type of research is quantitative research, with a case control study design. Results of the study There was an association between children's medical history and the incidence of pneumonia and OR 9.50 or 9 times the risk, There was a relationship between environmental conditions and the incidence of pneumonia and OR 10.45 or 10 times the risk, There was a relationship between Clean and Healthy Life Behavior and the incidence of pneumonia and OR 9.82 or 9 times the risk, There is a relationship between health services and the incidence of pneumonia and OR 9.14 or 9 times the risk, There is a hereditary relationship with the incidence of pneumonia and OR 0.39 means that it is almost not at risk, There is a relationship between knowledge and the incidence of pneumonia and OR 20.06 or 20 times the risk, There is a relationship between attitude with the incidence of pneumonia with and OR 4.83 or 4 times the risk, There is a relationship between action with the incidence of pneumonia and OR 33.71 or 33 times the risk. The conclusion of this study is that the health history of toddlers has a risk of 9 (nine) times. Environmental conditions have a risk of 10 (ten) times, Clean and Healthy Life Behavior has a risk of 9 (nine) times. zero) fold, or almost no risk, Parents' Knowledge has a 20 (twenty) fold risk, Parents' Attitude has a 4 (four) fold risk, Parents' Actions have a 30 (thirty) fold risk, Incidence of Pneumonia, Parental attitude variable is the variable that has the strongest relationship with the incidence of pneumonia. Suggestion The Konawe Regency Government should prioritize more in solving health problems, especially pneumonia in order to narrow down its spread, as well as look for the source of the problem including the discipline of mining businesses in the Konawe Regency to continue to pay attention and prioritize the health of the surrounding community.

73

**Key Words:** Risk of Pneumonia, Toddlers, Hospital

**DOI Number:** 10.14704/nq.2022.20.8.NQ44008

**NeuroQuantology 2022; 20(8):73-85**

## Introduction

The incidence of under-five deaths in five countries due to pneumonia reached 50%, namely 162,000 in Nigeria, 127,000 in India, 58,000 in Pakistan, 40 thousand in the Democratic Republic of the Congo and 32 Riu in Ethiopia. Pneumonia is the largest contributor to under-five mortality in Indonesia where in 2018 an estimated 19,000 children died

1 (one) hour there are 71% of children under five in Indonesia contracting pneumonia (Kevin, 2019) Indonesian Basic Health Research (Riskesdas) data in 2018 showed an increase in the incidence or number of pneumonia sufferers compared to 2013, it is known that an increase in pneumonia is the biggest infectious disease that causes death in children worldwide.

from pneumonia, it is estimated globally that every

**Corresponding author:** Fajar Kurniawan

**Address:** <sup>1\*</sup>Department of Hospital Administration, /Pelita Ibu Institute of Health Science, Indonesia, <sup>2</sup>Department of Midwifery, /Pelita Ibu Institute of Health Science, Indonesia



E-mail:

ns.fajarkurniawan87@gmail.com

Pneumonia is the cause of 15% of under-five deaths, which is estimated at 922,000 children under five in 2015. Pneumonia affects all ages in all regions, but most occurs in South Asia and Sub-Saharan Africa (Kemenkes RI, 2016). In Indonesia alone, pneumonia is a disease that causes death in children. In 2015 there was an increase in the incidence of pneumonia to 63.45% compared to the previous year where the incidence of pneumonia only ranged from 20% - 30%. (Ministry of Health RI, 2016).

It is known that the percentage of pneumonia sufferers in children under five, the incidence of pneumonia in Southeast Sulawesi in 2017 amounted to 12% of children. reported with pneumonia and in 2018 there were 35.02%, in 2019 there were 13.1% children and were grouped in pneumonia (Profil Kesehatan Provinsi Sultra, 2019).

The data on pneumonia cases in several regencies in Southeast Sulawesi according to the Health profile of the province of Southeast Sulawesi was highest in Konawe Regency and followed by several other regencies including Konawe Regency amounting to 81.04%, Kolaka Regency amounting to 54.40%, South Konawe Regency amounting to 49.72%, Muna Regency 32.36%, Kendari City 26.52%, South Buton Regency 25.07%, West Muna Regency 22.09%, Buton Regency 19.80, Bau-Bau City 15.43%, East Kolaka District 10.26%, Central Buton District 9.54, North Buton District 7.12%, Bombana District 4.25%, Konawe Islands District 2.43%, Wakatobi District 1.50, North Konawe District 0.87% and North Kolaka District 0.61% (Profil Kesehatan Provinsi Sultra, 2019).

Pneumonia case data at the Konawe District Hospital is known in 2018 there were 327 (31.68%) Pneumonia cases, from a total of 1032 toddler visits and in 2019 there was an increase of 156 (13.87%) pneumonia cases from 1124 Toddlers and in 2020 pneumonia cases amounted to 503 (40.49%) of 1242 Toddlers, pneumonia cases at the Konawe District Hospital (Profil Kesehatan RSUD Kabupaten Konawe, 2020).

Based on the data on pneumonia cases in Southeast Sulawesi and Kendari City and especially in the Konawe District Hospital as well as an initial survey with visits to hospitals and several patients' families, the researchers conclude that it is temporarily caused by factors

such as health history of toddlers, Clean and Healthy Life Behavior, health services and offspring.

With the increase in pneumonia cases in Konawe Regency and the low percentage handled by health workers and pneumonia cases are included in the 10 largest diseases in Southeast Sulawesi with the ninth order, among others: non-pneumonia ARI (77,253) 67%, diarrhea (17,027) 15%, Influenza (9,733) 8%, suspected pulmonary tuberculosis (3,351), 3%, clinical stomach typhoid (2,458) 2%, pneumonia (1,756) 5%, pulmonary tuberculosis smear (+) (1,099) 1%, dengue fever (663) 1% Clinical Malaria (634) 1%, Dengue Hemorrhagic Fever (535) 0.8% and the first order in Konawe Regency,

hereby researchers are interested in conducting research by looking at the causative factors of the incidence of Pneumonia Cases at the Konawe District Hospital, which are packaged with the title Risk Factors Pneumonia in Toddlers at the Konawe District Hospital.

## Methods

This type of research is a quantitative research, with a case control study design is a research conducted by comparing two groups, namely the case group and the control group. This research was carried out in the Children's Care Room at the Konawe Regency Hospital, on the grounds that the child care room at the Konawe Regency Hospital was a reference. from various puskesmas in Konawe Regency with an average visit of 10-20 (ten to twenty) patients every month with new cases for the last 4 (four) months.

## Results and Discussion

### Descriptive Analysis

#### Children's Medical History

In the descriptive analysis of this study, the variables related to children under five with medical history were recapitulated in the form of a recapitulation table of respondents' answers and continued with the distribution of the results of the respondent's answer categories in the form of the next table and an explanation was given in the form of a brief description.



**Table 1. Frequency Distribution of Toddlers with Medical History**

Children's Medical History	Case		Control	
	f	%	f	%
Good	7	15,22	29	63,04
Less	39	84,78	17	36,96
Total	46	100	46	100

Based on the table above, it can be explained that out of a total of 92 respondents, both the case and control categories known to have a good child's medical history for the case category totaling 7 toddlers (15.22%) and Control amounted to 29

toddlers (63.04) for toddlers with less health history with the category of cases totaling 39 toddlers (84.78%) and control amounting to 17 toddlers (36.96%).

**History of environmental circumstances**

**Table 2: Frequency Distribution of Toddlers with Environmental Circumstances**

History of environmental circumstances	Case		Control	
	f	%	f	%
Good	16	34,78	39	84,78
Less	30	65,22	7	15,22
Total	46	100	46	100

Based on the table above, it can be explained that from a total of 92 respondents in both the case and control categories, it is known that the environmental conditions of the children are good for the case category, totaling 16 toddlers

(34.78%) and controls totaling 39 toddlers (84.78) for toddlers with poor environmental conditions with the case category totaling 30 toddlers (65.22%) and control totaling 7 toddlers (15.22%).

Phbs

**History**

**Table 3: Frequency Distribution of Toddlers with Clean and Healthy Life Behavior**

Phbs History	Case		Control	
	f	%	f	%
Good	8	17,39	31	67,39
Less	38	82,61	15	32,61
Total	46	100	46	100

Based on the table above, it can be explained that from a total of 92 respondents in both the case and control categories, it is known that the history of Clean and Healthy Life Behavior is good for the case category, totaling 8 toddlers

(17.39%) and controls totaling 31 toddlers (67.39%) for toddlers with a history of poor Clean and Healthy Life Behavior with the case category totaling 38 toddlers (82.61%) and control amounted to 15 toddlers (32.61%).

**History of Health Services**

**Table 4. Frequency Distribution of Toddlers with Health Services.**

History of Health Services	Case		Control	
	f	%	f	%
Good	13	28,26	36	78,26
Less	33	71,74	10	21,74
Total	46	100	46	100

Based on the table above, it can be explained that from a total of 92 respondents in both the case and

control categories, it is known that the Health Service History is good for the case category,



totaling 13 toddlers (28.26%) and controls totaling 36 toddlers (78.26%) for Toddlers with a History of Poor Health Services in the case category. amounted to 33 toddlers (71.74%) and control amounted to 10 toddlers(21.74%)

**Hereditary History**

**Table 5. Frequency Distribution of Toddlers with Hereditary**

Hereditary History	Case		Control	
	f	%	f	%
Good	37	80,43	27	58,70
Less	9	19,57	19	41,30
Total	46	100	46	100

Based on the table above, it can be explained that out of the total respondents 92 both the category of cases and control known to be Hereditary good for the category of cases amounted to 37 toddlers (80.43%) and Control amounted to 27

toddlers (58.70%) for Toddlers with Hereditary Less with the category of cases totaling 9 toddlers (19.57%) and control amounting to 19 toddlers (41.30%).

**Parental Knowledge**

**Table 6. Frequency Distribution of Parental Knowledge**

Parental Knowledge	Case		Control	
	f	%	f	%
Good	10	21,74	39	84,78
Less	36	78,26	7	15,22
Total	46	100	46	100

Based on the table above, it can be explained that out of the total respondents 92 both the category of cases and controls known to Be Knowledge parents are good for the category of cases amounting to 10 toddlers (21.74%) and Control

amounted to 39 toddlers (84.78%) for Toddlers with Less Parental Knowledge with the category of cases totaling 36 toddlers (78.26%) and control amounting to 7 toddlers (15.22%).

76

**Attitude**

**Table 7. Frequency Distribution with Parental Attitudes**

Parent's Attitude	Case		Control	
	f	%	f	%
Good	12	26,09	29	63,04
Less	34	73,91	17	36,96
Total	46	100	46	100

Based on the table above, it can be explained that out of the total respondents 92 both the case and control categories are known to be good for the case category totaling 12 toddlers (26.09%) and

Control amounting to 29 toddlers (63.04%) for Toddlers with Less Parental Attitudes with case categories totaling 34 toddlers (73.91%) and control totaling 17 toddlers (36.96%).

**Action**

**Table 8. Frequency Distribution of Parental Actions**

Parental Actions	Case	Control
------------------	------	---------



	f	%	f	%
Good	5	10,87	37	80,43
Less	41	89,13	9	19,57
Total	46	100	46	100

Based on the table above, it can be explained that out of the total respondents 92 both the category of cases and controls known to Parental Actions are good for the category of cases totaling 5 toddlers (10.87%) and Control amounted to 37

toddlers (80.43%) for Toddlers with Less Parental Actions with case categories totaling 41 toddlers (89.13%) and control totaling 9 toddlers (19.57%).

**Inferential Analysis**

**Children's Medical History of the risk of pneumonia in toddlers**

**Table 9. Children's Medical History of the risk of pneumonia in toddlers**

Children's Medical History	Pneumonia				Σ	%	Chi-Square	Df	OR	Internal confidence	
	Case		Control							Lower	Upper
	f	%	f	%							
Good	7	15,22	29	63,04	36	39,13	20,13	1	9,50	3,49	25,91
Less	39	84,78	17	36,96	56	60,87					
Total	46	100,00	46	100,00	92	100					

It is known from the results of data analysis and obtained an OR value of 9.50 which means it has a risk of 9 (nine) times where the lower threshold value is 3.49 and the upper threshold value is 25.91, where it is also known that the Chi Square

value is 20.13 > X2 Table 3,841 which means that there is a significant relationship between the variable Child's health history and the incidence of Pneumonia.

**Environmental Circumstances against the risk of pneumonia in toddlers**

**Table 10: Environmental Circumstances against the risk of pneumonia in toddlers**

State of the Environment	Pneumonia				Σ	%	Chi-Square	Df	OR	Internal confidence	
	Case		Control							Lower	Upper
	f	%	f	%							
Good	16	34,78	39	84,78	55	59,78	21,88	1	10,45	3,81	28,62
Less	30	65,22	7	15,22	37	40,22					
Total	46	100,00	46	100,00	92	100					

It is known from the results of data analysis and obtained an OR value of 10.45 which means it has a risk of 10 (ten) times where the lower threshold value is 3.81 and the upper threshold value is 28.62, where it is also known that the Chi Square

value is 21.88 > X2 Table 3,841 which means that there is a significant relationship between the variables of the child's Environmental State History and the incidence of Pneumonia

**Clean and Healthy Life Behavior against the risk of pneumonia in toddlers**

**Table 11. Clean and Healthy Life Behavior against the risk of pneumonia in toddlers**

Clean and Healthy Life Behavior	Pneumonia				Σ	%	Chi-Square	Df	OR	Internal confidence	
	Case		Control							Lower	Upper
	f	%	f	%							



Good	8	17,39	31	67,39	39	42,39	21,54	1	9,82	3,68	26,17
Less	38	82,61	15	32,61	53	57,61					
Total	46	100,00	46	100,00	92	100					

It is known from the results of data analysis and obtained an OR value of 9.82 which means it has a risk of 9 (nine) times where the lower threshold value is 3.68 and the upper threshold value is 26.17, where it is also known that the Chi Square

value is  $21.54 > X2$  Table 3,841 which means that there is a significant relationship between the variable Child's health history and the incidence of Pneumonia.

**Health Services against the risk of pneumonia in toddlers**

**Table 12. Health Services against the risk of pneumonia in toddlers**

Service	Pneumonia				Σ	%	Chi-Square	Df	OR	Internal confidence	
	Case		Control							Lower	Upper
	f	%	f	%							
Good	13	28,26	36	78,26	49	53,26	21,13	1	9,14	3,53	23,63
Less	33	71,74	10	21,74	43	46,74					
Total	46	100,00	46	100,00	92	100					

It is known from the results of data analysis and obtained an OR value of 9.14 which means it has a risk of 9 (nine) times where the lower threshold value is 3.53 and the upper threshold value is 23.63,

where it is also known that the Chi Square value is  $21.13 > X2$  Table 3,841 which means that there is a significant relationship between the Health Service variable and the incidence of Pneumonia

**Hereditary against the risk of pneumonia incidence in toddlers**

**Table 12. Hereditary against the risk of pneumonia incidence in toddlers.**

Hereditary	Pneumonia				Σ	%	Chi-Square	Df	OR	Internal confidence	
	Case		Control							Lower	Upper
	f	%	f	%							
Good	37	80,43	27	58,70	64	69,57	4,16	1	0,35	0,13	0,88
Less	9	19,57	19	41,30	28	30,43					
Total	46	100,00	46	100,00	92	100					

It is known from the results of data analysis and obtained an OR value of 0.39 which means it has a 0 (zero)-fold risk or almost no risk where the lower threshold value is 0.13 and the upper threshold value is 0.88, where it is also known

that the Chi Square value of  $4.16 > X2$  Table 3.841 which has meaning there is a relationship between hereditary variables with the incidence of pneumonia.

**Parents' Knowledge of the risk of pneumonia in toddlers**

**Table 13. Parents' Knowledge of the risk of pneumonia in toddlers**

Parental Knowledge	Pneumonia				Σ	%	Chi-Square	Df	OR	Internal confidence	
	Case		Control							Lower	Upper
	f	%	f	%							





Good	10	21,74	39	84,78	49	53,26	34,23	1	20,06	6,90	58,29
Less	36	78,26	7	15,22	43	46,74					
Total	46	100,00	46	100,00	92	100					

It is known from the results of data analysis and obtained an OR value of 20.06 which means it has a risk of 20 (twenty) times where the lower threshold value is 6.90 and the upper threshold value is 58.29, where it is also known that the Chi

Square value is  $34.23 > X2$  Table 3.841 which means there is a relationship which is significant between the variable knowledge of parents with the incidence of Pneumonia

**Parents' Attitude to the risk of pneumonia in toddlers**

**Table 14. Parents' Attitude to the risk of pneumonia in toddlers**

Parent's Attitude	Pneumonia				Σ	%	Chi-Square	Df	OR	Internal confidence	
	Case		Control							Lower	Upper
	f	%	f	%							
Good	12	26,09	29	63,04	41	44,57	11,26	1	4,83	1,99	11,77
Less	34	73,91	17	36,96	51	55,43					
Total	46	100,00	46	100,00	92	100					

It is known from the results of data analysis and obtained an OR value of 4.83 which means it has a risk of 4 (four) times where the lower threshold value is 1.99 and the upper threshold value is 11.17, where it is also known that the

Chi Square value is  $11.26 > X2$  Table 3,841 which means that there is a significant relationship between the variable attitudes of parents and the incidence of Pneumonia.

**Actions of Parents against the risk of pneumonia in toddlers**

**Table 15. Parental Actions be coming the risk of pneumonia in toddlers**

Parental Actions	Pneumonia				Σ	%	Chi-Square	Df	OR	Internal confidence	
	Case		Control							Lower	Upper
	f	%	f	%							
Good	5	10,87	37	80,43	42	45,65	42,10	1	33,71	10,36	109,72
Less	41	89,13	9	19,57	50	54,35					
Total	46	100,00	46	100,00	92	100					

It is known from the results of data analysis and obtained an OR value of 33.71 which means it has a risk of 30 (thirty) times where the lower threshold value is 10.36 and the upper threshold value is 109.72, where it is also known that the Chi Square value is  $42.10 > X2$  Table 3,841 which means that there is a significant relationship between the variables of parental action and the incidence of Pneumonia.

**Children's Medical History of the risk of pneumonia in toddlers**

It is known from the results of data analysis and obtained an OR value of 9.50 which means it has a 9 (nine) times risk, where it is also known that the Chi Square value of  $20.13 > X2$  Table 3.841 which means that there is a significant relationship between the health history of toddlers and the incidence of pneumonia. The

medical history of the children in this study consisted of exclusive breastfeeding, BBL, nutritional status and including a history of previous illnesses.

Medical history based on Mother's Milk (ASI) is a liquid formed from a mixture of two substances, namely fat and water contained in protein, lactose and inorganic salts produced by the mother's mammary glands, and is useful as baby food which is believed to prevent disease.

Previous researchers stated the same thing, where children who were not exclusively breastfed were 4.55 times more likely to develop pneumonia than children who were exclusively breastfed (OR: 4.55 and P = 0.009). The results of research conducted by Siregar et al. (2018) also showed similar results where children who were not exclusively breastfed had a 7.22 times



greater chance of developing pneumonia than children who were exclusively breastfed ( $P = 0.006$  and  $OR: 7.22$ ) (Hidayani, 2018).

For babies with low birth weight (LBW), can have problems starting from the formation of anti-immune substances that are less than perfect, the risk of infection, especially pneumonia, so that the risk of death is greater than normal birth weight. Toddlers who have a history of low birth weight are at high risk of suffering from pneumonia due to impaired growth and development and immaturity of the respiratory tract organs (Hartati, 2010).

This is reinforced by the results of the study with the same variable where LBW is a risk factor of 4,136 times suffering from pneumonia. Babies who have low birth weight in the first month of birth will easily contract pneumonia and other respiratory infections because the formation of active substances for immunity is still not perfect (Sugihartono, 2012).

In addition, nutritional status and infection are interrelated, because infection can cause poor nutritional status and vice versa nutritional status can also cause infection. Energy sources in the body will be depleted because normal immune reactions will be hampered due to infection (Mutya & Sarlis, 2018). This is also reinforced by the results of previous studies where toddlers who have poor nutritional status have a 6.52 times higher chance of suffering from pneumonia than toddlers with good nutritional status. The latest research also shows that the results are such that toddlers with poor nutritional status have a 3.85 times chance of suffering from pneumonia compared to toddlers with good nutritional status ( $OR: 3.85$ ) (Frini, Merlinda, et al, 2018).

Another medical history that is very influential for the prevention of pneumonia is immunization status that affects a person's immune system or immunity. The more complete the immunization, the more the body's resistance will increase. On the other hand, incomplete immunization tends to only bring babies closer to certain diseases (Imelda, 2017).

The results of the study stated that toddlers whose immunization status was incomplete had a 7.8 times chance of suffering from pneumonia compared to toddlers with complete immunization status ( $P = 0.006$  and  $OR: 7.8$ ). The latest research also states the same thing where toddlers with incomplete immunization status

have 2 times the risk of suffering from pneumonia compared to toddlers with complete immunization status ( $P$ .Value = 0.034 and  $OR: 1.93$ ) (Adawiyah & Duarsa, 2016).

Thus the researcher assumes that it is important to prioritize the health needs of toddlers where toddlers are very vulnerable to contracting diseases, both pneumonia and other diseases, because apart from seeing the human side, they are also part of maintaining state assets for the future by creating a better and quality young generation.

### **Environmental conditions on the risk of pneumonia in toddlers**

It is known from the results of data analysis and obtained an  $OR$  value of 10.45 which means it has a risk of 10 (ten) times, where it is also known that the Chi Square value is  $21.88 > X^2$  Table 3,841 which means that there is a significant relationship between environmental state variables and the incidence of pneumonia in toddlers.

From the results of the research conducted by (Sugihartono, 2012), which concluded there was a significant association between the density of occupancy and the incidence of pneumonia in children. The results of the study are in line with the research conducted (Wulandari et al, 2016), shows, toddlers living in high residential densities have a 4.4 times greater risk of suffering from pneumonia ( $P$ . Value = 0.005 and  $OR: 4.4$ ).

The standard of home ventilation area according to the Decree of the Minister of Health of the Republic of Indonesia No. 829 of 1999 is a minimum of 10% of the floor area. Poorly ventilated rooms will endanger health, especially the respiratory tract. The presence of bacteria in the air is caused by the presence of dust and moisture. The number of air bacteria will increase if there are residents who suffer from respiratory diseases. From the results of research conducted by (Padmonobo, 2012) with the results of the study that there was a significant relationship between the ventilation area of the bedroom that did not meet the requirements ( $<10\%$  of the floor area) and the incidence of pneumonia in toddlers. A previous study with the same variable stated that there was a significant relationship between the ventilation area that did not meet the requirements ( $<10\%$  of the floor area) and the





incidence of pneumonia in children under five with p value = 0.003(Sari, 2017).

Decree of the Minister of Health of the Republic of Indonesia Number 829/Menkes/SK/VII/1999 concerning the requirements for residential houses that the requirements for a good floor are watertight and easy to clean, such as floors made of ceramic, tile or cement which are impermeable and strong. The floor of the house that is not waterproof and difficult to clean will become a place for the development and growth of microorganisms in the house.

Based on the results of the research reviewed together with several references as well as the results of previous studies that the housing and the environment where children live should be given more attention because with the physical environment around them that is not controlled both in terms of health, it will be easier for various microorganisms to multiply easily and quickly so that toddlers will be susceptible to illness.

### **Clean and Healthy Life Behavior on the risk of pneumonia in toddlers**

It is known from the results of data analysis and obtained an OR value of 9.82 which means it has a 9 (nine) times risk, where it is also known that the Chi Square value is  $21.54 > X^2$  Table 3.841 which means that there is a significant relationship between Clean and Healthy Life Behavior and the incidence of pneumonia in children under five.

The degree of health is not only determined by health services, but what is more dominant is the environment and community behavior. One of the efforts to change people's behavior to support the improvement of health status is through the Clean and Healthy Life Behavior development program (Fitrianingsih, 2014).

Smoking behavior seen from various points of view is very detrimental, both for yourself and those around him. From the perspective of the individual concerned, there are several studies that support this statement. From a health perspective, the effects of chemicals in cigarettes such as nicotine, CO (Carbon monoxide) and tar will stimulate the work of the central nervous system and the sympathetic nervous system, resulting in increased blood pressure and faster heart rate. stimulate cancer and various other diseases such as constriction of blood vessels, high blood pressure, heart, lung, and chronic

bronchitis (Anwar & Dharmayanti, 2014).

For pregnant women, smoking causes premature birth, low baby weight, prenatal mortality, the possibility of being born with disabilities, and experiencing developmental disorders. The next lowest indicator is sport or physical activity. Most of the population whose livelihoods are farmers, planters and cattle herders consider themselves to have been doing sports with a number of physical activities that they do. Such a paradigm is the main factor in the low number of people who exercise (Natsir, 2019).

Clean and Healthy Life Behavior is an important part of basic health care by parents of children under five, where by implementing Clean and Healthy Life Behavior there is a need to increase the degree of health, this can reduce morbidity and mortality, especially for toddlers who are considered very vulnerable to contracting disease, or health problems and disabilities both physically (growth) and mental (development).

### **Health Services against the risk of pneumonia in toddlers**

It is known from the results of data analysis and obtained an OR value of 9.14 which means it has a risk of 9 (nine) times, where it is also known that the Chi Square value is  $21.13 > X^2$  Table 3,841 which means that there is a significant relationship between health services and the incidence of pneumonia.

Health services are a concept used in providing health services to the community. Health services to the community are a sub-system of health services whose main objectives are preventive (prevention) and promotive (health improvement) services with the target of the community (Frini et al, 2018).

According to the Indonesian Ministry of Health (2009), health services are every effort that is carried out alone or jointly in an organization to maintain and improve health, prevent and cure disease and restore the health of individuals, families, groups and communities. Based on Article 52 paragraph (1) of the Health Law, health services generally consist of two forms of health services, namely: a. Individual health services (medical service) These health services are mostly carried out by individuals independently (self care), and families (family care) or groups of community members that aim to cure disease and restore the health of individuals and families. These individual service



efforts are carried out at health service institutions called hospitals, maternity clinics, independent practices. b. Public health services (public health services) Public health services are organized by groups and communities that aim to maintain and improve health which refers to promotive and preventive actions.

These community service efforts are carried out at certain community health centers such as puskesmas. Plenary health service activities are regulated in Article 52 paragraph (2) of the Health Law as referred to in paragraph (1), namely: a. Promotive health service, an activity and/or a series of health service activities that prioritize activities of a health promotion nature. b. Preventive health services, an activity to prevent a health problem/disease. c. Curative health services, an activity and/or a series of treatment activities aimed at curing disease, reducing suffering due to disease, controlling disease, controlling disability so that the quality of sufferers can be maintained as optimally as possible. d. Rehabilitative health services, activities and/or a series of activities to return former sufferers to the community so that they can function again as community members who are useful for themselves and the community, to the maximum extent possible according to their abilities.

Distance to health care facilities has a significant relationship with the incidence of pneumonia under five. It is said that toddlers who are close to health facilities have a higher protective effect than toddlers who are far from health facilities (Artawan, Putu, & I., 2016).

In this study, what is meant by health services is devoted to the Konawe District Hospital. Before going to the hospital, the mother usually does self-medication when the baby is sick. The baby's mother tends to take her child to the hospital if the condition is really severe so that initial help is difficult.

In addition to taking the baby for treatment to the Konawe District Hospital, the mother may have previously taken her child to other health services such as midwife practice, clinics, puskesmas or other hospitals. However, at the time of treatment at the Konawe District Hospital, the baby's condition was more severe and the handling was more severe. Thus, parents are not wise in taking the initial steps for the handling process, this is usually due to the lack of parental knowledge in detecting the signs and

symptoms of pneumonia in their toddlers as early as possible.

### **Hereditary against the risk of pneumonia incidence in toddlers**

It is known from the results of data analysis and obtained an OR value of 0.39 which means it has a 0 (zero)-fold risk, or almost no risk, where it is also known that the Chi Square value is  $4.16 > X^2$  Table 3.841 which means that there is a hereditary relationship with the incidence of pneumonia.

Public health is strongly influenced by the environment, health services, behavior and heredity. Various environmental components such as food, insects, water and humans themselves are risk factors for environmental health. The human environment basically consists of two parts, namely the internal environment, in the form of a dynamic and balanced state called homeostasis and the external living environment outside the human body which consists of three components. The components of the external environment consist of the physical environment, the biological environment and the social environment (Artawan, Putu, & I., 2016)

Genetic factors are factors that have been present in humans since birth. Genetic factors are difficult to intervene because they are inherited from parents. Asthma is one example that can be inherited from parents and is a risk factor for pneumonia. Children who have a history of asthma are at risk of developing pneumonia (Adawiyah & Duarsa, 2016).

The results of previous studies stated that toddlers who had a history of asthma had a 1.83 times chance of developing pneumonia compared to toddlers who had no history of asthma, but the results of statistical tests showed no relationship between the history of asthma in toddlers and the incidence of pneumonia ( $p$  value= 0.366;  $\alpha= 0.05$ ) (Hartati, 2010).

The picture above shows whether a person is healthy or not depends on 4 factors, namely heredity, environment, behavior and health services. These factors have a direct effect on health and also affect each other. Health status will be achieved optimally if the four factors are also optimal conditions. When one of the factors is disturbed, the health status is shifted towards below optimal (Onny & Sartika, 2012).

Heredity (genetic) is a factor that has existed in



humans that is carried from birth, for example from hereditary diseases such as diabetes mellitus and bronchial asthma. Heredity is a risk factor that we cannot avoid. A disease that can be inherited from the elderly and become a risk factor for pneumonia is asthma disease (Seyawati & Marwati, 2018)

Thus researchers can assume that heredity is an integral part of the risk of pneumonia but this is only a small possibility because the fact is that pneumonia is more caused by the environment, poor behavior related to Clean and Healthy Life Behavior, and incomplete immunization.

### **Parents' Knowledge of the risk of pneumonia in toddlers**

It is known from the results of data analysis and obtained an OR value of 20.06 which means it has a risk of 20 (twenty) times, where it is also known that the Chi Square value is  $34.23 > X^2$  Table 3,841 which means that there is a significant relationship between parental knowledge and the risk of pneumonia.

The state or society has low economic status, low knowledge about health and the environment is low, so the state of environmental health is poor. This results in a population at high risk of infectious diseases and the cycle of transmission of infectious diseases continues to occur. Economic status can be seen from the monthly income, where countries that are classified as low-income suffer from many infectious diseases (Fitrianingsih, 2014)

The high level of maternal education is closely related to the mother's level of knowledge of health and prevention of pneumonia in her toddlers. In communities with low levels of education often show less prevention of pneumonia events and vice versa in people with higher levels of education point to prevention of pneumonia events that are more significant (Dharmawati, Ayu Tri, et al, 2017)

According to Notoatmodjo (2010), that mothers over 30 years of age have more knowledge, the more knowledge will be in accordance with the action, so they can prevent pneumonia. It can be assumed that less knowledge will have an impact on morbidity and mortality due to pneumonia. without the support of knowledge, action, and lack of awareness about health, it is not able to prevent the occurrence of pneumonia. Knowledge is not only obtained from formal education but can also be obtained from non-

formal education such as from print media, electronic media, and from the experiences of friends.

Lack of primary knowledge has a negative influence on the mother's habit of living clean and the result increases diseases such as pneumonia in children, so there is a need for information related to early detection of pneumonia, because mothers with less knowledge of pneumonia are very at risk, which is 20 times the risk of pneumonia in toddlers.

Thus, researchers can assume that knowledge is an inseparable part of a person's behavior and actions, including for basic prevention and treatment as well as determining the initial steps for parents to make decisions for toddlers with pneumonia.

### **Parents' Attitude to the risk of pneumonia in toddlers**

It is known from the results of data analysis and obtained an OR value of 4.83 which means it has a risk of 4 (four) times, where it is also known that the Chi Square value is  $11.26 > X^2$  Table 3,841 which means that there is a significant relationship between parental attitudes and the risk of pneumonia.

Attitude is the most important concept in social psychology that addresses the element of attitude both as an individual and a group. Many studies are carried out to formulate the meaning of attitudes, the process of forming attitudes, and changes. Through attitudes, we understand the processes of consciousness that determine real actions and which actions the individual may perform in his social life (Mochtar, 2013)

Health education is the activity of acquiring new knowledge, changing attitudes, adopting new behaviors or implementing new skills (Kusumawardani, Rekawati, et al. 2019). Meanwhile, according to Notoatmodjo (2012) health education is an effort or activity carried out to help individuals, families and communities in improving their behavior to achieve optimal health. The goal of health education is to help individuals, families or communities to reach an optimal level (Iswari, B.M., et al, 2017).

Mental mechanisms that evaluate, form views, color feelings and will help determine the tendency of the individual's behavior towards other human beings or something that is being faced by the individual, even towards the individual self is called the phenomenon of



attitudes. The phenomenon of attitudes that arise is determined not only by the state of the object being faced but also by its relation to past experiences, by the situation in the present moment, and by expectations for the future (Notoatmodjo, 2016).

According to Kartini (2005) who said that the better the mother's attitude towards the health of a child, the less risk of ARI occurrence in infants. And conversely, if the mother's attitude towards the health of her child is getting worse, the risk of ARI occurrence in toddlers will be higher.

Conversely, if he has a negative attitude towards an object, then he will have an attitude that shows or shows rejection or disapproval of the prevailing norms where the individual is located. Researchers assume that the mother's poor attitude towards the incidence of pneumonia is due to the lack of mother's response to the incidence of pneumonia due to lack of exposure to information such as counseling or health education about pneumonia.

### **Actions of Parents against the risk of pneumonia in toddlers**

It is known from the results of data analysis and obtained an OR value of 33.71 which means it has a risk of 30 (thirty) times, where it is also known that the Chi Square value is  $42.10 > X^2$  Table 3,841 which means that there is a significant relationship between the incidence of pneumonia.

Changes in behavior or new actions occur through stages or processes of change, namely attitudes and actions. If you have a good attitude, someone's actions will automatically be good. However, several studies also prove that the process does not always go through these stages, even in everyday practice the opposite occurs, meaning that someone behaves well even though his attitude is still negative.

The behavior of parents in preventing PNEUMONIA will be realized by taking measures to prevent pneumonia, which include providing good nutrition, providing complete immunizations to children so that the body's resistance to disease is good, maintaining personal hygiene and keeping the environment clean. Preventing children from having contact with clients who are infected with Pneumonia. According to Moore and Patricia (2004) stated that the factors that influence individual

behavior are age, and occupation. Furthermore, Bostrom (2005) suggests that the educational factor is very influential on behavior.

Action is a form of behavior, to increase parental action in preventing Pneumonia can be done by increasing parental knowledge. According to the researcher's assumption, it is true that the better the mother's actions in daily activities, the lower the incidence of pneumonia in toddlers and vice versa. All actions taken by the mother are a reflection of the attitude of the mother and toddler itself in an effort to reduce the risk of pneumonia.

This is in accordance with Bloom's theory in Notoatmodjo (2007) which states that behavior based on knowledge will be more lasting than behavior that is not based on knowledge. Behavior or action based on good knowledge will produce good things, of course

In the field of public health, especially health education, studying behavior is very important. Because health education as part of public health, serves as a medium or a means to provide socio-psychological conditions in such a way that individuals or communities behave in accordance with the norms of healthy living. In other words, health education aims to change the behavior of individuals or communities so that they are in accordance with the norms of healthy living.

### **Conclusion**

Based on the results of research and discussion, it can be concluded as follows; (1) Medical History Toddlers have a 9 (nine) times risk of pneumonia incidence; (2) Environmental Conditions have a 10 (ten) times risk of pneumonia incidence; (3) Clean and Healthy Life Behavior has a 9 (nine) times risk of pneumonia incidence; (4) Health services have a 9 (nine) times risk of pneumonia incidence; (5) Hereditary has a 0 (zero) times risk, or almost no risk, of the incidence of Pneumonia; (6) Knowledge parents have a risk of 20 (twenty) times, to the incidence of Pneumonia; (7) Parents' attitudes have a 4 (four) times risk, towards the incidence of Pneumonia; (8) Parental Actions have a risk of 30 (thirty) times, the incidence of pneumonia; (9) The parental attitude variable is the most powerful variable associated with the incidence of pneumonia.

### **References**





- Adawiyah, R., & Duarsa. (2016). Faktor – Faktor yang Berpengaruh Terhadap Kejadian Pneumonia pada Balita di Puskesmas Susunan Kota Bandar Lampung. *Jurnal Kedokteran Yarsi*, 061-068.
- Anwar, A., & Dharmayanti, I. (2014). Pneumonia pada Anak Balita di Indonesia. *Jurnal Kesehatan Masyarakat Indonesia*, 8.
- Artawan, P. S., & I. G. (2016). Hubungan antara Status Nutrisi dengan Derajat Keparahan Pneumonia pada Pasien Anak di RSUP Sanglah. *Jurnal Ilmu Kesehatan Anak Fakultas Kedokteran Universitas Udayana*, 418-422.
- Dharmawati, & Ayu Tri, (2017). Hubungan Faktor Kondisi Fisik Rumah dan Perilaku dengan Insiden Pneumonia pada Anak Balita di Wilayah Kerja Puskesmas Yosomulyo Kota Metro. *Jurnal Ilmu Kesehatan Masyarakat*, 6-13.
- Fitrianingsih, N. (2014). Hubungan Antara Perilaku Hidup Bersih Dan Sehat Dengan Kejadian Pneumonia Pada Balita Di Wilayah Kerja Puskesmas Mlati li Yogyakarta. *Jurnal Keperawatan UMY*, 1-7.
- Adawiyah, R., & Duarsa. (2016). Faktor – Faktor yang Berpengaruh Terhadap Kejadian Pneumonia pada Balita di Puskesmas Susunan Kota Bandar Lampung. *Jurnal Kedokteran Yarsi*, 061-068.
- Anwar, A., & Dharmayanti, I. (2014). Pneumonia pada Anak Balita di Indonesia. *Jurnal Kesehatan Masyarakat Indonesia*, 8.
- Artawan, P. S., & I. G. (2016). Hubungan antara Status Nutrisi dengan Derajat Keparahan Pneumonia pada Pasien Anak di RSUP Sanglah. *Jurnal Ilmu Kesehatan Anak Fakultas Kedokteran Universitas Udayana*, 418-422.
- Dharmawati, Ayu Tri, et al. (2017). Hubungan Faktor Kondisi Fisik Rumah dan Perilaku dengan Insiden Pneumonia pada Anak Balita di Wilayah Kerja Puskesmas Yosomulyo Kota Metro. *Jurnal Ilmu Kesehatan Masyarakat*, 6-13.
- Fitrianingsih, N. (2014). Hubungan Antara Perilaku Hidup Bersih Dan Sehat Dengan Kejadian Pneumonia Pada Balita Di Wilayah Kerja Puskesmas Mlati li Yogyakarta. *Jurnal Keperawatan UMY*, 1-7.
- Frini, Merlinda, et al. (2018). Faktor Risiko Kejadian Pneumonia pada Balita di Wilayah Kerja Puskesmas Kamonji Kota Palu. *Jurnal Kesehatan Masyarakat*, 1.
- Hartati, S. (2010). Hartati, Susi, Analisis Faktor Risiko Yang Berhubungan Dengan Kejadian Pneumonia Pada Anak Balita Di RSUD Pasar Rebo. *Jurnal Keperawatan UI Depok*, 1.
- Bulan di Puskesmas Babakan Sari Kota Bandung. *Jurnal Keperawatan*, 2.
- Kevin, W. (2019, 11 12). <https://www.unicef.org/indonesia/id>. Retrieved 3 24, 2020, from <https://www.unicef.org/indonesia/id/press-releases/lembaga-kesehatan-dan-anak-memeringatkan-satu-anak-meninggal-akibat-pneumonia-setiap>.
- Mochtar, R. (2013). *Rahasia Hidup Sehat dan Bahagia*. Jakarta: PT Bhuana Ilmu Populer.
- Mutya, F., & Sarlis, N. (2018). Hubungan Status Gizi dengan Pneumonia pda Balita di Puskesmas Umban Sari Pekanbaru Tahun. *J Endurance*, 325-329.
- Natsir, M. F. (2019). Perilaku Hidup Bersih dan sehat pada tatanan Rumah Tangga masyarakat Desa Parang Baddo. *Lembaga Penelitian dan Pengabdian UNHAS*, 54-59.
- Notoatmodjo, S. (2016). *Metodologi Penelitian Kesehatan*. Jakarta: Rineka Cipta.
- Onny, & Sartika. (2012). Faktor Lingkungan Rumah Dan Praktik Hidup Orang Tua Yang Berhubungan Dengan Kejadian Pneumonia Pada Anak Balita Di Kabupaten Kubun Raya. *Jurnal Kesehatan Lingkungan Indonesia*, 153-159.
- Padmonobo;. (2012). . Hubungan Faktor – Faktor Lingkungan Fisik Rumah dengan Kejadian Pneumonia pada Balita di wilayah Kerja Puskesmas jatibarang Kabupaten Brebes. *Jurnal Kesehatan Lingkungan Indonesia*, 2.
- Profil Kesehatan Provinsi Sultra. (2019). *Profil Kesehatan Sulawesi Tenggara: Dinas Kesehatan Provinsi Sultra*.
- Profil Kesehatan RSUD Kabupaten Konawe. (2020). *Rekam Medik RSUD Kabupaten Konawe. Kabupaten Konawe: RSUD Kabupaten Konawe*.
- Sari, A. (2017). Analisis Faktor Risiko Intrinsik yang Berhubungan dengan Pneumonia pada Anak Balita di Wilayah Kerja Puskesmas Andalas Kota Padang. *Jurnal Kesehatan Medika Sainika*, 1.
- Seyawati, A., & Marwiati. (2018). Tatalaksana Kasus Batuk dan atau Kesulitan Bernafas. *Jurnal Ilmiah Kesehatan Literature Review*, 1.
- Sugihartono. (2012). Analisis Faktor Risiko Kejadian Pneumonia Pada Balita di Wilayah Kerja Puskesmas Sidorejo Kota Pagar Alam. *Jurnal Kesehatan Lingkungan Indonesia*, 11.
- Wulandari, P.S., (2016). Hubungan Lingkungan Fisik Rumah dengan Kejadian Pneumonia pada Balita di Wilayah Kerja pUSkesmas Jatisampurna Kota Bekasi. *Jurnal Kesehatan Masyarakat*, 4.
- Hidayani. (2018). Faktor – Faktor yang berhubungan dengan Kejadian Pneumonia pada Balita di Wilayah Kerja Puskesmas Sariwangi Kabupaten Tasikmalaya. *Jurnal Kesehatan Bidkesmas*, 1.
- Imelda. (2017). Hubungan Berat Badan Lahir Rendah dan Status Imunisasi dengan Kejadian Infeksi Saluran Pernafasan Akut pada Balita di Aceh Besar. *Jurnal Ilmu Keperawatan*, 2.
- Iswari, B.M., et al. (2017). Hubungan Status Imunisasi: DPT-HB-HIB dengan Pneumonia pada Balita Usia 12-24

