International Journal of Multidisciplinary Research And Studies

Available online at https://ijmras.com/

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND STUDIES
ISSN: 2640 7272
Volume:05; Issue:06 (2022)
Doi: 10.33826/ijmras/v05i06.8

HOUSEHOLD FOOD SECURITY DURING THE COVID-19 PANDEMIC AS A RISK FACTOR FOR TODDLER *STUNTING* IN MAJENE

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ABSTRACT

Background :

Stunting is a condition of failing to grow a toddler as an accumulation of chronic nutritional problems. Toddlers are categorized as stunting if the z-score is in the range of -3 to <-2SD based on the Height By Age index. Stunting children are more susceptible to disease and contribute to a child's below-average level of intelligence. The long-term effects of stunting can stunt economic growth as well as increase a nation's poverty.

Objectives :

To analyze household food security during the covid-19 pandemic with stunting events in toddlers aged 6-23 months in Pangali-Ali Village, Majene, West Sulawesi.

Methods :

This study is an observational study with a case-control study design. The population is all toddlers aged 6-23 months in Pangali-Ali Village of Majene Regency. The way of sampling is to use total sampling, so that the

number of samples is equal to the population of 76 toddlers. The data was analyzed using SPSS with a chi square test.

Results :

Bi-variant analysis showed that household food security during the covid-19 pandemic had a significant association with stunting toddlers ($p<0.05$) and also obtained odds ratio (OR) of 4.42. Toddlers who come from food insecure households have a risk of stunting 4.42 times higher compared to toddlers who are in food resistant households.

Conclusions:

Household food security during the Covid-19 pandemic is a risk factor for stunting in toddlers in Majene in 2021. Children who are in food insecure households are at risk of stunting 4.42 times higher than children in food-resistant households.

KEYWORDS *Food Security, Stunting, Toddlers, Pandemic Covid-19.*

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PRELIMINARY

*Stunting*is a condition of failure to thrive under five [1] as an accumulation of chronic nutritional problems [2] . Toddlers are categorized as *stunted* if the z-score is in the range of -3 to <-2SD based on the Height by Age index [3] . *Stunting* children are susceptible to disease and children's intelligence level is below the average [2] . The long term *stunting* effect can hinder economic growth[1] and increase the poverty of a nation[4].

Stuting in toddlers is problem global l. In 2018, around 149 million children under five were *stunted* worldwide, while in Asia 55% of children under five were *stunted*[5]. Based on the results of the Nutrition Status Determination survey, the prevalence of *stunting* in Indonesia in 2017 was 29.6%, then decreased in 2019 to 27.67% according to the results of the Susenas/SSGBI Integrated Toddler Nutritional Status Study. Nationally, West Sulawesi ranks second highest for *stunting* (40.38%) after East Nusa Tenggara, for Majene Regency the prevalence of *stunting* even reaches 43.70%[6]. In Majene, Pangali-Ali Sub-district has a *stunting prevalence of* 237 children, so that it is used as a special location for handling *stunting in* 2021[7].

Stunting is caused by many very complex things. Among the causes of *stunting* is inadequate food intake as a result of household food insecurity[8] . In the world, there are two billion people or 26.4 % experienced vulnerability food currently or severe[9]. Households are categorized as food insecure when family members have access to food in terms of quantity and quality [10] .

Previous research in Sedayu Bantul showed that household food security was associated with *stunting* in children aged 6-23 months. Ambassador at home ladder vulnerable food have 2.62 times more risk big experience*stunting* compared with clown at home ladder stand food. Food security is a something condition fulfillment food for the country until with individual, which is reflected from availability enough food, good amount or quality, safe, diverse, nutritious, evenly distributed, and affordable as well as no contrary with religion, belief , and culture community , for could life healthy, active, and productive by sustainable[11]. The food security index in Majene Regency is still quite low at 58.14% [12] .

Currently almost all countries are experiencing the Covid-19 pandemic. Covid-19 cases worldwide reached 76,250,431, while in *South-East Asia* as of December 22, it was 11,676,286 [13] . It is feared that this condition will affect nutritional status , especially for poor and nutritionally vulnerable families as a result of access to healthy food and disrupted household food supply chains . The United Nations - B Goose (UN) in Indonesia has even

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issued recommendations regarding actions and policy guidelines whose priority is to support food and nutrition security during the Covid-19 pandemic [14]. Regarding *stunting interventions*, the Indonesian government also issued specific and sensitive nutrition interventions. The implementation of specific nutrition interventions is carried out in collaboration with across ministries and agencies. Among the specific nutrition interventions are increasing food security and nutrition [1].

Based on the background of these problems, the research carried out is household food security during the Covid-19 pandemic as a risk factor for *stunting* under five in Majene. The study was limited to the accessibility of household food during the Covid-19 pandemic. The priority of this research is to provide information about household food security that can strengthen *stunting intervention policies for* children under five, so that it is right on target, effective and efficient.

MATERIALS AND METHODS

This research is an observational study with a *case-control study design.* The total population is 76 toddlers. The sample was selected using total sampling, with a ratio of cases and controls 1:1, so that there were 38 cases and 38 controls. The inclusion criteria for the case group are; toddlers aged 6-23 months, living in Banggae sub-district for at least 6 months, toddlers aged 6-23 months suffering from *stunting* recorded at the posyandu in the Pangali-Ali sub-district, mothers are willing to be respondents, and allow their children to be research samples by signing a statement of willingness to be respondents (informed *consent)*. The inclusion criteria for the control group are; toddlers aged 6-23 months, living in the District of Banggae for at least 6 months, toddlers aged 6-23 months, of normal height, registered at the posyandu in the district of Banggae, mothers are willing to be respondents, and allow their children to be research samples by signing a statement sheet willingness to be a respondent (informed *consent)*.

Study carried out in Pangali -Ali Village, Sub district Proud, Regency Majene West Sulawesi . Research location chosen by *purposive* with consideration that area theis one special location for stunting handling in 2021 in *the* district Majene. The independent variable data (household food security during the Covid-19 pandemic) was collected using a questionnaire developed by Radimer /Cornell , while the dependent variable (stunting) was collected using secondary data from the nutrition officer's report at the Banggae I Public Health Center, Majene Regency. analyzed using SPSS with chi square test.

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RESULTS

Based on Table 1. could is known that amount sample in study this as much 76child , with cases (*stunting*) as many as 38 children and control (normal) as much as 38 child as well as based on type sex man and girls each as big as 50 % . Percentage based on Mother 's education , mostly mothers with higher education (59.2 %) , while father's education is in the low category (67.1%).

Table 1. Distribution of Subject and Respondent Characteristics

No.	Variable	n=76	%
1	Nutritional status		
	Stunting	38	50
	Normal	38	50
2	Gender		
	Man	38	50
	Woman	38	50
3	Mother's Education		
	Low	31	40.8
	Tall	45	59.2
4	Father's Education		
	Low	51	67.1
	Tall	25	32.9
5	Mother's Working Status		
	Working	21	27.6
	Doesn't work	55	72.4
6	Mother's Job		
	Fisherman	0	0
	Laborer	0	0
	Private sector employee	6	28.6
	Government employees	6	28.6
	Self-employed	0	0
	Other	9	42.8
7	Father's occupation		
	Fisherman	49	64.5
	Laborer	1	1.3

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	Private sector employee	3	3.9
	Government employees	2	2.6
	Self-employed	13	17.1
	Other	8	10.5
8	Income		
	Low	58	76.3
	Enough	18	23.7
9	Food security		
	Not Food Resistant	59	77.6
	Food Resistant	17	22.4

Percentagemothers who do not work as much as (72.4 %) and working mothers (27.6%). The most occupations of mothers are in other categories, namely as fish sellers and household assistants (42.8%), while the father's occupations are mostly fishermen (64.5%). Percentage of family income, most families have less income (76.3%) and the category of household food security with the most is households that are not food secure (77.6%).

Table 2. Bi-variant Analysis of Income, Gender and Food Security Variables against Stunting Incidents

Variable	Nutritional status				p	OR
	Stunting		Normal			
	n	%	n	%		
Income						
Low	29	76.32	29	76.32	1.00	1.00
Enough	9	23.68	9	23.68		
Food security						
Not Food Resistant	34	89.47	25	65.79	0.028	4.42
Food Resistant	4	10.53	13	34.21		

Analysis bi-variant using the C*hi Square* test if condition fulfilled i.e. at least 80% of the value *expected* from each cell must more big out of five (Dahlan, 2010), because in study this all variable Fulfill condition the so all variable bi-variant analyzed using the C*hi Square* test *(x2)* with 0.05 and *Odds Ratio* (OR) as well as *Confidence Interval* (CI) of 95%.

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Connection significance between variable seen with use score *p-value* and for evaluate strength connection between variable with use OR value.

Based on Table 2. Shows that variable income family no as factor risk the incidence of stunting in children under two (p>0.05). The food security variable with stunting also shows that there are 89.47 % of houses ladder no stand food and have stunting children and 10.53% of houses ladder stand food but clown status stunting nutrition. By statistics variable endurance food house stairs during the Covid-19 pandemic is a factor risk incident *stunting* in baduta in the village Pangali -Ali District proud Regency Majene (p < 0.05). The odds ratio is 4.42 which mean that, children who are in the family no stand food risky experience stunting 4.42 times more taller compared with children in the family stand food.

DISCUSSION

Stunting is still a global problem. In the world, around 149 million children under five are *stunted* and in Asia there are 55% stunting under five in 2018 [5] .The results of the Nutrition Status Determination survey showed that the prevalence of *stunting* in Indonesia in 2017 (29.6%), decreased in 2019 to 27.67% based on the results of the SSGBI. Meanwhile, nationally, West Sulawesi ranks the second highest for *stunting* (40.38%). In Majene Regency the prevalence of *stunting* even reached 43.70% [6] and in 2020 in Pangali-Ali Village the prevalence of *stunting* was as much as237 children, so that it is used as a special location for handling *stunting in* 2021[7].

Regulation of the Minister of Health of the Republic of Indonesia number 2 of 2020 concerning anthropometric standards for children states that a child is classified as *stunted* (short) if the z-score is -3 to <-2 Standard Deviation (SD) and is categorized *as severely stunted* (very short) if the z-score is <-3 SD based on the Height for Age index (TB/U)[3]. *Stunting is a condition of failure to thrive as a result* of chronic malnutrition1 and recurrent disease[15]. Stunting is caused by insufficient food intake as a result of household food insecurity[8]. In general, stunting is caused by many factors, such as the family's economy, illness or repeated infections. Environmental conditions (air pollution and access to clean water). Non-health problems are at the root of the stunting problem, such as economic, political, social, cultural problems, poverty, lack of women's empowerment, and environmental degradation [16] .

Based on the results of research conducted in Pangali-Ali Village, Banggae District, it shows that household food security during the Covid-19 pandemic is a risk factor for stunting

in children under two. Baduta who come from food insecure families have a 4.42 times greater risk of experiencing stunting compared to baduta who come from food insecure households. Food security at the household level is associated with the ability of the family to meet the food needs of family members which is correlated with the fulfillment of nutrient intake and nutritional status. The fulfillment of food in the household is not only in terms of quantity and variety, but also in terms of safety and accessibility. Food security is a condition of fulfilling food for households which is reflected in the availability of sufficient food, both in quantity and quality, safe and affordable[17.]

Research in Pangali-Ali showed that in food insecure households there were as many as 89.47% under nutrition with stunting nutritional status. This food insecurity could be triggered by the number of heads of families working as fishermen (64.5%) and low-income families (76.3%), although statistically family income is not a risk factor for stunting. Income as a fisherman is determined by the catch of fish. Often the catch of the fishermen is uncertain, so this will have an impact on the ability of the family to provide the food needs of their family members. In general, the food security index in Majene Regency is still quite low at 58.14% [12].

Low income correlates to the purchasing power of food needs in limited families, so that the fulfillment of nutrients for under-fives is not met. The results of research by Astutik, M, Zen R, and Ronny A show that, low income levels are a risk factor for stunting in toddlers[18]. The economic status of parents can affect the family's ability to meet the nutritional needs of toddlers, the choice of types of complementary foods and the timing of their feeding as well as healthy living habits[19]. On the other hand, having a high economic status allows a person to choose and buy nutritious and varied foods[20].

In Indonesia, positive confirmed cases of Covid-19 as of October 1, 2021 reached 4,216,728, with cure rate (4,039,835) and 142,026 deaths [21]. During the Covid-19 pandemic, household food security was not fully fulfilled and some people even reduced family food[17]. The Covid-19 pandemic has an impact on people's food security and disrupts efforts to deal with stunting[22]. The food crisis during the Covid-19 pandemic threatens the world, including Indonesia. Increases in poverty, inequality, conflict, climate-related disasters, and health emergencies such as the Covid-19 pandemic have contributed to a prolonged situation of nutritional crisis among the world's young generation[23].

This research is in line with that conducted by Deassy N, F and Edy P, T [24], showing that families experiencing food insecurity can lead to inadequate availability and access to

food so that it correlates to food intake or inadequate nutrition. Households that are classified as food insecure have concerns about the depletion of food supplies, cannot provide balanced nutritious food for children and within the scope of the household, as well as obtaining basic food which sometimes depends on other people's gifts. Food security at the family level supports the level of consumption of children under five, both energy and protein. The low level of consumption of toddlers can affect the growth and development of toddlers. In the world, there are two billion people or 26.4% experiencing moderate or severe food insecurity [9].

CONCLUSIONS AND RECOMMENDATIONS

Household food security during the Covid-19 pandemic is a risk factor for stunting in toddlers in Majene in 2021. Children living in households no stand food risky experience stunting 4.42 times more tall compared with children in the household stand food. Household food security is a risk factor for stunting in children under two. So it is recommended for the food security office, the agriculture office and the health office as well as related agencies to collaborate in promoting innovative efforts to the community so that community can meet the food needs of each day .

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