FAKTOR PREDIKSI YANG MEMPENGARUHI TERJADINYA STUNTING PADA ANAK USIA DIBAWAH LIMA TAHUN

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Info Artikel

Abstrak

Stunting adalah salah satu masalah kesehatan utama yang berkaitan dengan nutrisi di seluruh dunia, khususnya negara-negara berkembang. Tujuan dari penelitian ini adalah untuk mengetahui faktor utama yang mempengarui terjadinya stunting pada anak usia dibawah lima tahun. Penelitian ini dilakukan pada tahun 2014 dan merupakan penelitian *descriptive cross-sectional*. Teknik pengambilan sampel yang digunakan adalah purposive sampling untuk memilih posyandu, dan untuk menentukan sampel pada masing-masing posyandu menggunakan proportion stratified random sampling. Total sampel yang digunakan sebanyak 181 sample. *Chi-square test* and *Logistic regression* digunakan untuk menganalisis data. Hasil penelitian menunjukan hubungan yang signifikan antara pendek dengan berat badan lahir (nilai p <.001, PR =1.83), pendidikan ibu (nilai p =.009 PR = 1.80), pengetahuan ibu tentang malnutrisi (nilai p <.001, PR= 2.28), dan tipe-tipe keluarga (nilai p= .003, PR= 1.64); faktor utama penyebab anak pendek pada anak usia dibawah lima tahun adalah pengetahuan ibu tentang malnutrisi (p-value= 0.01, Exp(B)= 0.35).

THE PREDICTING FACTORS AFFECTING THE OCCURRENCE OF STUNTING IN CHILDREN UNDER FIVE YEARS OF AGE

Abstract

Stunting is one of the main nutritional health problems throughout the world, particularly in developing countries. The objective of this study was to examine the predictor factors affecting the occurrence of stunting in children under five years of age. This research was conducted at 2014 and this was a descriptive cross-sectional study. The purposive sampling technique was used to choose the community health meeting, and the proportion stratified random sampling technique was used to selecting the sample in each community health meeting. The total sample size was 181 samples. Chi-square test and Logistic regression were used to analyze the data. The results showed the significant relationships between child's birth weight (p-value <.001, PR =1.83), mother's education (p-value =.009 PR = 1.80), mother's knowledge of child malnutrition (p-value <.001, PR= 2.28), and family types (p-value= .003, PR= 1.64) with stunting; The predictor factor of stunting in children under five years of age was mother's knowledge of child malnutrition (p-value= 0.01, Exp(B)= 0.35).

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Introduction

Childhood is the most important period for overall development during the lifespan of an individual. Brain and biological development takes place during this stage (Sharifzadeh, 2010). During the early years of childhood if children lack motivation, or emotional and physical encouraging conditions, their brain development will be affected and this in turn will be reflected in their cognitive, social and behavioral output. Malnutrition is a significant public health problem because it can increase the risk of death from infectious diseases and more acute infections (Hioui, 2010). It also causes high mortality rates as well as creating additional psychosocial burdens on children in particular (Jesmin, 2011). Malnutrition is one of the main factors that can affect early childhood development which include of stunting.

In developing countries stunting is still high in prevalence and is of most concern in regards to the health problems attributed to nutrition. Indonesia is still facing health problem regarding stunting, particularly in children. The estimated prevalence of stunting around the world in children including Indonesia was 29.20%. The prevalence of stunting in children under five years of age was 35.60% with stunting with the indicator of target achievement 20%. This data was dispersed in every province in Indonesia, including West Nusa Tenggara (NTB) (WHO, 2009).

West Nusa Tenggara (NTB) Province is one of Indonesia's provinces with a population growth rate reaching approximately 1.42% per year. The identified frequency of children's with stunting 48.30% stunting with the indicator of target achievement as same as the national target for stunting. This indicates that there are many other factors affecting the occurrence of malnutrition in children in NTB.

An understanding of the most important aspects causing malnutrition is crucial to be identified (Lesiapeto, 2010). An analysis on the problem is then expected to result in more specific type of policies so that the government could implement specific health programs focusing on the attempt to reduce the case of stunting in children to ensure quality health and community for a better future of children.

The main objective of this study was to examine the predictor factors affecting the occurrence of stunting in children under five years of age.

Methods

A descriptive statistic cross-sectional survey was conducted in the West Nusa Tenggara Province of Indonesia.

Population in this research was families who had children under five years old in West Nusa Tenggara (NTB) Province of Indonesia. The focus samples were families who had children under five years old in West Nusa Tenggara Province of Indonesia. The sample selected was based on the characteristics.

Sampling technique in this study was using purposive sampling technique. This study was taken place in community health meeting. It had been adjusted to Public Health Center visiting schedule to community. The activity was followed by anthropometric measurement such as height and weight measurement, and direct interview with mother related to mother's education, occupation and knowledge, and parenting model in the families. All the activities were undertaken in the same time. In collecting the data, the researcher was accompanied by health volunteers.

The sample size was calculated using G*Power version 3.1.5 and estimated the total minimum sample size were 151 children. From 151 samples of total sample size was increased 20% to anticipate a missing data. Finally, total sample size in this study was 181 samples.

The data about families who had children under five years old was collected from the Province's Health Office in West Nusa Tenggara Province (NTB) Indonesia. The data from the Province's Health Office of NTB Province was associated with the data available in District Health Offices and Public Health Centers. Four districts were selected based on higher prevalence of malnutrition data from Province's Health Office. Public Health Centers was selected in every district based on higher prevalence of malnutrition in that area.

The anthropometric data of the children was assessed using the WHO Anthro software version 3.2.2, and was expressed as Z-scores for each of the anthropometric indices of

malnutrition against the new of WHO child growth standards reference. A child was considered as stunting if the child's values height/length for age are below -2 SD from the median of the population reference the variables. The height/length for age (HAZ) was used in the present study (Ministry of Health, 2010). Direct interview with a set of questionnaires will be used to collect data from the families related with child's factors, mother's factors, and household factors.

The data obtained through household interviews and anthropometric measurements were field checked, entered into a microcomputer and then analyzed using SPSS. The WHO's standard was employed as a population reference to determine Z-scores for height/length for age. Since the variables are nominal and ordinal or categorical variables, Chi-square (X^2) test will be used to describe the correlation of independent variables and dependent variables. Logistic regression analysis was applied to examine the predictor factors affecting the occurrence of stunting.

Results and Discussion

The majority of children were less than 36 months (75.10%). The majority of children gender was female (51.90%). The majority of children had been breastfeed time of exclusively (64.60%). The majority of children had normal birth weight (63.50%). The majority of mother's

Table 1. Variables of the Study Participants

Variables	Frequency	Percent (%)
Child's factors		
Age (months)		
≤ 36	136	75.10
> 36	45	24.90
Gender		
Male	87	48.10
Female	94	51.90
Breastfeeding Time (months)		
Non-exclusive (< 6)	64	35.40
Exclusive (≥ 6)	117	64.60
Child's Birth weight (grams)		
Low birth weight (< 2500)	66	36.50
Normal birth weight (≥ 2500)	115	63.50
Mother's factors		
Education		
Elementary school	133	73.50
High school	48	26.50
Mother's Occupation		
Not working	99	54.70
Working	82	45.30
Mother's Knowledge of child malnutrition		
Inadequate knowledge		
Adequate knowledge	82	45.30
	99	54.70
Household factors		
Parenting		
Mother	173	95.60
Grandmother	8	4.40
Family types		
Extended family	62	34.30
Two parents	119	65.70

Source : Primary Data

education was elementary school (73.50%). For the mother's occupation, the majority were not working (54.70%). Mother's knowledge related to child malnutrition, the majority of mother had been adequate knowledge (54.70 %). Regarding household factors, the majority of parenting was mother (95.60%). Concerning to family types, the majority were two parents (65.70%). The prevalence of stunting in this study was found 43.10%.

There was statistically significantly relationship between child's birth weight and stunting (*p-value* <.001, PR= 1.83). Children with low birth weight were more stunting than the other group. There was significantly relationship between mother's education and stunting (*p-value* = .009 PR= 1.80). Mothers with elementary school were more stunting than the other group. There was significantly relationship between mother's knowledge of

Table 2. The relationships of child's factors, mother's factors, and household factors with stunting

Independent variables	Dependent variable	
	Stunting	*p*-value
Child's factors		
Age (months)		
≤ 36	61 (44.9%)	.41
> 36	17 (37.8%)	
Gender		
Male	34 (39.1%)	.30
Female	44 (46.8%)	
Breastfeeding Time (months)		
Non-exclusive (< 6)	30 (46.9%)	.45
Exclusive (≥ 6)	48 (41.0%)	
Child's Birth weight (grams)		
Low birth weight (< 2500)	40 (60.6%)	<.001*b
Normal birth weight (≥ 2500)	38 (33.0%)	
Mother's factors		
Education		
Elementary school	65 (48.9%)	.009*c
High school	13 (27.1%)	
Mother's Occupation		
Not working	42 (42.4%)	.84
Working	36 (43.9%)	
Mother's Knowledge of child malnutrition		
Inadequate knowledge		
Adequate knowledge	51 (62.2%)	<.001*d
	27 (27.3%)	
Household factors		
Parenting		
Mother	75 (43.4%)	1.000a
Grandmother	3 (37.5%)	
Family types		
Extended family	36 (58.1%)	.003*e
Two parents	42 (35.3%)	

2 Cells (50.0%) have expected count less than 5.
Prevalence ratio (PR) = 1.83 ; Prevalence ratio (PR) = 1.80
Prevalence ratio (PR) = 2.28 : Prevalence ratio (PR) = 1.64

*p < .05

Source : Primary Data

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Table 3. The predictor factors affecting the occurrence of stunting

Method = Enter	B	SE	Wald	Exp(B)	*p-value*
Child's Age	-0.06	0.40	0.02	1.04	1.80
Child's Gender	0.22	0.33	0.50	1.25	0.50
Child's Breastfeeding period	-0.20	0.34	0.21	1.04	0.85
Child's Birth weight	-1.05	0.40	3.08	0.52	0.10
Mother's education	-0.20	0.50	0.13	1.05	0.73
Mother's occupation	-0.04	0.40	0.01	1.06	0.92
Mother's knowledge of child malnutrition	-1.05	0.41	6.64	0.35	0.01*
Parenting	1.04	1.05	1.00	2.10	0.40
Family types	-0.40	0.40	1.00	1.00	0.40
Constant	0.25	1.01	0.10	1.31	1.70

Nagelkerke R square = 0.19 (19%)

Chi-square: 28.732

Degree of freedom: 8

*$p < 0.05$

The Chi – square for Hosmer – Lemeshow test = 6.80 with significant level = 0.56

Source : Primary Data

child malnutrition and stunting (*p-value* <.001, PR= 2.28). Mothers with inadequate knowledge of children malnutrition were more had stunting children than the other group. There was significantly relationship between family types and stunting (*p-value* = .003, PR= 1.64). Family types with two parents were more had stunting children than the other group.

The model as a whole has the value of Nagelkerke's R Square of 0.19. This means that the child's factors, mother's factors, and household factors have an influence on stunting at about 19%. The dominant factor of stunting in children under five years of age was mother's knowledge of child malnutrition with a p- value of 0.01 and the Exp(B) of 0.35. This means that mothers who have an adequate knowledge of child malnutrition will decrease the occurrence of stunting 0.35 times in children under five years of age than mothers who have inadequate knowledge of child malnutrition.

In this study, the majority of respondents were mothers. This study was focused on mother as respondent because of mother's had more responsible for taking care of the household. This is similar to others study which found that about 53.5% of family taking care was mothers. Common culture in Indonesia, mothers have responsibility to care for the family members. They are tends to spend time at home, while fathers have responsibility regarding financial in the family and spend more time to work outside home. Taking care is behaviors and responsibility of women in life, for example, the character of mother to care for their children, the role of a wife in family to pay attention to their family (Harwitz and Teresa, 1999), family support is important to support growth and development of the child in the family (Kasmini *et al,* 2014).

The children were a high risk stage to stunting. Childhood was the most important period for an overall development during the lifespan. Brain and biological development takes place at this stage. These developments were influenced by sufficient of stimulation and nutrition. Malnutrition in children had been take effects of physic, immune system, and cognition as well as social and emotional growth (Handal, 2007).

There was relationship between child's birth weights with stunting. Its mean children who birth with low birth weight more likely to be stunting than children who birth with normal weight, the one of determinant factor affecting the occurrence of stunting in children was lower birth weight. The birth weight of children has consequence related to children malnutrition, children with low birth weight more likely to be stunting (Cophra, 2003). The child's weight less than 2500 gram or birth with lower weight are approximately affected the children malnourished status (UNICEF, 2001). The child's birth weight influences the

occurrence of child malnutrition. Overall children who born with low birth weight were more likely to be malnourished (stunting) than children who were born with normal birth weight (Ajao, 2010; Rayhan, 2006). Children birth weight was one of the most significant risk factor for stunting (Hien, 2009).

Regarding to mother's factors, this study found that mother's education have relationships with stunting, and mother's knowledge of child malnutrition have relationships with stunting in children under five years of age. Mother with lower education (elementary school) and inadequate knowledge of child malnutrition more likely risk getting children with stunting than mother with high education (high school) and had adequate knowledge of child malnutrition, the low maternal education was associated with stunting (less than 9 years), mother's education more than nine years (advance school) reduce the risk of children being stunted (Lesiapeto, 2010). Mother education can generate the different type of household effect and thereby prohibits and promotes factors reducing the risk of nutritional deficiency in children (Sunil, 2009). Mother with high education (high school) and adequate knowledge of child malnutrition has prevented of malnutrition and increase of children health status (Hien, 2008; Frost, 2005). Furthermore, as the effect, mother's education leads to improved health and nutrition knowledge, psychological changes and improved nutritional behavior. More mother have an education and knowledge of child malnutrition might provide better prevention of their children from malnutrition than would those with less education (Semba, 2008).

There was relationship of family types with stunting in children under five years of age. In this study found that children who lived with two parents of family types were more likely to be stunting than children who lived with extended family. Interestingly, there are some studies which show the opposite findings, the family with large of family members in household were more likely to have children with malnourished (Ajao, 2010), and the household size in the family has relationship with occurrence of malnutrition in children (Hien,

2009; Hien, 2008). The possible explanation to support this opposite finding is that although children who lived with two parents have more malnutrition, but the low level of mother's education and knowledge of malnutrition can lead to children malnutrition. Mother's education and knowledge of malnutrition will guide the mother to give a better solution or opinion to children's nutrition and thus reduce the mortality (Linnemayr, 2008).

A mother's knowledge of child malnutrition positively influenced the occurrence of stunting in children under five years of age. Mothers who have inadequate knowledge of child malnutrition were more likely to have children with malnutrition than a mother who has adequate knowledge of child malnutrition. The increase in a mother's nutritional knowledge could make differences in children's nutritional status. Mothers with adequate knowledge of child malnutrition could have a better understanding about child malnutrition and increase their children's nutritional health status, a mother's knowledge of nutrition was very important to decrease child malnutrition.

Conclusion

The finding provided useful information for nurses to initiate the effective health promotion and prevention programs and activity to promote the children nutritional status. The causes of stunting are multidimensional. All factors should be taken into account including community health nurses and health volunteers' factors. This study brings about the baseline data and enables healthcare professional to have better understanding regarding to child malnutrition.

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