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DETERMINANTS OF STUNTING: A SYSTEMATIC REVIEW

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ABSTRACT

One of the sustainable development goals (SDGs) is to end all forms of malnutrition by 2030. In 2015, undernutrition or stunting was considered to be an underlying contributing factor in about 45% of the 5.9 million children who died under the age of five. Referring to the impact it is important to know the factors that cause stunting. This study aims to determine the determinants of stunting. This study uses a Systematic Literature Study design from several selected materials using the PRISMA protocol method. The 14 study materials taken were obtained from 5 publications from PubMed, and 9 publications from Google Scholar. Based on identification results and 14 articles can be concluded that determinant factors of stunting consistently are economic social status (family income), infectious disease, mother's education, exclusive breastfeeding, low birth weight baby, premature birthing, inclusive mother's milk, birthing length, macro and micro deficiency, water dan circle sanitation, community, and social factors also significantly influence the stunting. It is hoped that there will be a government program that can support stunting prevention by considering the determinant of stunting.

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1. INTRODUCTION

One of the sustainable development goals (SDGs) is to end all forms of malnutrition by 2030. There are two categories of malnutrition: on the one hand undernutrition which encompasses stunting, wasting and deficiencies of micronutrients (i.e. vitamins and minerals) and on the other hand overweight, obesity due to over-consumption of specific nutrients. Worldwide, in 2014, 23.8% of the children under-five years of age were stunted following the WHO definition, 7.5% were wasted but 6.1% had overweight or were obese. Undernutrition makes children more vulnerable to severe diseases. In 2015, undernutrition was considered to be an underlying contributing factor in about 45% of the 5.9 million children who died under the age of five [1]

According to 2015 Millennium development goals report, globally about 24.5% of children were stunted, 15% were underweight and 7.7% were wasted [8]. Stunting affects more than161million children and one-third of these were living in Africa [9]. A meta-analysis of demographic and health surveys (2006–2016) indicated that the prevalence of stunting varied in different part of the Africa region and it's high in East Africa region; Burundi (57.7%) and in Malawi (47.1%); in West Africa, Niger (43.9%), Mali (38.3%), Sierra Leone (37.9%) and Nigeria

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(36.8%); Democratic Republic of Congo (42.7%) and Chad (39.9%) in Central Africa[10]. A Tanzania study showed that the prevalence of stunting was 49.7% among under-five children [11]. The other cross-sectional household survey carried out to assess factors associated with stunting and severe stunting among under-fives in Tanzania showed that the prevalence of stunting and severe stunting were 35.5% and 14.4% for children aged 0–23 months and 41.6% and 16.1% for children aged 0–59 months, respectively [2].

A child with a height-for-age Z score (HAZ) less than minus two standard deviations below the median of a reference height-for-age standard is referred as stunted . It reflects a process of failure to achieve the linear growth potential as a result of prolonged or repeated episodes of under-nutrition starting before birth [3]. .Malnutrition remains a critical public health problem among children under the age of five years in developing countries . Malnutrition is caused by multiple interlinked factors and has both short and long term detrimental health effects[4], [5] . It affects the cognitive and physical development of children, increases the risk of infections and significantly contributes to the child's morbidity and mortality [6, 7]. Stunting, wasting and underweight are three widely recognized indicators of child's nutritional status . While stunting and wasting indicate chronic and acute malnutrition respectively, underweight is a composite indicator and includes both acute (wasting) and chronic (stunting) malnutrition . However, different forms of malnutrition can also occur concurrently in children [8].

Globally in 2017, 155 million children under 5 were estimated to be stunted. Childhood stunting is an outcome of maternal under nutrition and inadequate Infant and Young Child Feeding (IYCF), and would result in impaired neurocognitive development, and a risk factors for non-communicable diseases and reduced productivity in later life [2]

Referring to the impact it takes, a comprehensive effort is needed. One of the efforts that have been successfully carried out is to control the factors that cause stunting . Kismul, grouped three factors related to stunting: distal factors, intermediate factors, and proximal factors. Distal factors cover mothers' education, ethnicity, economic status, location, and type of settlement. Intermediate factors include environmental factors and maternal factors. Proximal factors include the birth order of children, the child's health status, and early breastfeeding initiation. Moreover, eating habits can also affect stunting, one of which is due to the way parents give their children food that is not yet diverse and balanced [9].So it is important to know what is the determinant of stunting.

There are several studies that have examined factors associated with child stunting including biological, demographic and social factors. However, there is a need for studies that further investigate how stunting operates at different levels of determination in order to identify key factors contributing to the development of stunting. This study aims to determine the determinants of stunting, not only examines the determinants of stunting in Indonesia but also in other countries.

2. RESEARCH METHOD (10 PT)

2.1 Study Design and Search

This study uses a Systematic Literature Study design from several selected materials using the PRISMA protocol method. The 14 study materials taken were obtained from 5 publications from PubMed, and 9 publications from Google Scholar which were searched from January 5, 2020 to February12, 2020. The keywords used to search for articles were 'stunting, determinant, under five year old children and risk factors.

2.2 Selection Criteria

The selected articles are only those written in English and available in full text from 2011 to 2020. There are no restrictions on the choice of study design. Excluded from the selection are articles in the form of Thesis, Guidelines, multiple articles and inappropriate keywords.

2.3Data Collection Techniques

The standard protocol used to select articles uses PRISMA (Preferred Reporting Items for Systematic Reviews and Meta Analyses). 1572 Articles were identified and further screened for appropriate Titles and Abstracts. The next step is to establish the relevance of the article and whether the article is full text . This process resulted in 15 articles that were excluded from the screening process. Then the remaining 14, because there were 1 relevant article that were found to have duplicates and therefore only 14 were obtained from all the criteria of the systematic literature review in this study.

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Data Extraction

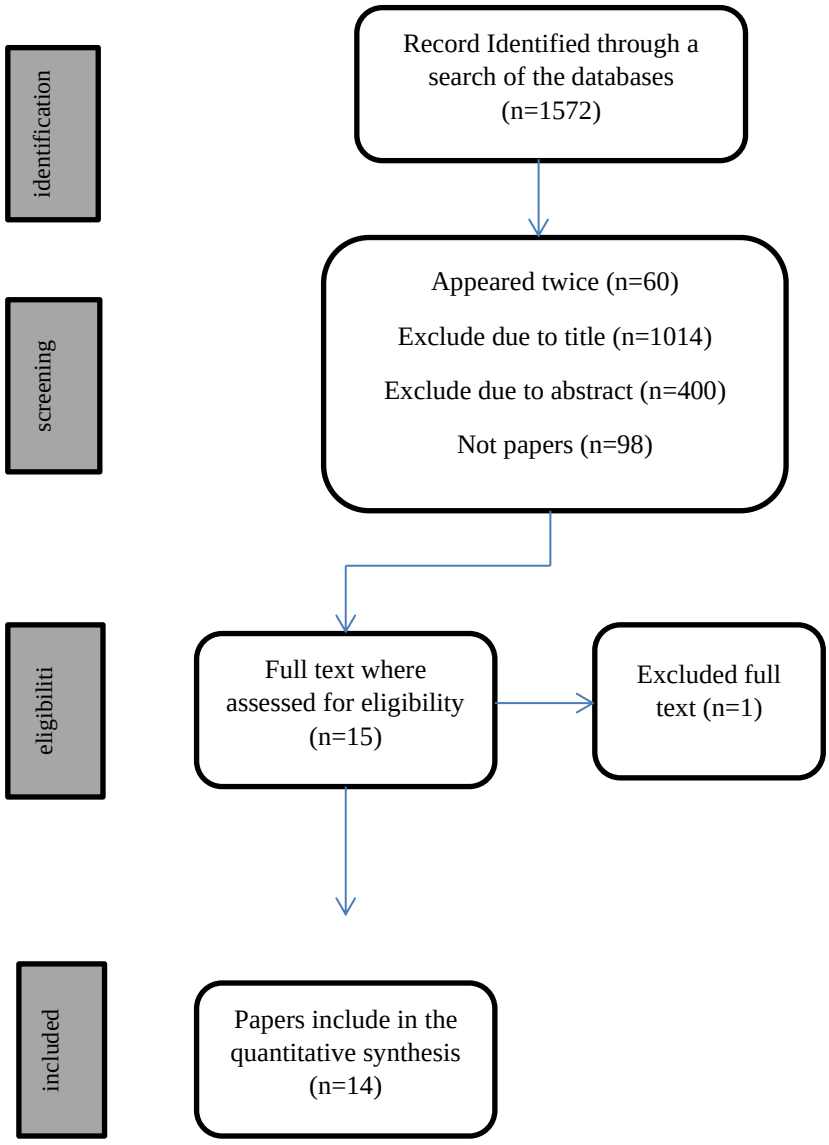

Figure 1. Data Extraction with PRISMA Protocol

3. RESULTS AND ANALYSIS

The number of 14 articles that have been reviewed in detail are; 1 article that discusses stunting, 1 article on stunting risk factors, and 11 articles that focus on discussing determinant of stunting.

Tabel 1 Results of the Literature Review regarding stunting, risk factors and factors that influence stunting

No.	Judul	Metode	Sampel	Intervensi	Hasil
1.	*Risk Factors of Child Stunting in Developing Countries* *Indah Budiastutik, Muhammad Zen Rahfiludin, 2019*	cross sectional,	15 article or databased	Literature review	Based on the identification results and a review of several articles, it can be concluded that the risk factors for stunting in developing countries consistently are family socioeconomic status (family income), mother's education, low birth weight (LBW), premature birth, non-exclusive

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					breastfeeding, length of stay. birth, macronutrient and micronutrient deficiencies. Community and community factors are also very influential on the incidence of stunting. Need to do more research related to economics, politics, social and culture, agriculture and food systems, water and sanitation variables on stunting in Indonesia.[10]
2.	Stunting in childhood: an overview of global burden, trends, determinants, and drivers of decline *Tyler Vaivada, Nadia Akseer ,Selai Akseer, Ahalya Somaskandan, Marianne Stefopulos, and Zulfiqar A Bhutta1, 2022*	Systematic review	15 article or databased	Building on existing frameworks and key mapping indicators and proxies from the global literature, we developed conceptual framework adapted to assist in identification and interpretation of various determinants of stunting in children. Standard systematic review methods are used to identify and assess the literature of interest. This includes development and execution of search strategies across 15 databases, filtering of titles and abstracts for relevance, followed by filtering of full text.	Among the basic determinants of stunting assessed in the regression-decomposition analysis, an increase in the asset index score is a consistent and powerful driver for increasing linear growth Results. Improved parental education is also a strong predictor of increased child growth. Of the underlying determinants of stunting, reduce open defecation rates, improve sanitation infrastructure, and improve access to key maternal health services, including. Optimal antenatal care and delivery in a health facility or with a skilled birth attendant, all account for substantial improvements growth of children, although the magnitude of variation described by each differs substantially between countries. On a direct level, changes in some maternal characteristics predicted simple stunting reduction, including parity, interval interpregnancy, and mother Tall.[11]
3.	Prevalence and determinants of stunting and wasting among public primary school children in Gondar town, northwest, Ethiopia *Zegeye Getaneh1* , Mulugeta Melku1, Mekuanint Geta2, Tadele Melak3 and Melkamu Tamir Hunegnaw4*	cross-sectional	The sample is elementary school students aged 6 to 14 years in Amhara, the number of samples is 543.	There is no intervention, data collection uses a questionnaire, the data collected is primary and secondary data	Stunting and wasting were common problems among the SACs in this study. This shows that early intervention is essential and calls for a health program that aims to reduce stunting and wasting in childhood, especially in the first 2 years of life, and the prenatal period because stunting in school children is the result of damage that starts in the womb and early childhood. Factor the cause of stunting is the age of the child, the source of drinking water water, DDS < 4 and anemia. On the other hand, the child's age, education and maternal age, family poverty, and drinking alcohol are risk factors for wasting.[12]

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4.	Determinants of stunting among under-five children in Ethiopia: a multilevel mixedeffects analysis of 2016 Ethiopian demographic and health survey data *K. Fantay Gebru1, W. Mekonnen Haileselassie1,2*, A. Haftom Temesgen2, A. Oumer Seid2 and B. Afework Mulugeta2*	cross-sectional	8855 Children under 5 year	Interview	This study shows that individual and community level factors determine childhood stunting among children under five in Ethiopia. At the individual level, increasing child age, gender parity (being male), smaller child size at birth, lower maternal BMI, household poor wealth quintile, children from mother without education, and the birth of twins found to be significant in determining stunting in children. On community level, children from the Amhara community, Tigray, and Benishangul suffered from stunting since childhood compared to Addis Ababa children., children from Muslim, Catholic and other traditional families have higher log odds of relative stunting than children from Protestant family. Especially children who live in rural areas Ethiopia is more likely to be stunted compared to cities occupants.[3]
5.	Determinants of childhood stunting in the Democratic Republic of Congo: further analysis of Demographic and Health Survey 2013–14 *Hallgeir Kismul1*† , Pawan Acharya2†, Mala Ali Mapatano3 and Anne Hatløy4*	Survey	8884 Children under 5 year	Anthropometric examination	The prevalence of stunting is much higher in boys than girls. There is a significant rural urban disparity in the prevalence of stunting in rural areas has a greater proportion of children living with stunting than in urban areas. Boys, more than 6 months, before birth spacing of less than 24 months, come from the lower wealth quintile have the highest probability of stunting. Several provinces in particular have a high chance of stunting. Early initiation breastfeeding, mothers who are more than 20 years old at the time of delivery have a lower chance of stunting. The higher it is mother, the less likely the child will be stunted. Similarly, maternal BMI, access to clean water, access to hygienic toilets, maternal education were found to be negatively correlated with child stunting in the bivariate logistic regression, but there were no statistically significant results in the analysis of the number of children in the family and residence [13]
6.	Determinants of stunting, underweight and wasting among children < 5 years of age: evidence from 2012-2013 Pakistan demographic and health survey	Cross sectional	3071 Children under 5 year	Anthropometric examination	Univariate analysis (Model 0) showed that children born to mothers living in rural areas (cOR = 1.57, 95%CI 1.25-1.96), had no education (cOR = 4.66, 95%CI 3.10–7.00), inbreeding (cOR = 1.64, 95% CI 1.31–2.05) and has the poorest wealth index (cOR = 5.41, 95%CI 3.91-7.48) more likely

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	Sadaf Khan1,2, Sidra Zaheer3 and Nilofer Fatimi Safdar3*				dwarf. Mother's height was significantly related with child stunting as a child whose mother is short stature (<145 cm) were more likely to be stunted (cOR = 3.05, 95% CI 1.68–5.55). This association remains the same after adjusting for all other factors in Model 1 and 2. However, children whose mothers are 18 years old years of marriage (aOR = 0.76, 95% CI 0.59-0.99) and children whose mothers have visited the antenatal clinic more than 3 times during pregnancy (aOR = 0.61, 95%CI 0.38-0.98) are less likely to be inhibited. Children inside age group 24-35 months (aOR = 3.65, 95% CI 2.23–5.95) and children who were smaller than the mean age at birth (aOR = 1.48, 95% CI 1.02–2.16) are more likely to be inhibited [14]
7.	Determinants of the Stunting of Children Under Two Years Old in Indonesia: A Multilevel Analysis of the 2013 Indonesia Basic Health Survey *Christiana R. Titaley 1,* , Iwan Ariawan 2, Dwi Hapsari 3, Anifatun Muasyaroh 2 and Michael J. Dibley 4*	Survey	33 provinces and 497 districts/cities throughout Indonesia.	No intervention, This analysis uses data from the 2013 Indonesian Basic Health Survey conducted by Health Research and Development Agency, Ministry of Health of the Republic of Indonesia.	The analysis was carried out to examine the role of cluster/district/province differences, as well asindividual/household level characteristics and stunting status. Of the 24,657 children analyzed, 33.7% (95% CI: 32.8% -34.7%) was inhibited. The likelihood of stunting increases significantly among children living in a household with three or more children under five years (aOR = 1.33, 95% CI: 1.03–1.72), households with five to seven household members (aOR=1.11; 95%CI: 1.03–1.20), children who mothers during pregnancy attended less than four antenatal care services (aOR = 1.22, 91.08-1.39), boys (aOR = 1.33, 95% CI: 1.22-1.45), children aged 12-23 months (aOR = 1.89; 95% CI: 1.54–2.32), and children weighing <2500 g at birth (aOR = 2.55; 95%CI: 2.05–3.15). The probability also increases significantly with a decrease in the household wealth index. [15]
8.	Determinants of Stunting in Indonesia: A Review Article *Indah Budiastutik , Sri Achadi*	non-randomized control trial design, observational study ,	Article	This article review is applied through browsing articles using Google scholar, Proquest, Medline and	Based on the findings of the literature review, it consistently shows that stunting factors including breastfeeding, low household economic status, premature delivery, length of delivery and low maternal education, as well as children living in villages, poor

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	Nugraheni , 2018			several online journals published in the last 10 years .	sanitation, and culture are determining factors. child stunting in Indonesia[16]
9.	Determinants of stunting among children aged 6-59 months at Kindo Didaye woreda, Wolaita Zone, Southern Ethiopia: Unmatched case control study *Bancha Batiro , Tsegaye Demissie , Yoseph Halala , Antehun Alemayehu Anjulo, 2017*	Case control study	The sample was identified by enumerating children aged 6-59 months in all households in the study area as many as 310 cases	Anthropometric examination	Based on the results of this study indicate that there is drinking water from unsafe sources (AOR = 7.06, 95% CI; 4.40-20.42), sometimes eat animal food sources (AOR = 0.51, 95% CI; 0.02-0.68), ARI in the last two weeks (AOR = 3.04, (95% CI; 1.04–13.35), delayed initiation of breastfeeding after one hour after birth (AOR = 5.16, 95% CI; 2.24–15.90) and lack of vaccination (AOR = 6.38, 95% CI; 2.54–17.10) were significantly associated with stunting.[2]
10.	The Biopsychosocial Determinants of Stunting and Wasting in Children Aged 12-48 Months *Ria Muji Rahayu, Eti Poncorini Pamungkasari, CSP, Wekadigunawan*	case control	toddlers aged 12-48 months as many as 150 research subjects were selected using fixed diseases sampling. Domiciled in the district of Tulang Bawang Barat	Anthropometric measurements and data collection using a questionnaire.	The risk of stunting increases with poor maternal knowledge (OR= 5.29; 95% CI= 1.30 to 21.54; p=0.002), low maternal education (OR=10.25; 95%CI= 2.26 to 46.79; p=0.003), poor maternal nutritional status (OR= 8.87; 95% CI= 2.14 to 36.74; p=0.003), low birth weight (OR= 9.86; 95% CI= 2.60 to 37.47; p=0.001), infants who did not receive exclusive breastfeeding (OR= 5.70; 95% CI= 1.59 to 20.46; p=0.008). The risk of waste increases with poor knowledge (OR= 10.95; 95% CI= 2.14 to 56.91; p= 0.004), low family income (OR= 7.04; 95% CI= 5.51 to 32.78; p=0.013, low birth weight (OR= 14.71; 95% CI= 2.74 to 79.06; p=0.002), history of URTI (OR= 4.87; 95% CI= 1.23 to 19.38; p=0.024), diarrhea (OR= 6.09; 95% CI= 1.42 to 26.20; p=0.015), lack of clean water (OR= 9.78; 95% CI= 2.26 to 42.36; p=0.002), and poor sanitation (OR= 7.67; 95% CI= 1.85 to 31.75; p=0.004). Stunting and wasting are influenced by birth weight, history of URTI, diarrhea, maternal nutritional status, mother's knowledge, mother's education, family income, lack of clean water, and poor sanitation.[17]
11.	Determinants of Stunting Incidence in Children aged 24-59 Months in the Saigon	observasional analitic , case control	The number of samples is 64 toddlers aged 24-59 months. Using	There is no intervention, data collection uses a questionnaire	There are 5 variables that have a significant relationship including LBW (p value = 0.008 and OR = 2.89), history of KEK (p value = 0.001), exclusive breastfeeding (p value = 0.001 and OR

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	Community Health Center, East Pontianak District *Lydia Febri Kurniatin,S.ST.,M. Keb,Lepita,S.ST., M.Keb,* 2020		purposive sampling technique . The statistical test used is chi square and logistic regression		= 6.67), MP ASI (p value = 0.001 and OR = 120), exposure to information about 1000 HPK in mothers (p value = 0.001 and OR = 2.4). LBW shows the greatest opportunity to influence stunting incidence.[18]
12.	Determinants of stunting and severe stunting among Burundian children aged 6-23 months: evidence from a national cross-sectional household survey, 2014 Sandra Nkurunziza1 , Bruno Meessen , Jean-Pierre Van geertruyden and Catherine Korachais, 2017	Survey	The sample consisted of 6199 children aged 6 to 23 months with complete anthropometry	Anthropometric examination	The prevalence of stunting and severe stunting was 53% [95%CI: 51.8-54.3] and 20.9% [95%CI: 19.9-22.0] each. Compared with children from 6-11 months, children aged 12-17 months and 18-23 months have higher stunting risk (AdjOR: 2.1; 95% CI: 1.8-2.4 and 3.2; 95% CI: 2.8-3.7). Another predictor of stunting is small babies (AdjOR=1.5; 95% CI: 1.3-1.7 for medium-sized babies at birth and AdjOR=2.9; 95% CI: 2.4-3.6 for small-sized babies at birth births) and boys (AdjOR=. =1.5, 95% CI: 1.4-1.8). In addition, there is no education for mothers (AdjOR=1.6; 95% CI: 1.2-2.1), incorrect assessment of maternal nutritional status (AdjOR=3.3; 95% CI: 2.8-4), home delivery (AdjOR=1.4; 95% CI: 1.2-1.6) was found to be a predictor of stunting. More than 2 children under five years in household (AdjOR=1.45; 95% CI: 1.1-1.9 for stunting and AdjOR=1.5; 95% CI: 1.2-1.9 for severe stunting) and wealth was found to be a predictor for stunting and severe stunting. Factors associated with stunting were found to be applicable for severe stunting as well.[1]
13	Determinants of Stunting in Children Aged 12-59 Months Erna Julianti , Elni, 2020	cross-sectional	involving 205 respondents who were recruited using successive sampling techniques. children aged 12-59 years month,	There is no intervention. Data were collected using z scores and questionnaires	Children who are not exclusively breastfed and have a major infectious disease had a higher risk of stunting by 53.8% and 40.9%, respectively. There's something significant the relationship between history of exclusive breastfeeding (p = 0.001, OR = 2.28), namely history of infection (p = 0.013, OR = 2.27), and eating habits (p = 0.04, OR = 1.55) with stunting in children [9]
14	Determinants of childhood stunting in the Democratic Republic of Congo: further analysis of Demographic and Health Survey 2013–14 Hallgeir Kismul ,	Survey	The sample of children under 5 years old in the area was 8884	There is no intervention, data collection uses a questionnaire	The results show that the prevalence of stunting is much higher in boys than girls. There is a significant rural urban disparity in prevalence of stunting in rural areas has a greater proportion of children living with stunting than urban areas. Boys, more than 6 months, before a birth interval of less than 24 months, come from the lower wealth quintile have the highest chance of stunting Some provinces have very high stunting

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	Pawan Acharya , Mala Ali Mapatano and Anne Hatløy 2018				opportunities. Early initiation breastfeeding, maternal age more than 20 years at the time of delivery has a lower probability of stunting. The higher it is the mother the less likely the child is stunted. Likewise with the mother's BMI, access to clean water, access to hygiene toilet, maternal education was found to be negatively correlated with child stunting in bivariate logistic regression, but they lost statistical significance in the multivariate analysis along with the number of children in the family and residence [13]

Based on the results of several studies that examined about the determinants of stunting, that stunting in Indonesia can occur due to several factors which causes, among others, breastfeeding is not exclusive, the socioeconomic status of the household low birth weight, premature birth, short birth length and low education of mothers and children living in villages, in slum households, sanitation bad environment, culture is a risk factors for stunting in children in Indonesia [10].

As children are growing up, they need adequate complementary food, in quantity and in quality, as a complement to the breast milk [19, 20] .Our study found that only 30% of the children aged between 18-23 months received appropriate complementary food in regards to both frequency and diversity. In the bivariate analyses, stunting and severe stunting were associated with inappropriate complementary feeding practices but this turned out to be non-significant in the multivariate analysis [1]. Our study also reveals that mothers assessing correctly the child nutrition status were less likely to have stunted children than those who did not assess this correctly. This could let assume that mothers who reserved time to learn how to evaluate child nutrition status are the ones who invest in the latter.

Culture in child feeding covers the mothers' belief in feeding, child feeding practices, and child's eating habits. The mothers'' belief in feeding will affect child feeding practices. It is related to the habits that the mother believes regarding the prohibition or abstinence of nutritious food in her family. Most mothers have beliefs in particular food and the application of feeding practices is done according to low maternal confidence [21]. It means that few people believe in culture and rarely apply the belief according to it. Koini, Ochola, and Ogada [22] stated that socio-cultural practices and beliefs had been shown to influence the feeding of children, thus determining their nutritional status. Socio-cultural beliefs and practices which are basically contrary to the principle of fulfilling nutrition are the existence of dietary restrictions on pregnant women and children, mistakes in providing complimentary food to children, as well as the existence of negative views that prohibit immunization and exclusive breastfeeding.

A study by Setiawan, Machmud, and Masrul (2018) showed that there were significant relationships between energy intake level, history of infectious disease duration with the incidence of stunting [23]. Non-exclusive breastfeeding has an influence on the incidence of stunting in children aged 12-59 months. It is in line with the results of the previous study, which points out that exclusive breastfeeding is strongly associated with reducing the risk of stunting . The result of another research indicates the same result; one of the main factors causing stunting in the village of Petobo, Palu is that the mothers do not give exclusive breastfeeding [24]

Our study confirms that stunting is a multi-sectoral problem. Some determinants such are: education of girls / mother, poverty, and food security; will be addressed by a large array of actions. Some others relate to the health sector and its performance – we think in particular of the number of children under five in the household (birth spacing), the relationship with the health center and the knowledge of the mother on malnutrition [1].

We also assessed how stunting was related to mothers' education. The crude logistic regression showed a highly significant negative correlation between mother's education and child stunting, however, the multivariate analysis, model 2 and 3, showed that children of mothers who had secondary and higher education were less likely to be stunted than children who had mothers with no education and mothers with only primary education, but without statistical significance. Our findings apparently contrast the results of other similar studies that have demonstrated significant relationship between mother's education and child nutrition [13, 21]

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Our findings demonstrate a higher risk of stunting among the children of mothers with short heights. Our findings thereby corroborate with previous studies showing similar results [13]. One explanation of maternal height to child stunting relationship is that mothers with short stature have a higher risk of giving birth of babies with low birth weight which in return are at higher risk of poor growth during childhood . In our study, we found children living in households with access to safe drinking water were less likely to be stunted and so were children living in households with access to hygienic toilet, but this association disappeared when we controlled for potential confounding factors. In our model 3, the strength of association was reduced and lost statistical significance. Our findings are thereby not fully in accordance with other studies in this field. These studies have found evidence that improvement in access to clean water, sanitation and hygienic facilities have a positive influence on the linear growth of children [25][26]

Based on the results of this study, infectious disease is one of the contributors to the occurrence of stunting. Infectious diseases can be caused by several things, such as the environment and poor sanitation. More than one-fifth of the world's population lives in inadequate environments and lack of clean water which allow high rates of enteric infections like diarrhea. The enteric infection will disrupt the function of absorption of nutrients in the intestine, causing up to 43% of growth to be stunted, which affects onefifth of children worldwide and one-third of children in developing countries. When during the first two years, a child has an infectious disease, he/she can experience an average growth reduction of 8 cm and IQ decrease of 10 points when they are 7-9 years old. It shows that infectious diseases in children can result in stunted growth [27]

Based on WHO concept, infection often attacks the stunting children, such as diarrhea, wormy, inflamation, 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 . The research finding in Ethiopia shows that the children have diarrhea take 6.3 risk of stunting [16]. The results of the analysis show that there is a positive relationship between sanitation and incidence of stunting and wasting and statistically significant. This study shows that households that do not have access that meets the criteria will be at risk greater for the occurrence of stunting and wasting. Healthy environmental sanitation indirectly affects the health of children under five which in the end can affect the nutritional status of children under five [28].

Similarly, the prevalence of stunting was high among SAC who used non-piped water. This was in line with that of a study conducted in Dhaka city, Bangladesh [29]. Children born in houses with no access to clean water were at risk for diseases which ultimately increased the risk of malnutrition. There is a clear evidence of the association between drinking water source and diarrhoeal morbidity among children . This revealed that children born in houses with no access to clean water were at risk for diseases which ultimately increased the risk of malnutrition. Unclean water supply has a direct relation to infectious diseases, especially diarrhea. Repeated or persistent diarrhea due to unsafe water supply indicates the nutritional status of SAC. Children suffering from diarrhoea do not benefit fully from food because frequent stools prevent adequate absorption of nutrients [30].

4. CONCLUSION

Based on identification result and several articles can be concludes that determinant factors of stunting consistently are economic social status (family income), infectious disease, mother's educational, exclusive breastfeeding, low birth weight baby, premature birthing, inclusive mother's milk, birthing length, macro and micro deficiency, water dan circle sanitation, community and society factors also significantly influence the stunting. It is hoped that there will be a government program that can support stunting prevention by considering the determinant of stunting.

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