



Relationship of Mother Factors, Breastfeeding and Stunting Pattern in Central Sulawesi

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Abstract

Basic Health Research (Riskesdas), The Ministry of Health in Indonesia, reported a prevalence of stunting in 2013 is 37.2%, an increase of Compared to 2010 (35.6%) and 2007 (36.8%). Total stunting in Central Sulawesi in 2013 by 41% and the city of Palu at 21:42%. Stunting risk factors include maternal factors and patterns of breastfeeding. The purpose of this study to Determine the influence of maternal factors and patterns of breastfeeding against stunting in Central Sulawesi. The research was conducted in the city of Palu from August to November 2015. Retrospective cohort study design, the total sample of 65 Households with purposive sampling technique. The research instrument is a validated questionnaire. Data was Analyzed by univariate, bivariate and multivariate analyses. The results of the investigation with OR; 95% CI Showed that the factors that influence stunting in this study are no antenatal care with OR = 4.57 (3:05 to 6.85). Maternal height <150 cm with OR = 3.57 (2,47- 5:16), no early initiation of breastfeeding with OR = 3.04 (2.71 to 3:40) and distance birth <3 years OR = 2.81 (1.78 to 4:42). The conclusion that the risk factors of stunting in maternal factors are maternal height <150 cm, distance birth <3 years and no antenatal care, while the breastfeeding is not an early pattern of breastfeeding initiation.

Keywords: Stunting; maternal factors; breastfeeding

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1. Introduction

The success of national development cannot be separated from the availability of human resources quality. Nutrition is one of the essential components that contribute in realizing the quality of human resources. Based on the WHO growth reference standard, a little Stunting is linear growth retardation with a body length < -2 standard deviation according to age [1]. Although the problem of stunting has decreased, in 2013 there are 161 million stunted children under five years old, and acute malnutrition (wasting) affects 51 million children under the age of five [2].

Basic Health Research by Ministry of Health of the Republic of Indonesia (Riskesdas) reported a prevalence of stunting nationwide in 2013 was 37.2%, which means an increase compared to 2010 (35.6%) and 2007 (36.8%) [3]. Total stunting in Central Sulawesi in 2013 by 41% and amounted to 21.42%, Palu. The high prevalence of stunting is a health problem. Riskesdas 2013 also showed stunting prevalence increases with age [3]. Studies in India and Guatemala states that mothers are short (< 150 cm), a low BMI (< 18.5 kg / m²) and younger age (≤ 18 years) are a risk of increasing the incidence of stunting [4]. Mothers who are short though typical dad can still have a child stunting [1].

Zottarelli and his colleagues study shows that a mother's height < 150 cm tend to have children who are stunted [5]. Studies indicate that the higher the risk of stunting mother found a short. Nadiyah study states that the mother's height < 150 cm is one of the risks stunting of children aged 0-23 months in Bali, West Java and East Nusa Tenggara [6]. Studies in Ethiopia show stunting risk factors include maternal age > 30 years, mothers with no formal education, mothers who work every day, parents who do not perform as well as the PNC sick mother during her pregnancy [7].

Research in Bhutan showed risk factors stunting in children 6-23 months is the ANC factor ≤ 3 times, did the ANC on the doctor, nurse and midwife and mother aged < 18 years. The status of breastfeeding was a protective factor stunting [8]. A study in Malawi showed that the prevalence of stunting by 39% 43% exclusive breastfeeding. There are differences between the mean TB / U (-1.13) in children who were not breastfed than not breastfeeding exclusively (-1.59) [9].

Research in Zambia showed stunting risk factor is the age of the mother, the child who is not breastfed while protective factors are antenatal care (ANC) visits and the intake of the mother during pregnancy Fe Tablet [10]. Close spacing births increase the risk of mother to spend reserves on subsequent pregnancy and gave adverse consequences for both mother and child [11].

Based on this background, the purpose of this study was to determine the influence of maternal factors and patterns of breastfeeding in infants under two years (children) 6-23 months in Palu, Central Sulawesi.

2. Materials and Method

2.1. Collection of Samples

An observational study design with Retrospective cohort approach. The population in the study were mother and

children who visit the Healthcare center in Palu. Studies conducted in the city of Palu include West Palu subdistrict, South Palu, Palu Palu East and North. Held on September to November 2015. The study population was all children aged 6-23 months in the study area. Children large population in the city of Palu is 15.897 people with stunting prevalence was 21.4% so that the sample in this study were mostly children aged 6-23 months were selected from households with the kids of 65 children aged 6-23 months. The sampling technique is purposive sampling with a value of 5% error type α , β -type errors by 20% and the strength of the relationship (r) = 0.25). The data collection was conducted in January-December 2016. Researchers do research every Monday and Friday during the visit of repeated and BCG immunization and taking samples by the inclusion criteria. All respondents get informed consent verbally and then sign it.

2.2. Instrument

The research instrument includes demographic data questionnaire developed by researchers. Data collected included age, education, parity, height, breastfeeding, KIA Chart.

2.3. Data Analysis

Analysis of the data using a computer. For nominal data views frequencies and percentages, medians and minimum value-maximum. Statistical data using Mann-Whitney and Spearman. To see correlations between variables and other variables associated with postpartum depression and see the predicted value, using linear regression analysis, significant if $p < 0.05$.

2.4. Ethical Clearance

Ethical approval for this study was obtained from Research Ethics Committee, 'Indonesian Moslem University, Makassar, Indonesia.

3. Results

The number of respondents as many as 65 children aged 6-23 months. Results of the univariate analysis showed that the amount of stunting were 17 children (26.2%), women who suffer from KEK by 20% and a mother who has a height ≤ 150 cm by 63.1%. Respondents who did suckle Early initiation as much as 49.2%, giving colostrum to the defendant as much as 70.8%, 15.4% provide food prior breastfeeding, who completed Exclusive breastfeeding as much as 70.8%. Currently, the respondents who are still nursing her son as much as 70.8%. Respondents who stated Duration of Breastfeeding < 6 times/day as many as 12.3% and long suckle < 10 Minutes / once nurse as much as 98.5%.

Respondents who gain access to health services as much as 84.6% ANC, PNC services as much as 72.3%. Following classes as much as 29.2% of pregnant women, obtained Tablet intake as much as 87.7% Fe. Respondents were obtained Tablet Calcium intake as much as 81.5%. The results of the bivariate analysis can be seen in the following table 1.

Table 1: Relationship Capital Factors, Nursing Patterns and Health Care Access to the events 6-23 Months Childhood Stunting in Palu 2015

Independent variables	Dependent variables				Total	p-value
	Normal		stunting			
	N	%	n	%		
Mothers Nutritional Status						
Normal	38	73.1	14	26.9	52	.778
KEK	10	76.9	3	23.1	13	
Mother education						
<9 years	11	64.7	6	35.5	17	.318
≥ 9 years	37	77.1	11	22.9	48	
Exclusive breastfeeding						
Yes	34	73.9	12	26.1	46	0.985
No	14	73.7	5	26.3	19	
Mother's height						
≥ 150cm	22	91.7	2	8.3	24	0.012 *
<150cm	26	63.4	15	36.6	41	
age Childbirth						
18-30 Years	32	78.0	9	22.0	41	0.314
<18 and> 30 Years	16	66.7	8	33.3	24	
age Pregnancy						
≥ 37 Sunday	47	81.0	11	19.0	58	0.000 *
<37 Sunday	1	14.3	6	85.7	7	
distance Birth						
≥ 3 years	45	81.8	10	18.2	55	0.001 *
<3 years	3	30.0	7	70.0	10	
Pregnancy hypertension						
No	46	76.7	14	23.3	60	0.073
Yes	2	40.0	3	60.0	5	
diabetes Pregnancy						
No	47	75.8	15	24.2	62	0.102
Yes	1	33.3	2	66.7	3	
parity						
<3 children	45	76.3	14	23.7	59	0.163
≥ 3 children	3	50.0	3	50.0	6	
Initial breast feeding						
Yes	30	93.8	2	6.2	32	0.000 *
No	18	54.5	15	45.5	33	
colostrum						
Yes	27	65.9	14	34.1	41	0.055
No	21	87.5	3	12.5	24	
Food Pralakteal						
No	44	80.0	11	20.0	55	0.008
Yes	4	40.0	6	60.0	10	
Breastfeeding status now						
Yes	30	65.2	16	34.8	46	0.031 *
No	18	94.7	1	5.3	19	
duration of Breastfeeding						
≥ 6 times a day	47	82.5	10	17.5	57	0.000 *
<6 times a day	1	12.5	7	87.5	8	
old Suckling						
≥ 10 Minutes	17	94.4	1	5.6	18	0.019 *
<10 Minutes	31	66.0	16	34.0	47	
Antenatal Care (ANC)						
Yes	45	81.8	10	18.2	55	0.001 *

No	3	30.0	7	70.0	10	
Post Natal Care PNC						
Yes	40	85.1	7	14.9	47	0.001 *
No	8	44.4	10	55.6	18	
Maternity classes						
Yes	15	78.9	4	21.1	19	0.548
No	3	71.7	13	28.3	46	
intake of Fe						
Yes	47	82.5	10	17.5	57	0.000 *
No	1	12.5	7	87.5	8	
Intake of Calcium Tablets						
Yes	42	79.2	11	20.8	53	0.037
No	6	50.0	6	50.0	12	

Source: Primary Data, 2015

Multivariate analysis used logistic regression with the aim to see the effect of each independent variable with the dependent variables simultaneously.

Table 2: Stunting Multivariate Analysis of Risk Factors (Factors Mother, Pattern Nursing, Health Care Access) in children aged 6-23 months in Palu.

variables	Crude OR (95% CI)	Adjusted OR (95% CI)	p value
1. Moothers Factor:			
Mother's height			
> = 150cm	1	1	0.009 *
<150cm	6.346 (1.306-30.837)	3.574 (2.473-5.166)	
Birth Interval			
≥ 3 years	1	1	0.018 *
<3 years	10.50 (2.30-47.82)	2.811 (1.78-4.422)	
≥ 3 children	3.214 (0.582-17.754)		
2. Breastfeeding Patterns:			
Initial Breast Feeding			
Yes	1	1	0.006 *
No	12.50 (2.55-61.10)	3.041 (2.718-3.403)	
3. Healthcare Access:			
Antenatal Care (ANC)			
Yes	1	1	0.006 *
No	10.50 (2.30-47.82)	4.578 (3.059-6.854)	

Source: Primary Data, 2015

The results of logistic regression test methods Backward on the step to 5 show variable maternal factors. Patterns of breastfeeding and access to health services who have risk factors on the incidence of stunting after adjusting for other variables (Adjusted OR (95% CI) in a row is not doing antenatal care with OR = 4.57 (3.05 to 6.85) mother's height <150 cm with OR = 3.57 (2.47 to 5.16). there are early initiation of breastfeeding with OR = 3.04 (2.71- 3.40) and Distance Birth <3 years OR = 2.81 (1.78 to 4.42).

4. Discussion

The prevalence of stunting obtained in this study by 26.2%. These rates are still higher than the prevalence of stunting infants Palu according to the national primary health research in 2013 that is equal to 21.42%. Multivariate analysis showed that the factors that influence stunting in this study were (OR, 95% CI): do not do antenatal care with OR = 4.57 (3.05 to 6.85). mother's height <150 cm with OR = 3.57 (2.47 to 5.16), there are early initiation of breastfeeding with OR = 3.04 (2.71 to 3.40) and Distance Birth <3 years OR = 2.81 (1.78 to 4.42). Thus, which are risk factors for stunting of maternal factors are maternal height and spacing of the pattern and breastfeeding is not early initiation of breastfeeding as well as from healthcare access factors is not doing antenatal care. Antenatal care (ANC) is an obstetric care to pregnant women who aim to maintain the health of pregnant women and ensure healthy birth can run a minimal four times before delivery. These results indicate that respondents who did ANC risk 4.5 times have stunted children than mothers who do the ANC (p-value = 0.006). Cross-tabulation between the ANC and stunting showed that mothers who did the ANC and his status as stunting of 7 people (70%), while women who did not do the ANC but his status as normal lower, only 3 (30%) was obtained p-value at the chi-square test of 0.001. In research Asfaw and his colleagues in Southern Ethiopia in 778 children reported that the risk of stunting in women who did the ANC of 2.1 (1.5 to 2.9) than those who did the ANC [13]. Research Bwalya and his colleagues in Zambia with stunting prevalence of 44.5%. Reported that the number of ANC affect the risk of stunting wherein when antenatal care visits ≤ 3 times can prevent the occurrence of stunting with OR = 0.562 (0.294 to 1.074) p value = 0.081 whereas when prenatal visit ≥ 4 times, it will prevent stunting better with OR = 0.483 (0.255 to 0.917) p-value = 0.026 [14]. The bivariate analysis between mother's height with stunting shows that the p-value of 0.012. The risk of a mother who has a height <150 cm to cause the child to be stunted by 3.5 times compared to women who have a height of ≥ 150 cm. The results of this study are supported by research Nadiyah and his colleagues who found that maternal TB <150 cm are risk factors for stunting in children aged 0-23 months with OR = 1.77 [7]. The proportion of stunted children in women who have TB <150 cm was found 20, 2% higher than children who had mothers with TB ≥ 150 cm [7]. Zottarelli research results in Egypt also shows that children born to mothers of height <150 cm have a higher risk to grow into stunted [15]. Behavior provides an opportunity Initial Breast Feeding in infants would reduce the incidence of infectious diseases and the success of exclusive breastfeeding. The study also shows that the Initial Breast Feeding is not a risk factor prevalence of stunting in children 6-23 months in the city of Palu. The risk factors were obtained for OR = 3.04 (2.71 to 3.40). According to the analysis of Black and his colleagues reported that the Initial Breast Feeding is a protective factor in neonatal mortality with an RR of 0.56 (95% CI 0.46 to 0.79) [16]. The results showed that women who have a spacing of <3 years have more children stunting as many as seven people (70%), while mothers of spacing <3 years have a fewer healthy baby is only 3 (30%). Logistic regression analysis showed that the risk of the child becoming stunted if the mother has a spacing of <3 years amounted to 2.8 times compared to mothers who had

≥3 years birth spacing. Research Bwalya and his colleagues that the spacing of > 2 years is a protective factor for the occurrence of stunting with OR = 0.827 (0.05 to 13.775) [13]. Meta analysis study by Dewey stated that forecast a decline in the incidence of stunting in children associated with ≥3 years birth spacing ranging from 10% to 50% [17]. Asfaw and his colleagues found in South Ethiopia mothers reported that family planning is at risk of having children stunting 2.3 times (1.7-3.1) than parents in family planning [15].

5. Conclusion

Factors that influenced the incidence of stunting in children aged 6-23 months is the mother's height <150 cm while feeding patterns and access health effect on the prevalence of stunting in children aged 6-23 months in Palu is not doing antenatal care, do not initiate breastfeeding early and spacing <3 year.

6. Recommendations

The program needs to start addressing stunting of improving the quality of antenatal care by improving the management of planning, procurement, distribution, and monitoring the implementation of relief tablets iron-folate supplements, and an intensive nutrition education to pregnant women. Primary neonatal health care quality by early initiation of breastfeeding and exclusive breastfeeding counseling on the mother needs to be improved to reduce feeding problems. Family planning services should be increased to adjust the spacing in the prevention of child stunting.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare

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