

How Effectiveness of Posyandu Child Visits 6-59 Months Frequency Prevent Stunting?

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ABSTRACT: Research in Jambi Province at 2013 showed a high prevalence of stunting by 37.9%. This may indicate the risk of low quality of human resources. On the other hand, the visit of posyandu in Jambi Province was very low at 25%. Posyandu activities should be a monitoring activity of child growth, health promotion activities, early prevention of infectious diseases such as immunization, and supplementation of vitamin A. This study aims to determine the association of posyandu child visits 6-59 months frequency with stunting in Jambi Province. A total of 2502 children from 6 to 59 months eligible were sampled from nutritional status monitoring. To know the reason for the low of posyandu visit, qualitative research was conducted in 2 districts. The results showed one of four (27.5%) children 6-59 months was stunting. The result of binary logistic analysis shows that the frequency of posyandu visit is not associated with stunting. It indicates that programs run by posyandu have not been effective in preventing stunting. Attention to cadre knowledge, cadre skills, mother knowledge, facilities and infrastructure, stakeholder support is a priority to improve the function of growth monitoring, promotion and referral in posyandu so as to effectively prevent stunting.

KEYWORDS: Stunting in children, visit posyandu, Jambi

INTRODUCTION

The purpose of this study was to explain "how effective posyandu child visits 6-59 months to prevent stunting in Jambi Province 2015". Stunting in children under five years of age is a serious problem in Indonesia. Basic health research (Risksdas) revealed the high prevalence of stunting status in children under five in 2007, 2010 and 2013 at 36.8%, 35.6% and 37.2% (1) (2) (3). Jambi Province has a magnitude of stunting problems for children under five in 2013 of 37.9% (3).

The process of stunting together with the inhibition of the formation and development of other organs in children. Short-term organ formation and development disorders have an impact on mortality, morbidity and disability. The long-term consequences have an impact on adult body size, intellectual ability, economic productivity, reproductive ability, metabolic and vascular diseases (4). A study of 9-year-olds in Brazil explained that the effects of stunting together with the inhibition of organ formation and development during prepuberty will slow physical and motor maturity (5).

Stunting in children is directly caused by lack of consumption of nutrients and diseases that usually last long and / or recur. Indirect causes include: household level food availability, parenting, unhealthy environment, health services. These indirect causes are influenced by factors related to income: employment, ownership, retirement, and others. The basic cause is the problem of capital in the form of: financial, humanitarian, social and natural problems. The problem of capital is caused by social, economic and political problems. The short-term impact of stunting is an increased risk of death, pain and disability. As for the long term, it will affect: adult size, intellectual limitations, economic productivity, reproductive problems, metabolic diseases and blood vessels (6). Jambi Province has a problem with several determinants that are suspected to be the cause of stunting in children. Access to sanitation facilities (59%) as same as the national average (60%). Growth monitoring frequency (25%) below National average of 45% (3).

Posyandu should be community-based health effort. It's managed and carried out from the community in health development. It's empowered and provide convenience the community in obtaining basic or social health services. The activities carried out in a coordinative and integrative manner and mutually reinforced between activities and programs, with the main activities in the form

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of: monitoring of toddlers' growth and development, maternal health services, family planning services, child health services, counseling and referral, counseling for mothers and Children (7) (8) (9).

Activities at Posyandu may guarantee that children can grow and develop properly. Posyandu is a means of early identification and monitoring of growth and health by conducting regular visits every month. Posyandu is a means of immunization, promotion/counseling of healthy and nutritious life, counseling on nutrition and health issues. Some researchers revealed a correlation between the frequency of posyandu visits and stunting in children under five years. The low frequency of posyandu visits is the most dominant risk factor for the incidence of stunting in 3-5 years old children (OR = 3.1; 95% CI = 1.2-7.6) in Sidoarum Village, Sleman Yogyakarta (10). The same in the form of poor visits to Posyandu is related to the incidence of stunting in Mexico's Alto Balsas urban area due to a lack of growth and health Monitoring (11).

THEORETICAL REVIEW

Stunting in children is directly caused by lack of consumption of nutrients and disease. Indirect causes include: household level food availability, parenting, unhealthy environment, health services. These indirect causes are influenced by factors related to income: employment, ownership, retirement, and others. The basic cause is the problem of capital in the form of: financial, humanitarian, social and natural problems. Capital problems are caused by social, economic and political problems (6). As WHO states that the factors that contribute to stunting in children are poor nutrition and maternal health, inappropriate feeding practices for infants and children and infections. Especially the condition of nutrition and maternal health before, during and after pregnancy, which affects the growth and development of the child, starting with the fetus. The contribution of mothers to other stunting in the form of: short mother, close birth distance, pregnancy in adolescence (12) (13).

Since 1980, the low participation in posyandu activities has become a major concern of many countries. Posyandu is proven to improve health services. There are two potential posyandu in the form of contact with health workers and opportunities to intervene in children. Nutrition counseling is a hope but often not done well. Posyandu may not be suitable for use in countries with limited resources (low economy and inadequate health costs) due to: limited health and nutrition intervention packages including good nutrition counseling, health worker coverage and performance, priority for infants and children <18 months (14).

Activities at Posyandu may guarantee that children can grow and develop properly. Posyandu is a means of early identification and monitoring of growth and health by conducting regular visits every month. Posyandu is a means of immunization, promotion or counseling of healthy and nutritious life, counseling on nutrition and health issues. Some researchers revealed a correlation between the frequency of posyandu visits with stunting in children under five years (10) (11) (Destiadi et al., 2015; Reyes et al., 2004).

The frequency of good posyandu visits does not guarantee that the child is free from the risk of stunting, if the activities that are available to him do not go well. As explained by several previous researchers, posyandu can prevent stunting if growth monitoring activities are going well. On the other hand, the absence of a relationship between the frequency of posyandu visits was seen based on research conducted in Jayapura district, Papua for children aged 12-24 months. Based on this study found no difference in stunting based on the frequency of posyandu visits in line with the absence of differences in under-weighting, receipt of vitamin A capsules, receipt of supplementary food (PMT), overcoming diarrhea and nutrition and health counseling (15).

Based on the framework in Figure 1, posyandu will effectively prevent stunting cadres understand and are skilled in weighing, filling out growth chart monitoring (KMS), plotting, weighing interpretation, and conducting counseling so that mothers know and want the benefits of posyandu by actively participating and conducting regular visits. To carry out posyandu activities properly, the posyandu must have sufficient facilities that can function (dacin, KMS, IEC media etc.) and funds (posyandu operations, extension and complementary food for recovery). Officers carry out coaching activities and posyandu activities. There needs to be support from the community / government officials / cross programs and related sectors. With the functioning of the Posyandu, early detection of growth and referral problems, counseling / counseling, immunization, giving oralit if diarrhea, giving vitamin A, counseling and recovery PMT will prevent children from infection and inadequate consumption as early as possible so as to prevent stunting.

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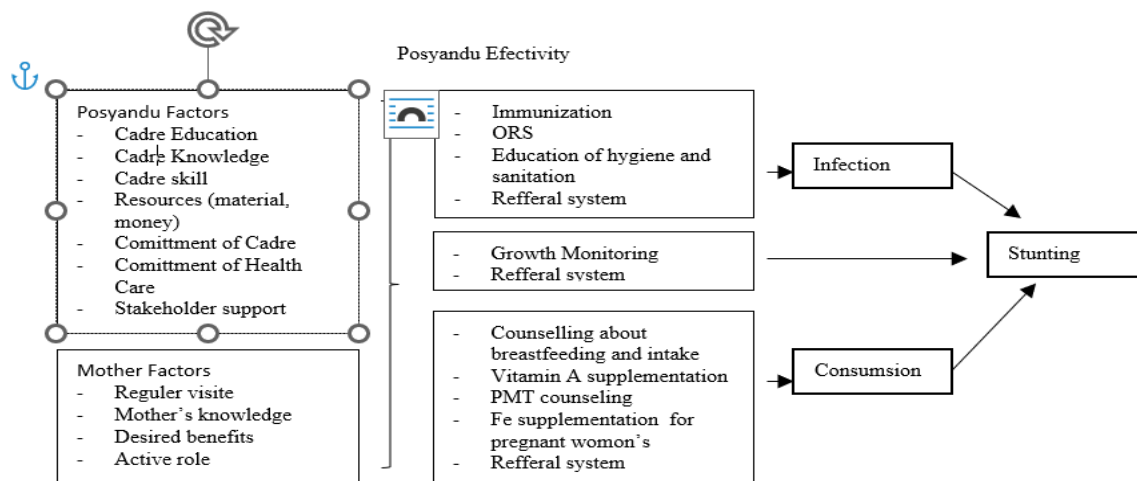


Figure 1 Mindset of Posyandu Effectiveness in Preventing Stunting

(Modifikasi Endang Achadi and Muldiasman; References: (14) (16) (17) (10) (7) (8) (18) (19) (11))

RESEARCH METHODS

This study uses quantitative methods that are analytic with Cross Sectional designs and qualitative approaches that are explorative. Quantitative data is collected through Nutrition Status Monitoring activities. Collecting information about the characteristics or actions of a group of individuals in a population, using questionnaires or interviews and observations. Exposure status and illness or health problems are observed simultaneously in individuals from a single population, in one period. A qualitative approach is used to supplement information and explain the factors behind the frequency of posyandu visits.

The research location is the area of Jambi Province which consists of 10 Regencies / Cities. In each district and city 30 clusters were selected. In each cluster 10 households were selected as the selected sample. Nutrition status monitoring activities are carried out from September to October 2015. For the needs of the analysis to be determined the number of samples according for the hypothesis test is different in two proportions (20). The minimum number of samples needed to explain the relationship between the frequency of visits of child posyandu 6-59 months with stunting was 212 children. After cleaning the data, the number of samples that met the inclusion criteria and aged 6-59 months were 2502 children. Furthermore, a total sample of 2502 children was determined.

To find out the causes of the low posyandu visits, qualitative data was collected in 2 districts / cities in Jambi Province which had a different amount of stunting problems based on 2013 National Basic Health Research and the frequency of posyandu visits both and less in Jambi City (24.6%) and Muaro Jambi District (50%). Data collection began in October 2016. Qualitative data was collected with the following informants: 96 mothers or toddler caregivers, 34 posyandu cadres, 43 government stakeholders at the village, sub-district, district and provincial levels. The selection of informants was done purposively, which was chosen by the researchers. The selected informants were people who mastered the material in the issue which would be appointed as the topic of conversation and physically and mentally healthy.

The analysis is carried out by taking into account the sample design, data collection methods and weights. Weight is calculated based on the number of samples and the number of children under five years in each district / city. Bivariate analysis was conducted to determine the relationship of each independent variable with the stunting variable in infants. Multivariate analysis was conducted to see the relationship between the frequency of posyandu visits and other variables with stunting in children 6-59 months in Jambi Province in 2015. The analysis was carried out through a multiple logistic regression approach for survey data using computer software. Multivariate modeling is done through a backward elimination approach to get a valid and simple model. Information is enriched by analyzing content on qualitative data.

RESEARCH RESULTS AND DISCUSSION

Stunting in Children 6-59 Months in Jambi Province in 2015

Based on the results of the study it was found that 27.5% of children 6-59 months had stunting status in Jambi Province in 2015. This condition is above the threshold of the amount of universally agreed nutritional problems (severe problems $\geq 20\%$) and is a serious problem that needs to be addressed Furthermore. Stunting prevalence in groups of 6-59 months was more than for all ages 0-59 months (25.5%). The overall picture of age 0-59 months compared to the results of monitoring the nutritional status of Jambi Province in 2014 (24.9%) tended not to change. The results of a joint analysis of UNICEF, WHO and World Bank on 142 results of a national survey of poor and developing countries, the results showed that in 2011 the prevalence of stunting globally declined slowly and reached 165 million children. If the trend of stunting problems continues, an estimated 127 million children under five will stunt by 2025 (4) (13).

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Stunting in children is the impact of maternal nutritional problems before pregnancy and during pregnancy. Where during pregnancy occurs the process of cell formation and development that determines the potential for height, weight, brain cells and metabolic system. Height that does not reflect cell formation and development is not optimal which in the short term has an impact on mortality, morbidity and disability. Long-term consequences have an impact on adult body size, slowing physical and motoric maturity, intellectual ability, economic productivity, reproductive capacity, metabolic diseases and blood vessels and degenerative diseases (4) (5) (13) (12).

Stunting in children is directly caused by lack of consumption of nutrients and disease. Indirect causes include: household level food availability, parenting, unhealthy environment, health services. The indirect causes are influenced by income related factors: employment, ownership, retirement, and others. The basic cause is the problem of capital in the form of: financial, humanitarian, social and natural problems. Capital problems are caused by social, economic and political problems (17). As the WHO states that the factors that contribute to stunting in children are poor nutrition and maternal health, improper feeding practices for infants and children and infections. Especially the nutritional condition and health of the mother before, during and after pregnancy, which affects the growth and development of the child, starting with the fetus. Other maternal contributions to stunting include: short mothers, close birth spacing, pregnancy in adolescents (13).

Taking into account the recommendations of WHO / UNICEF, researchers and presidential regulations, many activities and considerations must be taken. Stunting intervention in children begins in adolescents, before pregnancy, pregnant women, nursing mothers and children in the form of direct, indirect and other nutritional activities. Given the government's limitations in intervening, it is necessary to have information on the problems faced and intervention programs on priority issues and be able to be carried out immediately. The results of this study can be used as material for consideration to determine what programs will be carried out.

Frequency of Posyandu Visits

Child visits from 6 to 59 months to the posyandu are almost partly good (46.8%), where children visit 5 times or more at the posyandu for 6 months. This condition is still far from the expected achievement of nutrition development indicators (85% of children under five are weighed). This picture when compared with the results of monitoring the nutritional status of Jambi Province in 2014 where children 4 or more times visited Posyandu for 6 months was 64.1%, tending to decrease to 56%. Less visits led to a health-headed card (KMS) not being filled properly, it could not be known that weight gain was based on consecutive weighing to be assessed as rising (N) or not rising (T). Assessment of N or T is a tool for monitoring growth and screening for early nutritional problems so that intervention / referral is carried out.

Based on qualitative data it is known that there are several reasons raised by the mother of the child 6-59 months as the cause of not attending the posyandu. The reasons are: lazy, traveling, busy / not having time, children sleeping, children sick, forgetting, lazy just for weighing, there are parties, bad weather. The most widely stated reasons are laziness if only for weighing (no vitamin A, no longer immunization and no additional food), as quoted by the following informant's statement "lazy just for weighing". This information was strengthened by information presented by the cadres when asked about the barriers for mothers to come to the posyandu, where it was stated: "none, they were (mothers of toddlers) to toddlers, immunized ... until their measles still arrived, until toddlers were difficult" The same thing was expressed by health officials when asked about the reasons for the mother of the toddler not coming to the posyandu, as the informant's statement said: "Why is the child sleeping, lazy to lose (M: which is the most reason?) again, just weighing ... but if you still have immunizations, you come diligently ... come every month ... up to 9 months ... not 9 months measles "and other information" no more immunization ... not a vitamin distribution schedule ".

Based on information about the reasons mothers did not come to the posyandu from the two regions the frequency of visits to the posyandu was different, it can be concluded that: mothers are reluctant to come to the posyandu if only for weighing and will come to the posyandu if something is shared (immunization, vitamin A, dietary supplements).

There are several problems regarding cadre performance. Some cadres have never received training, some cadres are less able to run posyandu, there are a small number of cadres with low education / not graduating from elementary school, refreshing cadres is done one to two times a year with representatives from Posyandu (not all cadres). If viewed by region the frequency of visits is different, it turns out the problems faced by cadres are almost the same.

The low performance of cadres is another cause for which the main objective of the posyandu is not achieved, where most activities in the posyandu require the role of cadres. For this reason, it is necessary to conduct training / refreshment of cadres by training all cadres so that the Posyandu can run well. The material / skills that still need to be improved are: organizing local food additives, nutritional value of food, portions of supplementary food, cadre assignments, filling in data, health problems.

There are some officers present not on time / often late. Delays in staff can affect the frequency of posyandu visits, for this reason it is necessary to improve the performance of officers, so that they arrive on time and not too late. Then the lack of nutrition workers at the puskesmas causes officers to carry out multiple tasks (treasurer of the health center, KIA midwife) and some nutrition implementing staff with a midwife's educational background. For this reason, it is also necessary to add nutrition workers at the puskesmas with a nutritional education background so that they can better guide the posyandu.

There are several activities that can be done to overcome the problem of the low frequency of visits to the posyandu based on the results of this study. Improve mother's understanding of the importance of monitoring growth through health promotion activities

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with a simpler message. Conduct training / refreshment of cadres by training all cadres so that posyandu can run well. Improve the performance of officers, so that they arrive on time and not late. Fulfilling the needs of nutrition workers at the puskesmas with a nutritional education background so that they can better guide the posyandu.

Relation of Frequency of Child Posyandu Visits 6-59 Months with Stunting

The first step in the modeling strategy is identification of potential covariates with a limit of $p < 0.25$ and issuing variables where there is no variation (proportion $< 5\%$) in the form of water source quality and birth weight. The frequency of posyandu and other covariate visits with $p < 0.25$ and conceptually considered important are model candidates. The next step is stratification analysis to see potential interactions. Several variables were found that had potential interactions with the frequency of posyandu visits in relation to stunting in children 6-59 months in the form of: home condition, age, history of diarrhea, area, tribe of father and mother, father's education, mother's education After testing the interaction of all variables that have potential interactions, the results obtained no interaction.

Based on the results of potential covariate identification, the frequency of posyandu visits, cooking drinking water, toilet, house condition, age, sex, length of birth, early breastfeeding initiation, exclusive breastfeeding, history of diarrhea, history of fever, region, tribe father and mother, education father, mother's education is a multivariate model candidate. The next is to simplify the model by issuing non-confounding variables by evaluating changes in the odds ratio of the frequency of posyandu visits (model 1) $< 10\%$. The final results of the modeling process can be seen in table 1, where the age variable and the father and mother tribe are confounding "Relationship of Frequency of Child Posyandu Visits 6-59 Months with Stunting in Jambi Province in 2015".

Table 1 Results of Multivariate Analysis on the Relationship of Frequency of Posyandu Visits with Stunting in Children 6-59 Months (n = 2502)

Variabel	B	OR	95% CI	Nilai p
Frequency of Posyandu Visits (<5 times)	0.116	1.1	0.9 - 1.4	0.239
Age				
- 36-59 month	0.889	2.4	1.7 - 3.5	0.000
24-35 month	0.999	2.7	1.9 - 3.8	0.000
- 12-23 month	0.629	1.9	1.4 - 2.6	0.000
06-11 month		1		
Father and Mother ethnicity				
Outsider ethnic	-0.505	0.6	0.5 - 0.8	0.000
Mixed ethnic	-0.642	0.5	0.4 - 0.8	0.001
Origin		1		

Based on the simultaneous analysis of all variables, it was not proven that there was a correlation between the frequency of child posyandu visits 6-59 months with stunting in Jambi Province, after controlling for age and ethnicity.

Posyandu activities should be carried out in a coordinative and integrative manner including: weight monitoring, examination of pregnant women, supplementation of blood supplementation tablets, counseling, immunization, supplementation of vitamin A, toddler referral BGM (underweight) and 2T (twice Time loss of Weights), administration of oral rehydration therapy if diarrhea, referral if sick, counseling food supplements and recovery, and distribution of worm medicine and mosquito nets (7) (8) (9). This activity is expected to prevent and overcome stunting. However, the absence of a relationship between the frequency of visits of child posyandu, 6-59 months with the incidence of stunting, is probably due to the function of the posyandu that does not work properly in the form of: monitoring growth and health promotion caused by posyandu factors and maternal factors.

Problems with posyandu function are caused by posyandu factors and maternal factors. Posyandu factors are: there is no counseling by cadres, no growth chart monitoring (KMS), no Informatif Education Communication IEC media, no pregnancy check-up place, cadres are not trained and there is no guidance by health cares, there is no support from related stakeholders. Maternal factors in the form of: low maternal knowledge, mothers do not feel the need, not routine to posyandu and do not play an active role. So it is necessary to increase cadre knowledge, cadre skills, provision of facilities at the posyandu and stakeholder support.

Increased cadre knowledge can be done through training of all cadres with material: growth of infants and children, healthy lifestyle through prevention of infectious diseases, supplementation of vitamin A and immunization. Improve cadre skills through training in measurement, recording and interpretation of results of measurements of body weight based on age in growth chart. Provide posyandu facilities in the form of: weighing instruments, counseling materials, operational funds for posyandu by utilizing village funds. Obtaining stakeholder support by means of health care actively guiding the posyandu by involving the participation of the private sector and the community.

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The failure of the functioning of the posyandu properly results in children not being guaranteed to be free from the risk of stunting. As explained by some previous researchers, there is no correlation between the frequency of posyandu visits and stunting events due to the function of posyandu not running properly (14) (16) (19) (15).

Other factors such as age and ethnicity as a cause of stunting in children can be prevented if the posyandu performs its functions properly. Attention to meeting the nutritional needs of children as early as possible, namely since the period in the womb to achieve optimal growth can be done through growth monitoring and promotion activities at the posyandu. Likewise, problems with the origin tribe can be prevented through integrated promotion and service activities at the posyandu.

CONCLUSION

1. The prevalence of stunting in children from 6 to 59 months in Jambi Province in 2015 was 27.5% above the threshold of the amount of universally agreed nutritional problems (> 20%).
2. More than half of the frequency of child visits 6-59 months to posyandu (53.2%) was less than 5 times visited during the last 6 months.
3. There is no correlation between the frequency of posyandu visits and the incidence of stunting in children 6-59 months.
4. Posyandu visits were not effective in reducing stunting due to several phenomena about posyandu found based on the results of qualitative analysis:
 1. The frequency of regular visits every month is low for the past 6 months.
 2. Problems in the implementation of activities based on the functions of the posyandu are mainly monitoring growth, promotion and referral due to posyandu factors and maternal factors.
 3. Posyandu factors: no counseling / counseling by cadres, no growth monitoring chart, no IEC media, no pregnancy checkpoints, no trained cadres, no guidance by health care and no support from related stakeholders.
 4. Maternal factors: low maternal knowledge, mothers do not feel the need, not routine to posyandu and do not play an active role in paying attention to meeting the nutritional needs of children as early as possible, hygiene and sanitation.

SUGGESTION

To achieve optimal child development and nutrition and prevent stunting in children, specific intervention programs should be carried out on the direct causes of growth and development disorders and sensitive nutrition program interventions for the causes of nutritional problems indirectly in accordance with the problems faced and their respective roles and functions.

1. For the Ministry of Health / Jambi Provincial Health Office and the Government
 - The development of posyandu is emphasized on the function of monitoring growth, promotion and referral. Promotion of breastfeeding, complementary feeding and prevention of priority diarrhea in rural and tribal areas as well as increasing visits to posyandu.
 - Increased cadre knowledge through training of all cadres with material: growth of infants and children, healthy lifestyle through prevention of infectious diseases, vitamin A supplementation and immunization.
 - Improve cadre skills through training in measurement, recording and interpretation of results of measurements of body weight based on age at growth monitoring chart and length / height according to age.
 - Provide posyandu facilities in the form of: weighing instruments, length / height measuring instruments, extension materials, operational funds for posyandu by utilizing village funds.
 - Nutritionists actively provide guidance to posyandu by involving the participation of the private sector and the community.
 - Increasing mother's knowledge about the importance of monitoring growth through simple messages in accordance with local language and culture, for farmers by using analogue planting processes, which this message can be delivered orally through extension activities or using picture media in the form of posters and leaflets.

2. For the community

Every family that has children under five in order to increase knowledge about the concept of child development according to age, adequate consumption, the application of clean and healthy lifestyle (washing hands with clean water and soap, using healthy latrines, using cooked drinking water) regularly come to posyandu.

REFERENCES

- 1) **Ministry of Health.** Basic Health Research. Jakarta : Ministry of Health Republic Indonesia, 2007.
- 2) —. Basic Health Research. Jakarta : Ministry of Health Republic Indonesia, 2010.
- 3) —. Basic Health Research. Jakarta : Ministry of Health Republic Indonesia, 2013.
- 4) *Maternal and Child Nutrition 1: Maternal and child undernutrition and overweight in low-income and middle-income countries.* **Black, Robert E, et al.** June 6, s.l. : The Lancet, 2013.

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- 5) *Stunting delay maturation of triceps surae mechanical properties and motor performance in prepubertal children.* **Paiva, Maria des Gracias, et al.** s.l. : Eur J Appl Physiol 112, 2012, Vol. 4053-4061.
- 6) *Maternal and Child Undernutrition: Global and Regional Exposures and Health Consequences.* **Black, Robert E, et al.** s.l. : The Lancet, 2008, Vol. 243-260.
- 7) **Ministry of Health.** Posyandu Cadre Guidebook for Nutrition Aware Families. Jakarta : Ministry of Health Republic Indonesia, 2011.
- 8) —. Come to the Posyandu every month. Jakarta : Ministry of Health Republic Indonesia, 2012.
- 9) —. Guide to Puskesmas Nutrition Workers in Posyandu Cadre Development. Jakarta : Ministry of Health Republic Indonesia, 2013.
- 10) **Destiadi, Alfian, Nindya, Triska Susila dan Sumarmi, Sri.** Frequency of Posyandu visits and weight gain history as risk factors for stunting events in children aged 3-5 years. s.l. : Media Gizi Indonesia, 2015. Vol. 10, Januari-Juni 2015.
- 11) **Reyes, Hortensia, et al.** The family as a determinant of stunting in children living in conditions of extreme poverty: a case-control study. s.l. : BioMed Central, 2004. Vol. 4:57.
- 12) **Muldiasman, et al.** Muldiasman, M., Kusharisupeni, K., LaksminiCan early initiation to breastfeeding prevent stunting in 6–59 months old children? . s.l. : Journal of Health Research, 2018.
- 13) **WHO.** Global Nutrition Targets 2025: Stunting Policy Brief. Geneva : World Health Organization, 2014.
- 14) **Ashworth, Ann, Shrimpton, Roger dan Jamil, Kazi.** Growth monitoring and promotion: review of evidence of impact. s.l. : Maternal & Child Nutrition, 2008. Vol. 4.
- 15) **Wasaraka, Yulia, Prawirohartono, Endy dan Soenarto, Yati.** The difference in the proportion of stunting in children aged 12-24 months is based on the use of posyandu services in Jayapura District, Papua. s.l. : Jurnal Gizi Klinik Indonesia. Vol. 12.
- 16) **Bilal, Selamawit M., et al.** Practices and Challenges of Growth Monitoring and Promotion in Ethiopia: A Qualitative Study. s.l. : Health Popul Nutr, 2014. Vol. 3.
- 17) **Black, Robert E, et al.** Maternal and Child Undernutrition: Global and Regional Exposures and Health Consequences. s.l. : The Lancet, 2008. Vol. 371.
- 18) **Ministry of Health.** Guide to Puskesmas Nutrition Workers in Posyandu Cadre Development. Jakarta : Ministry of Health Republic Indonesia, 2013.
- 19) **Mangasaryan, Nune, Arabi, Mandana dan Schultink, Werner.** Revisiting the concept of growth monitoring and its possible role in community-based nutrition programs. s.l. : Food and Nutrition Bulletin, 2011. Vol. 32, no. 1.
- 20) **Lemeshow, Stanley, et al.** Adequacy of Sample Size in Health Studies. Yogyakarta : GAJAH MADA UNIVERSITY PRESS, 1997.
- 21) *The contribution of preterm birth and intrauterine growth restriction to childhood undernutrition in Tanzania.* **Sania, Ayesha, et al.** s.l. : Maternal & Child Nutrition, 2015, Vol. 618-630.