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Risk Factors for Stunting among Children Aged 0 – 23 Months in Kalimantan Selatan Province

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ABSTRACT

The result of nutritional status monitoring in Kalimantan Selatan Province 2016, stunting prevalence of children aged 0-23 months is 25.6% and becomes a public health problem ($\geq 20\%$). The study were to analyze the risk factors related to the stunting of the child's age, sex, maternal education, father's education, mother's job, father's job, number of household members, initiation of early breastfeeding, exclusive breastfeeding, prelakteal and high- mother. The study used secondary data from nutritional status monitoring of Kalimantan Selatan Province in 2016 based on cross-sectional design . The population is children aged 0-23 months. Determination of the sample using systematic random sampling with the number of 266 children. Data were analyzed using Chi-Square test and multiple logistic regression test. The children aged 0-23 months who had stunting amounted to 25.9%. Chi-Square test showed three variables have significant relationship with stunting that is children aged under two-years, father education and mother height . Multiple logistic regression test showed that the most dominant factor was related to the stunting is father education. It is necessary improvement of father education through "Kejar Paket B/C Program".

Keywords: Risk factors, stunting, children aged 0-23 months.

INTRODUCTION

The result of nutritional status monitoring in Kalimantan Selatan Province 2016, stunting prevalence of children aged 0-23 months is 25.6%. The prevalence of stunting in Kalimantan Selatan Province is a public health problem because of its prevalence of 20% or more.¹ The basic of health research data in 2013 shows that stunting prevalence of toddlers in Kalimantan Selatan increase significantly in the children aged 0 – 23 months.² In nutritional status monitoring result, the prevalence of stunting in a boy is 16.9% greater than a girl of 14.3%.¹ The average number of household members consists of 4 persons.³ The average of this province

is only completing the level of education up to grade 1 junior high school.⁴ The Center of Statistic Council recorded 67.67% of the population of this province with employment status. The employed female population of 54.02% and unemployed of 45.98% while the employed male population of 81.05% and unemployed of 18.95%.⁵

Data in Kalimantan Selatan Province showed children under 6 months given exclusive breastfeeding in 2016 of only 30.95% and newborns received early breastfeeding initiation ≥ 1 hour still at 10.09 %, still below the target of 50%,^{6,7} whereas the percentage of children aged 0-23 months who were given prelakteal food reached 54.7%.² Prevalence of stunting in adults reached 51.9%. The basic of health research data in 2010 shows that short-term mothers tend to give birth to larger stunting children (47.2%) than the normal mother's group (36.0%).⁸ The purpose of this study is to analyze the risk factors associated with stunting in children aged 0-23 months in Kalimantan Selatan Province.

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MATERIALS AND METHOD

The research design is cross-sectional using secondary data derived from the nutritional status monitoring survey of Kalimantan Selatan Province in 2016. This research covers the districts in Kalimantan Selatan on November and December 2017. The population is all children of children under two years aged 0 – 23 months contained in the nutritional status monitoring data of Kalimantan Selatan Province in 2016 as many as 1949 people. A total of 266 samples were

selected using a systematic random sampling technique. Data collection by copying data from nutritional status monitoring database in Kalimantan Selatan Provincial Health Office using portable data storage media (flash disk) and computer devices. Secondary data obtained in the electronic file form nutritional status monitoring survey in 2016. Data analysis includes frequency distribution, chi-square test, and Odds Ratio as well as multiple logistic regression.

RESULTS AND DISCUSSION

Table 1. The Relationship of Variables to Stunting Prevalence

Variables	Stunting Prevalence						p-value	OR	95% CI
	Stunting		Normal		Total				
	n	%	n	%	n	%			
Age									
12-23 months	42	31.8	90	68.2	132	100.0	0.042*	1.849	1.058-3.234
0-11 months	27	20.1	107	79.9	134	100.0			
Gender							0.594	0.828	0.478-1.435
Male	36	24.3	112	75.7	148	100.0			
Female	33	28.0	85	72.0	118	100.0			
Mother education							0.150	1.649	0.886-3.068
Low	52	28.9	128	71.1	180	100.0			
High	17	19.8	69	80.2	86	100.0			
Father education							0.003*	2.743	1.430-5.264
Low	55	32.2	116	67.8	171	100.0			
High	14	14.7	81	85.3	95	100.0			
Mother job							0.117	0.507	0.233-1.100
Employed	9	16.7	45	83.3	54	100.0			
Unemployed	60	28.3	152	71.7	212	100.0			
Father job							1.000	1.434	0.128-16.065
Employed	1	33.3	2	66.7	3	100.0			
Unemployed	68	25.9	195	74.1	263	100.0			
Household members							0.670	1.223	0.632-2.366
Bags	16	29.1	39	70.9	55	100.0			
Enough	53	25.1	158	74.9	211	100.0			
Early breastfeeding initiation							0.573	0.712	0.306-1.657
None and < 1 hour	60	25.2	178	74.8	238	100.0			
≥ 1 hour	9	32.1	19	67.9	28	100.0			
Exclusive breastfeeding							0.614	1.204	0.686-2.115
None	43	27.4	114	72.6	157	100.0			
Yes	26	23.9	83	76.1	109	100.0			
Prelakteal Food							0.789	0.886	0.500-1.573
Yes	24	24.5	74	75.5	98	100.0			
None	45	26.8	123	73.2	168	100.0			
Mother height							0.019*	2.007	1.152-3.497
Low (< 150 cm)	37	33.9	72	66.1	109	100.0			
Normal (≥ 150 cm)	32	20.4	125	79.6	157	100.0			

Table 2. Multiple Logistic Regression Analysis

No	Variables	p value	OR	CI 95%
1	Father's education	0.004	3.356	1.463-7.696
2	Mother's height	0.054	1.772	0.990-3.172
3	Children age	0.008	2.208	1.227-3.973
4	Mother's education	0.475	0.747	0.336-1.662

There is a relationship between the child's age and stunting with the OR value of 1.849 which means children aged 12-23 months have a risk of 1,849 times to stunting compared with children aged 0-11 months. This is because the higher the age of the child will increase the need for nutrients needed for burning energy in the body. The required nutritional intake for children aged 12-23 months increases.⁹

There is no relationship between gender and stunting. This is because in the growing period, basically boys and girls aged 0-23 months have relatively equal growth in terms of body length. Children aged 0-23 months experiencing physical growth is increasing the size of anthropometry. The physical growth of the child is not distinguished by sex.¹⁰

There is no relationship between mother's education and stunting since most mothers (67.7%) had low education levels and father education as the dominant factor associated with stunting. The role of father as a leader in the household has greater authority than mothers in family-related decision making in the field of health and nutrition. The role of the mother in the family is to apply the decisions that have been made by the father. In addition, unrelated mother education is suspected due to cultural factors such as the existence of certain types of dietary restrictions. Cultural factors play a role in the process of eating habits that can cause nutritional problems if the food factor is not properly considered.¹¹

There is a significant relationship between father education and stunting with OR value of 2.743 means that children who have a father with low education have a risk of 2.743 times to the stunting compared with children who have a father with higher education. Fathers who have a higher education will be oriented to preventive measures, know more about health problems and have better health status. The level of education also determines whether or not a person can absorb

and understand nutrition and health knowledge. This is closely related to the knowledge insight into the source of nutrition and the type of food that is good for family consumption.¹²

There is no relationship between mother job and stunting because most mothers (79.7%) are unemployed and the father's role is greater in affecting family income because most fathers work (98.9%). The type of father job is mostly 33.5% as an entrepreneur. Adequate income from the work of the father will support growth and development children because the father can meet all the needs of primary and secondary children.

There is no relationship between father's job and stunting because a father is positioned as the breadwinner. It can be seen in the results of this study that most (98.9%) fathers work while providing the nurturing food is the dominant role of mother.¹³

There is no relationship between the number of household members and stunting because most of the respondents (79.3%) had a sufficient number of household members (≤ 4 persons). A total of 39.8% had 4 household members and a small number (0.4%) had 11 household members. In addition, most fathers work with an adequate kind of father's job, entrepreneurs.

There is no relationship between the early breastfeeding initiation and stunting because most of the mothers (89.5%) did not or only ≤ 1 hour early breastfeeding initiation while 10.5% of women did early breastfeeding initiation ≥ 1 hour. There is a significant relationship between exclusive breastfeeding with stunting because most of the mothers (59.0%) did not breastfeed exclusively. Incorrect breastfeeding supplements that are not appropriate to the nutritional needs of children can lead to malnourished children. Most mothers (26.3%) give formula-fed children that require dilution with a certain concentration or concentration (according to the baby's ability to absorb). If dilution is

too fluid, it can cause the baby to malnutrition.

There is no relationship between feeding prelakteal and stunting because most of the mothers (63.2%) did not provide food prelakteal and most of the mothers (89.5%) did not perform or only <1-hour initiate breastfeeding early. The most prevalent prelakteal food in this research is formula feeding as much as 26,3%.

There is a relationship between mother's height and stunting with OR value of 2.007 means that mother with short category height has 2.007 times risk having a child aged 0-23 months of stunting compared with mothers with normal category height. The relationship between mother's height and infant health can be seen from two factors namely heredity and mother's health factor. One or both short-term parenting due to pathological conditions (such as growth hormone deficiency) has a gene in chromosomes that carry short traits. These conditions increase the chances of children inheriting the gene and grow into stunting children.¹⁴ The gene that affects height is HMGA2 gene¹⁵ on chromosome 12 and¹⁶ LIN28B gene¹⁷ on chromosome 6.¹⁸ However, if the parent is short due to nutritional deficiencies or illness, the child may grow at normal height as long as the child is not exposed to other risk factors. Short women have narrower hip bones. In short pregnant women, obstructed blood flow in the womb due to the condition so that growth of the uterus, placenta, and the fetus is inhibited.¹⁴ Base on the multiple logistic regression analysis, the most dominant variable related to stunting incidence is father education.

CONCLUSION

Risk factors associated with stunting is the age of children under two-years, father's education, mother's height with the dominant factor of father's education. It needs to be an improvement of father's education through Kejar Paket B/C program, a nonformal educational for them who don't get any education of senior high school.

Ethical Clearance

This study approved and received ethical clearance from the Committee of Public Health Research Ethics of Medical Faculty, Lambung Mangkurat University, Indonesia. In this study, we followed the guidelines from the Committee of Public Health Research Ethics of Medical Faculty, Lambung Mangkurat University, Indonesia for ethical clearance and informed consent. The

informed consent included the research title, purpose, participants' right, confidentiality, and signature.

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Conflict of Interest: The authors declare that they have no conflict interests.

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