

Determinants of Stunting in Indonesia: A Review Article

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ABSTRACT

Background: Stunting prevalence data in Indonesia has sufficient number relatively similar with riskesdas result year 2007 (36.8%), 2010 (35.6%) until 2013 increase to 37.2% ⁽¹⁾, although riskesdas 2018 result decline 6.4%. It becomes 30.8% ⁽²⁾, but the problem of stunting in Indonesia is still above prevalence globally, 22.2% ⁽³⁾. WHO determines definition of nutrition case is fewer than 20% ⁽⁴⁾, therefore Indonesia included to state which has public health problem, especially stunting case. Stunting has long risk such as PTM when going adult, though it can be prevented early.

Objective: this article review aims to identify determinant factors which take a risk to stunting of Indonesian children.

Methodology: We applies concept framework from WHO about stunting on children. By using designs of non-randomized control trials, observational studies, this article review applied through browsing the article using Google scholar, Proquest, Medline and several on line journals which published 10 years latest, then taking research subject of mother and child, Research applied in West Kalimantan.

Result: From browsing finding obtained 2.435 relevant articles to conduct the citation, there are 2.122 completed the requirement after conducting the title and abstract review, after carrying out the screening through full text review of articles obtained 360 titles, then 15 articles which completed the inclusive/ exclusive criteria. Based on literature finding of review consistently shows that giving inclusive mother's milk, low economic status of household, premature birthing, length of birthing and low education of mother, and also children live in the village, bad sanitation, and the culture is a determinant factor of children stunting in Indonesia.

Conclusion: From the comprehensive synthesis concerning stunting on Indonesian children can be found out who is the most susceptible of stunting and the factors influence of stunting on children.

Key words: stunting, determinant, under five year old children, risk factor, Indonesia

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1. INTRODUCTION

Stunting is a chronic nutrition problem caused by multi-factorial and happened in cross generation. In Indonesia, the society often considering that short or tall body is a descent. The incorrect perception in society needs serious concern from society, government, and relating authority. Study finding prove that the descent factor just give contribution 15%. While the biggest factor is relating to nutrition, growth hormone and occurring the repeated infection sickness ⁽⁵⁾⁽⁶⁾. Another variable in stunting growth is cigarette smoke and air pollution which influence to stunting growth.

The first 1000 days period of life (1000 HPK) is critical knot as the beginning of stunting growth on under five years children ⁽⁴⁾ which has long impact and repeating in life cycle. Less nutrition

as the direct factor, especially for under five year children has short impact that is increasing morbidity. This nutrition problem is chronic, and will affect to cognitive function that is low intelligent level and has the impact on human resource quality. In repeating condition (in living cycle), therefore the children is lack of nutrition in early life (1000 PKH period) has risk uninfected disease in other word called degenerative illness when it's going adult⁽⁸⁾.

Stunting is social health problem has to be handled seriously. Riskesdas finding shows that the stunting case is relative stagnant about 36.8% (2007) and reaching 37.2% (2013) from 33 provinces in Indonesia. More than a half has prevalence rate more than national average⁽¹⁾. For example, imbalance of stunning prevalence between DIY (22.5%) and NTT (58.4%) shows there is imbalance and separated properly development⁽¹⁾. Prevalence of BBLR according to Riskesdas is 11.1% (2010) and 10.2 (2013); proportion of short birth (<48 cm) is 20.25% (2003). Proportion of exclusive mother's milk is low (15.3%) for six month⁽⁹⁾.

From previous research states that there is significantly relationship between stunting and birth weight and giving inclusive mother's milk and giving unoptimal additional food⁽¹⁰⁾. Stunting growth which occurred in early aged enable to continue and take a risk to the short body when they grow up to be adolescent. The children having short body in early aged (0-2 year old) and still short when they are 4-6 years old has 27 times risk having short body until puberty period; conversely, the children who have normal growth in early aged can get growth faltering in 4-6 years old has risk 14 times grow short in pre puberty period. Therefore, intervention to prevent stunting growth still needed even after 1000 HPK⁽¹¹⁾.

The phenomenon above attracted to be analyzed considering the stunting has serious impact; such as short term impact relating to morbidity and mortality on baby/ under five years old children, midterm impact relating to low intellectuality and cognitive skill, and long term relating to human resource quality and degenerative illness in adult period.

2. MATERIALS AND RESEARCH METHOD

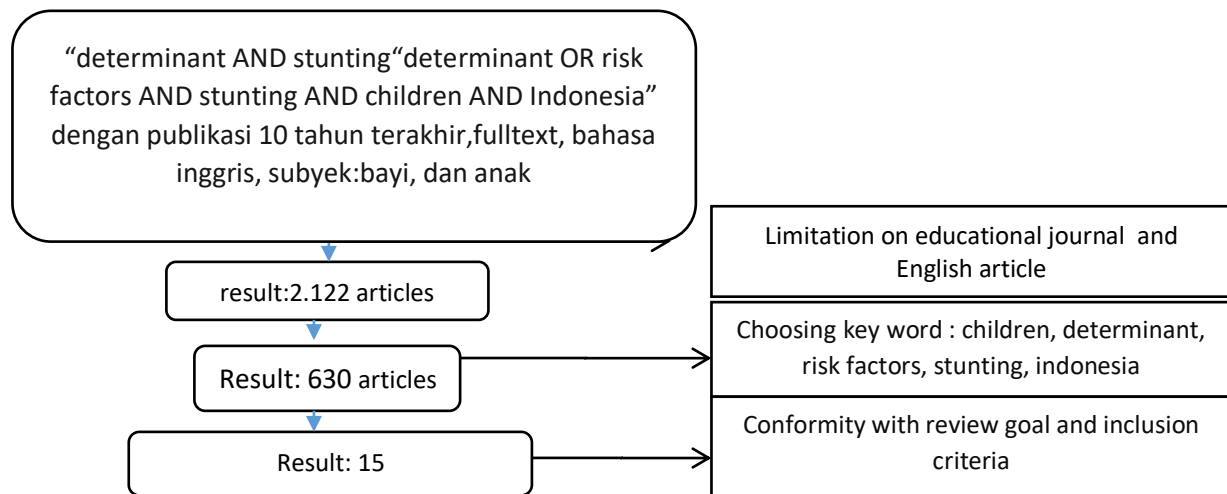
Based on data applied to look for the literature is through selecting based on criteria of children stunting, which concern to social research and social health. Furthermore, applying the literature review relating to stunting, the growth and the outcome using bad nutrition indicator with z-score <-2 SD, and various literatures and applied searching tools are Proquest, science Direct, PubMed, Scopus, Google Schooler, the national survey result such as rikesdas and Susenas. To identify determinant factor of stunting in Indonesia using key word "determinant AND stunting" Risk AND Factor AND stunting AND children" stunting AND Indonesia" we also define and take the journal which publish start 2008-2018. From online searching result obtained 2.435 relevant articles to citation, there are 2.122 completed the requirement after taking the review of title and abstract, after screening through review full text of article found out 630 titles, 15 articles which fulfill the inclusion/exclusion criteria. Using WHO concept, the cause of stunting can be categorized as direct and indirect causes. The direct cause consists of insufficient additional food, inclusive mom's milk, and infection disease. The indirect cause includes problem of social, politic, health, education, culture, agriculture, food system, water sanitation, and environment⁽¹²⁾.

Literature review conducted from various points of view; from theory, books, and journal to learn and study the determinant and risk factor relating to variable outcome stunting. The study of data analysis result of Riskesdes 2013 is one of information based on social used in analysis the determinant relating to stunting.

The key note:

- a. The determinant factors of children stunting in Indonesia are gender, premature birthing, birth length, inclusive mom's milk giving, mom's body tall, low education of mother, infection sickness, low economical status, living in dirty circle, Uncooked drinking water, bad health service access, living in village.
- b. The determinant factors of stunting with less evidence are low education, social culture, food and agriculture system, living in village.
- c. The concept frame of WHO wants to prove there are difference and inadequacy between causality and stunting.

Design: Non RCT and observational. The result shows there is stunning growth in children 0-59 months with the determinant factor relatin to WHO concept frame, the relevant study using English.



3. RESEARCH RESULT

The effort of nutrition improvement acceleration is a global effort, it's conducted not only to Indonesia, but also for all countries have stunting problem. This effort initiated by World Health Assembly ⁽¹³⁾. The target determined to reduce the stunting prevalence such as: decreasing stunting prevalence, preventing overweight on under five years old children, decreasing the anemia prevalence on productive woman, decreasing prevalence of low weight birthing (BBLR), increasing exclusive mother's milk coverage. As PBB member with high stunting prevalence, our country participates and commits in accelerating improvement the nutrition through scaling up nutrition (SUN) in community.

The law no. 17 year 2007 concerning RPJP (2005-2025) states that food development and nutrition improvement conducted cross-sector includes production, processing, distribution, to consumption with sufficient, balance and safe nutrition. Afterwards, Law of Health no. 36 year 2009 concerning Health states that purpose of nutrition improvement is to improve personal and social nutrition quality through improvement consumption pattern proper to balanced nutrition, improvement the nutrition awareness, physical activity and health; improvement nutrition access and service quality proper to science and technology progress; and improvement food and nutrition caution system. In line with the Law, published the Law of Food No. 18 year 2012 which decides the policy of food to develop society nutrition status, by arranging the strategy of food and nutrition movement for every 5 years.

Afterwards, published President regulation No. 5 Year 2010 concerning RPJM (200-2014) that purpose of food and nutrition development is increasing food stability and health and nutrition status of community. Then, Inpres No. 3 Year 2010 points out about arranging the planning of Food and Nutrition national Action. (RAN-PG) 201-2015 in 33 provinces ⁽¹⁾

The President Regulation No. 42 year 2013 concerning National Movement of Nutrition Development published to support of planned upholding participating and caring importance holder coordinately to accelerate the nutrition improvement in first 1000 days of life. Therefore, the supporting instrument of policy of nutrition improvement is completed and needs the organized implementation and can be applied by every involved element. Through publishing this Government Law, it needs the concrete effort and focuses on 1000 HPK and integration of activity across the program (specific effort) and across the sectoral (sensitive effort) by all stakes holder ⁽¹⁴⁾.

Based on several researches about determinant factor of stunting, mentions that stunting in Indonesia caused by some factors such as inclusive mother's milk, low economical status, premature birthing, short length birthing, low education of mother, and living in the village, dirty circle, bad sanitation and culture are determinant factors of stunting of Indonesian children.

1. Giving inclusive Mother's milk

Giving exclusive mother's milk is strongly relating to decrease the stunting of children. Therefore, the children don't get the exclusive mother's milk will take risking the stunting ⁽¹⁵⁾, two newest analysis that baby weaned before 6 months have higher risk of stunting ⁽¹⁶⁾. The giving mother's milk on 0-5 months old will contribute in decreasing stunting of children ⁽¹⁷⁾.

2. The economic and social status on family

The family's income is one of economic social indicator to fulfill and satisfy the needs in family, it's supported by research finding which states that farmer family take the stunting risk⁽¹⁸⁾. Low income takes stunting risk⁽¹⁹⁾. The research conducted in 3 provinces in Indonesia; Bali, West Java, and NTT show that the risk factor of stunting is father's low income⁽²⁰⁾. While the research conduct in Semarang shows that low social economic status of family have 11 times risk of stunting⁽²¹⁾

3. Low Weight birthing

The premature birthing of infant has risk Low Weight Baby Birthing (BBLR), this takes serious risk of stunting. The research finding shows that the baby born with BBLR has 1.74 times risk of growth barrier TB/U⁽⁹⁾. Based on another research finding that baby born with BBLR has 5.87 times risk of stunting⁽²²⁾. This research obtained in Brebes shows that BBLR takes 6.63 times of stunting.

4. Baby length birthing

Research conducted in Kulon Progo states that if baby length birthing less than 48cm will take risk of stunting in the future⁽¹⁹⁾. Based on research in India, baby birth with short body has the risk of stunting⁽²⁴⁾. The research in Depok finds out that the baby with short body has the risk of stunting the future⁽²⁵⁾.

5. Mother education

Mother plays the main rule in determining the baby's health, therefore the qualified education of mother make her more selective and creative in giving nutrient food for the children. The research finding shows that the low education of mother take 1.6 times risk of stunting⁽²⁶⁾. The research conducted in Banjar Baru shows the low education of mother takes 5.1 times of stunting for the children⁽²²⁾.

6. Infectious disease

Based on WHO concept, infection often attacks the stunting children, such as diarrhea, wormy, inflammation, malaria, and respiration nuisance. It's detected the most have risk is diarrhea, it because the children don't get the immunization completely. Based on research finding in indigent society and in village, it shows that the infectious illness such as diarrhea takes risk of stunting⁽²⁷⁾. The research finding in Ethiopia shows that the children have diarrhea take 6.3 risk of stunting⁽²⁸⁾.

Refers to the theory and concept of WHO, therefore the stunting determinant can be found as

follow:

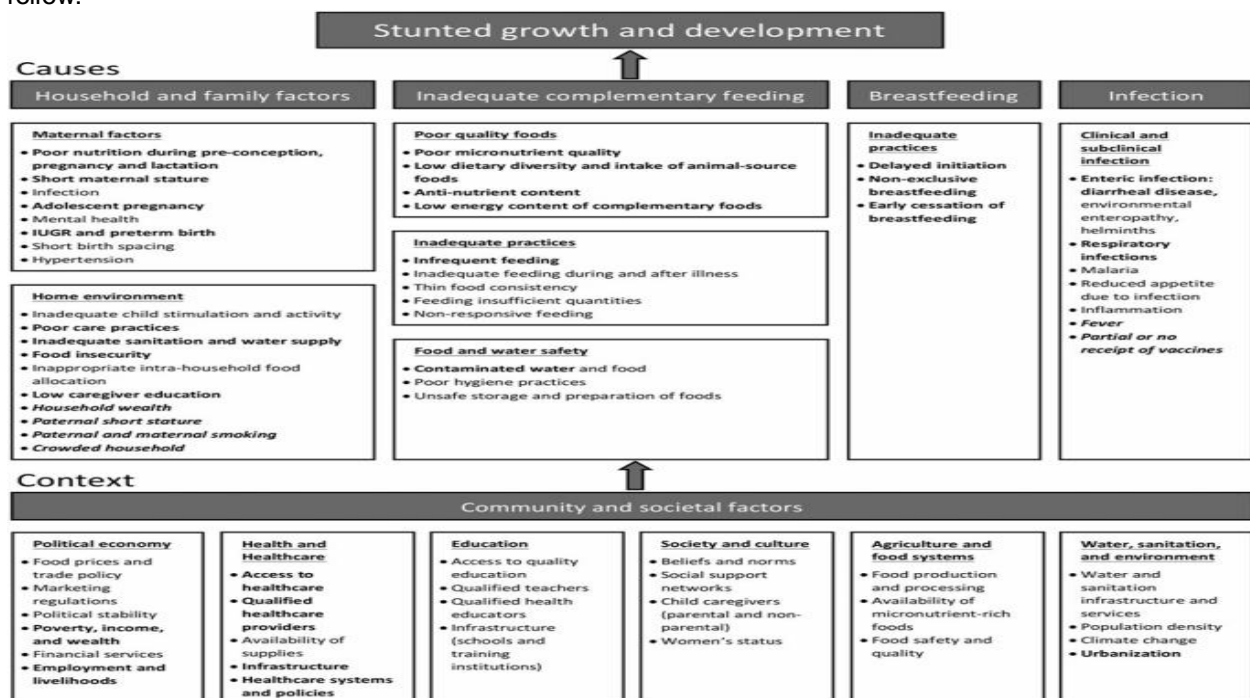


Image 1. The WHO concept of determinant factor of children stunting. Modification of Steawert et. Al., 2013

4. DISCUSSION

The WHO concept shows the completely reviewing to articles concerning determinant of children stunting in Indonesia. From the literature review we conducted finding out consistently that variables of mother's height, premature birthing, BBLR, length birthing, low mother's education, infectious illness, and social economic of family are the risk factor of stunting in Indonesia ⁽¹²⁾, recently, it's conducted the research proceeded cross sectional which shows that early weaning, father's length, consuming uncooked water, dirty circle have the stunting risk ⁽²⁹⁾, while the research in Madura shows that giving additional food earlier take the stunting risk for children ⁽³⁰⁾.

The effort to overcome the stunting have conducted through experimental research by using zinc supplement for children to see Z-score TB/U ⁽³¹⁾, there are differences of linier growth on stunting of under five year children after given the zinc calcium ⁽³²⁾. We also obtain that community's role, health service access, qualified health service also have significant role in stunting in Indonesia.

Besides conducting the research from academicians, in Indonesia has developed the policy "Scaling up Nutrition" interpreted as National Movement of 1000 First Days of Life. Considering the nutrition case has multi factorial variable, therefore the implementation needs the cross sector involvement. The study relating to success decreasing policy implementation of nutrition case through various methods (systemic review, problem analysis) shows that policy implementation of decreasing of nutritious case globally is inconvenient ⁽³³⁾.

As nation member of PBB, Indonesia commits to take the role to decrease stunting prevalence. The published of President Rule no. 42/2013 is one of strategy in SUN involving cross sector. This Precedent Rule is significant because stunting relating to poverty, low education, illness, low woman productivity ^(13,34). Study in Bangladesh shows the correlation between poverty and bad nutrition occurred in a illiterate mother, low income, having many siblings, having worst access to media, having bad nutrition, and low sanitation and bad circle health take risk of the nutritious problem ⁽³⁵⁾, however, the difference of development cross region in Indonesia also influence toward large prevalence stunting disparity. The study finding in Ghana shows that poverty and district characteristic as the cause of difference on nutritious problem of under five years old children ⁽³⁷⁾. Therefore it needs serious care to solve the problem and decrease the stunting case in early age, even in 1000 HPK as golden age in preventing stunting growth ⁽³⁸⁾. The low growth in fetus period or whiling 1000 HPK has long term impact. If the external factor (after birth) doesn't support it, the stunting growth can be permanent as short teenager. The research finding shows that they who have short body or stunting whiling birth, biologically have the different size from whom have the bigger size whiling birth ⁽³⁹⁾. Therefore, the controlling of stunting case should be started far from the children born (1000 HPK period) and even far since teenager period to break off stunting chain.

5. CONCLUSIONS AND RECOMMENDATIONS

Based on identification result and several articles can be concludes that determinant factors of stunting in Indonesia consistently are economic social status (family income), mother's educational, BBLR, premature birthing, inclusive mother's milk, birthing length, macro and micro deficiency, community and society factors also significantly influence the stunting. It needs to conduct the further research relating to economy, politic, social and culture, agriculture and food system, water and circle sanitation variables toward stunting in Indonesia. Conduct the productivity in improving the social nutrition status.

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