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The Effectiveness of Giving Cork Fish Nugget to Increase Endurance of Toddlers at Community Health Centers Sentani Jayapura Regency

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ABSTRACT

Background: The government's attention is still given to the problem of nutrition for children under five because of the high infant mortality rate (AKA) and the rate of under-nutrition and stunting in Indonesia. also, respiratory system disorders become health problems that often occur at the age of under-five. This is caused by many factors. One of them is due to the lack of consuming protein properly, but it can also be caused by a lack of knowledge of mothers in processing food menus for toddlers. In this study, the provision of snakehead fish in the form of snakehead fish nuggets (Channa Striata) was conducted. fish that live in fresh water and are a good source of animal protein for toddler nutrition. Lake Sentani is a source of snakehead fish that has not been maximally processed as a source of protein for children under five.

Purpose: To determine the relationship between snakehead fish nuggets and increased immune system under five at Sentani Health Center.

Methods: This study was a case-control design, namely the treatment of a group of toddlers with cold cough and a control group of healthy toddlers. The intervention given was snakehead fish nuggets 8 times with an interval of 1 day for 2 weeks. Samples of children aged 1-5 years, totaling 20 sick and 15 healthy toddlers, weigh in at the integrated health service center, taken randomly, and meet the specified inclusion requirements.

Results: shows that out of 20 toddlers there are 13 boys and 7 girls. Of the 20 children, the average age was 2.25 years, and the average body weight was 1.39 kg. in the control group of healthy toddlers as many as 15 people, the average age of 2.4 years, and an average body weight of 12.28 kg. Mc Nemar test with after administration of snakehead fish nuggets and it was proven that there was a change in recurrence to a significantly reduced p-value of 0.000 (<0.05).

Conclusion: It is statistically significant that snakehead fish nuggets have a relationship in increasing the immune system of toddlers by reducing the recurrence of cold stones in toddlers.

Suggestion: it is recommended to teach the public to prefer consuming snakehead fish as a source of animal protein for toddlers.

Keywords: Toddlers, snakehead fish nuggets, Sentani health center

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INTRODUCTION

The toddler period is a period of vulnerability to diseases that can inhibit growth and development, especially brain development. The toddler period can also be said to be the golden period, where during the toddler period there is very rapid growth and development of cells in the human brain (Munifatul, M. 2009). The formation of the toddler's brain is very much influenced by nutritional or nutritional intake, parenting, training, compassion, and health status. Fulfillment of nutritional intake and good health status can help improve the optimal growth and development of children under five (Ministry of Health, 2016).

The problem of malnutrition in many developing countries is caused by a lack of food supply. Nutritional intake in children is influenced by the availability of food consumption and infectious diseases (Grover & Ee, 2009; Sihotang et al., 2013).

Research conducted by Limanto, 2010 states that nutritional problems can occur in children with chronic infectious diseases such as malaria, and 43% of poor knowledge, can cause errors in providing nutritional intake for children under five. This research is supported by research conducted by Puspasari & Adriani, where maternal knowledge has a significant relationship with nutritional status in toddlers (Sianipar, 2018).

The impact of malnutrition in children under five causes stunted growth and development and can interfere with productivity. If energy sufficiency is not fulfilled, there will be an overhaul of protein in the body so that its function which should be growth and building substances will be hampered by its function, which will eventually lead to malnutrition, even if it is too long it will result in malnutrition.

Another impact that can be felt on children with low nutritional status can be prone to infectious diseases, one of which is an inspection of the upper respiratory tract (ISPA). The results showed that 77 children under five who were studied showed good nutritional status as many as 20 people (25.97%) and had ISPA, while 6 children under five were malnourished, and 4 of them suffered from ISPA (66.67%). suffering from ISPA (Nugraheni, 2014). This study was also supported by Pore who said that there was a significant relationship between nutritional status and the incidence of acute respiratory infections in children under five (Pore, Ghattargi, & Rayate, n.d.).

Providing high protein foods is an alternative to improve nutritional status in children under five with infectious disease problems. One of the foods that contain high protein and albumin which is local food and easy to get in the Papua region is snakehead fish. High protein fish is needed during the growth and development of children under five (Dramaga, 2017; Listyanto, 2009).

Snakehead fish can also be processed with a variety of preparations without reducing nutritional content. One of the processed snakehead fish that can be given to children is snakehead fish nuggets. Children are very interested in processed nuggets, not only with rice but also as snacks for school children. In an effort to increase the ability of the Papuan people to process and cultivate local foodstuffs that can be used as food variations, especially in processing fish food ingredients.

Lack of protein in toddlers can result in growth failure and decreased endurance due to the very important role of protein in the formation of the immune system (Sihotang et al., 2013). Children with poor nutritional status will have an impact on lowering their immune systems, making them susceptible to infectious diseases. One of the infectious diseases that are often experienced by children under five is ISPA. Sentani Health Center Annual Report 2018 The incidence of ARI in the period January to October 2018 reached 1581 girls and 1093 boys.

The problem of malnutrition in Papua is caused by economic factors and the limited knowledge that parents have about nutrition. This is exacerbated by the absence of outside intervention to provide information to the family. When children have been in a condition for months without adequate nutrition, in essence, they are getting closer to death (Thomas Suseco, 2018).

Nutritional problems in children under five, especially under nutritional status which can lead to decreased immunity, can be overcome by increasing consumption of snakehead fish. The results of research conducted on children under five stated that an increase in body weight and albumin after consuming biscuits was able to improve the nutritional status of malnourished children to normal. Thus, it can be concluded that the biscuit formula intervention for 90 days can increase the nutritional status of BW / U, BW / TB, and serum albumin levels of malnourished children aged 3-5 years (Riyadi & Astawan, 2015).

The results of this study were supported by research on the formulation of cork biscuits with the results that the formulation of snakehead fish flour biscuits was based on the adequacy of energy and protein for toddlers aged 4–5 years, while the adequacy figures were 1550 kcal of energy and 39 grams of protein. Biscuits based on snakehead fish flour are additional foods that are expected to help meet energy and protein sufficiency (Dewi Kartika Sari, 2014).

The benefits of snakehead fish are not only improving nutrition in children under five but can also improve nutrition in patients with stroke and HIV. The results showed that there was an increase in nutritional status and albumin levels in stroke patients after being given extra snakehead fish albumin (Kasim, Pateda, Hadju, & Jafar, 2017). Patients with HIV cases can also meet their energy and albumin needs when given extra snakehead fish (Restiana, Taslim, & Bukhari, n.d.)

The research objective was to determine the effect of giving cork nuggets on the immune system of toddlers with coughs and colds and healthy toddlers.

Research methods The research method used in case-control. The cases were 20 children under five who were experiencing upper respiratory tract disorders (ISPA) and 15 healthy infants. This toddler received the same intervention, namely getting snakehead fish nuggets 8 times for 2 weeks and the time of administration was 1 day apart. After giving the nuggets, the toddler who was sick with a cold cough was seen for recurrence. Researchers made the snakehead fish nuggets themselves by calculating the nutritional value that is sufficient for children under five, namely the nutritional value for energy of 36 Kcal, and protein of 18.6 grams. Fresh snakehead fish were obtained from Lake Sentani. The results obtained from this research are 1. Characteristics of mothers under five In this study, table 1 shows that the age of the mother in the case group was 5 people (62.5%) while the age of the adult group was 11 people. Likewise with work, more in the control group of parents who did not work compared to the case group who worked 7 people (70%). 2. Characteristics of toddlers In Table 2, it is illustrated that the age of children under five in the case group is more than 2 years old than the age in the control group, as well as the 2- 5 year age group, the most in the case group is 59%. Most of the sexes were men in the case group 58%, as well as women in the case group 63%.

Table 1. Distribution of Respondents based on Characteristics (Age and Occupation) in the case and control groups in the work area of community Health centers Sentani, Jayapura Regency in 2020

Number	Characteristics	Control		Case		n	%
		n	%	N	%		
1	Age of Mother Toddler a.Young (< 25 years) b. Adults (25- 35 years)	3 11	37,50 40,74	5 6	62,5 59,26	8 27	100 100
	Total	14	40	21	60	35	100
2	Profession a. Does not work	11	73,30	4	26,70	15	100

	b. Work	3	30	7	70	10	100
	Total	14	40	21	60	35	100

Table 2. Distribution of Samples based on Characteristics (Age and Sex) in the case group and the control group in the work area of community Health centers Sentani, Jayapura Regency in 2020

Number	Variable	Control		Case		n	%
		N	%	n	%		
1	Toddler age a. 2 years	3	25	9	75	12	100
	b. 25 years	11	47,80	12	52,20	23	100
	Total	14	65,71	21	34,29	35	100
2	Gender a. Men	10	41,65	14	58,35	24	100
	b. Female	4	36,35	7	63,65	11	100
	Total	14	40	21	60	35	100

1. Analysis of giving nuggets to the immune system of toddlers before and after giving snakehead fish nuggets is that before giving nuggets 20 children suffered from coughs and colds. After giving snakehead fish nuggets 8 times within 2 weeks with an interval of 1 day

It can be seen that of the 20 children under five who still experience coughs and colds, only 3 people. Statistically, with the Mc Nemar test, there is a value of 0.000 (<), 05), which means that this snakehead fish nugget is effective in increasing the immune system of children under five.

Table 3. Effect of snakehead fish on power Toddler at community Health centers Sentani, 2020.

Number.	Before intervention	After the intervention				Total		P value
		Recurrence (symptoms)		No recurrence (no symptoms)				
		N	%	N	%	n	%	
1.	There are symptoms	3	15	17	85	20	100	0,000
2.	There are no symptoms	0	0	15	100	15	100	

Sig = p< 0,05

Some of the results of research on nutritional status in children that are related to the incidence of infectious diseases include research by Pore which states that there is a significant relationship between nutritional status and the incidence of acute respiratory infections in children under five (Pore, Ghattargi, & Rayate, n.d.). Lack of protein in toddlers can result in growth failure and decreased endurance due to the very important role of protein in the formation of the immune system (Sihotang et al., 2013).

If the child is in a good nutritional condition, the body has the ability to defend itself from infectious diseases (Moehyi, 2017). Another study on the effectiveness of snakehead fish conducted by Dramaga (2017) and Lityanto (2009) states that one of the foods contains high protein and albumin. indispensable during the growth and development of children under five. High lysine amino acid in fish is a marker or differentiator of fish protein from other proteins such as legume protein. Lysine is an amino acid that has a function as a precursor for the formation of carnitine, which is a stimulant for beta-oxidation processes in the body so that cholesterol and fat levels in the body are low (Chasanah et al., 2015). Other research results on high protein from fish are needed during growth and the development of children under five (Dramaga, 2017; Listyanto, 2009).

CONCLUSION

This study with a case-control design found that the characteristics of the mothers under five are mostly 30 years old and an average age of 28 years. The occupations of parents are mostly self-employed (%) and farmers and fishermen (%). Characteristics of children under five averaged 2.4 years old and most of them were 70% male. The nutritional status of toddlers is classified as normal with an average body weight of 12.48 kg for an average age of 2.4 years. Giving snakehead fish nuggets as much as 8 times for 2 weeks can be said to be effective against the immune system of toddlers with cold stone respiratory tract disorders. Statistically, the meaning is 0,000 (CI 0.95), which means that snakehead fish nuggets can reduce the recurrence of cold cough in children under five.

SUGGESTION

With the results of this research, it can provide input to the health office to promote to families or the community to consume fish, especially cork as the main protein source in providing nutrition for children under five. For related agencies such as fisheries, they can urge the public to be able to build a pond to cultivate cork fish as a source of nutrition and also as a source of income. Thank-you note. To Poltekes and publishing subagents who have facilitated funding. To Head of the Sentani Puskesmas and staff who has provided opportunities for researchers. Enumerators who have helped in carrying out research. A community who has become respondents.

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CONFLICT OF INTEREST

All authors declare that there is no conflict of interest in this study.

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