

INCREASED INCIDENTS OF STUNTING IN MAJENE DISTRICT WEST SULAWESI

Masriadi^{1*}, Nur Ulmy Mahmud², Nazli Javid³, Sri Wulandari⁴, Suharni A. Fachrin⁵

¹Department of Epidemiology, Faculty of Public Health, Muslim of Indonesia University, Makassar, South Sulawesi, Indonesia,

²Department of Epidemiology, Faculty of Public Health, Muslim of Indonesia University, Makassar, South Sulawesi, Indonesia,

³Department of Public Health, National Yang-Ming University, Taiwan

⁴Department of Epidemiology, Faculty of Public Health, Muslim of Indonesia University, Makassar, South Sulawesi, Indonesia,

⁵Department of Occupational Health and Safety, Faculty of Public Health, Muslim of Indonesia University, Makassar, South Sulawesi, Indonesia,

Corresponding address: Masriadi

Email: arimasriadi@gmail.com

ABSTRACT

Introduction: Stunting is a condition of chronic malnutrition caused by malnutrition that occurs over a long period of time, caused by food supply that does not match the nutritional needs of children. Developmental delay occurs when the child is still in the mother's womb and appears when the child is two years old. There is prevalence of stunted toddlers in 6 districts in West Sulawesi, namely Majene District (40.6%), Polewali Mandar District (39.3%), Mamasa (38.6%), Mamuju (33.8%), Central Mamuju (28.1%), and Install Wood (25.8%). **Aims:** Analysis of risk factors for stunting in Majene district. **Method:** This type of study is an observational study with a case-control study design. The number of toddlers is 418 toddlers. The sample for this study included 112 toddlers aged 0-59 months. The sampling technique is by means of proportional sampling. Results: the study shows that Kadarzi (OR 17.274), self-efficacy (OR 3.240), and socio-culture are risk factors for increased stunting in Majene District, KAP variable (OR 0.321) is a protective factor against stunting in Majene District. **Conclusion:** Kadarzi, self-efficacy, and socio-cultural variables are risk factors for stunting in Majene Regency. It is hoped that mothers will pay more attention to their toddler's nutritional intake from birth, especially on exclusive breastfeeding, MP-ASI, and various foods, and routinely bring their toddlers to the posyandu every month to find out their toddler's nutritional growth and development.

Keywords: Stunting, Kadarzi, KAP, Self-Efficacy, Socio-Cultural

INTRODUCTION

The prevalence of stunting under five in six districts in West Sulawesi, first is Majene Regency (40.6%), Polewali Mandar Regency (39.3%), Mamasa (38.6%), Mamuju (33.8%), middle Mamuju (28.1%), and Wood Pairs (25.8%) (Ministry of Health of the Republic of Indonesia, 2022).

Based on preliminary data from the Majene District in 2022, there were 157 stunted toddlers divided into five sub-districts covering the Banggae II Health Center village, namely: Laburan Utara 49 toddlers, Tande 23 toddlers, Baruga 23 toddlers, Baruga Dhua 28 toddlers, Buttu Baruga 34 stunted toddlers.

Research results from Utami, (2021) show that the nutrition awareness family program (Kadarzi) has a correlation with the occurrence of stunting. There are five indicators that affect nutritional status, including consumption of a variety of foods, regular weighing, consumption of iodized salt, exclusive breastfeeding, and nutritional supplementation. From this it can be concluded that families who do Kadarszi well will also get benefits in the form of better nutritional status of toddlers and better growth and development of the child. The lack of families who are aware of the importance of nutrition is one of the causes of nutrition problems; with self-efficacy that is still very minimal even though they have

Cite this as: Masriadi., Mahmud, N.U., Javid, N., Wulandari,S and Fachrin, S.A. (2024). Increased Incidents of Stunting in Majene District West Sulawesi. The Indonesian Journal of Public Health, 19(2), 366-381. <https://doi.org/10.20473/ijph.v19i2.2023.366-381>

©2023 IJPH. Open access under CC BY NC-SA. License doi: 10.20473/ijph.v19i2.2024.366-381 Received 28 August 2023, received in revised form 25 November 2023, Accepted 29 November 2023, Published online: August 2024. Publisher by Universitas Airlangga

basic knowledge about nutrition it will be useless (Utami, 2021).

Based on the analysis from previous studies, there is a direct and positive correlation between stunting prevention behavior and self-efficacy. This study explains that mothers with high self-efficacy have better stunting prevention behaviors compared to mothers who have low self-efficacy. Mother's self-efficacy in preventing stunting in toddlers can be reflected in a number of ways, including the way mothers provide varied food intake, ensure adequate food portions according to toddler's needs, and the mother's desire to learn how to make nutritious food for toddlers (Aulia et al. 2021; Utami, 2021).

Divine and Muniroh's (2016) research results show that socio-cultural activities carried out in Madura Regency have a strong relationship with stunting and malnutrition, including socio-cultural practices of nutrition for mothers, and socio-cultural practices of nutrition for toddlers. There were taboos for pregnant women, babies did not get immunizations, prelacteal feeding of new babies birth, and early complementary feeding (Illahi and Muniroh, 2016).

Interpersonal Communication (KAP) has the aim of compiling keys, communication approaches, and communication channels that are appropriate in the context of the community environment so that they can form one of the pillars of the stunting prevention acceleration plan on the second point, namely behavior change communication (Satriawan, 2018).

Based on this description, the author wants to conduct research on stunting with the research topic "The relationship between Kadarzi, Cap, self-efficacy and social culture with stunting."

METHODS

The study design used was observational with a case-control study design. The study was conducted in the Majene Regency in 2023. The study population included 418 toddlers. Samples were obtained by taking respondents who happened to be present or available in a place according to the research context. The sample for this study included 112 mothers of infants aged 0-59 months. Sampling technique is accidental sampling and is used by researchers to determine the number of samples in each regional sample, because the number of subjects in each regional sample is different. The tool used was a questionnaire.

Ethics clearance from the Institutional Committee of the Muslim University of Indonesia (No.319/A.1/KEPK-UMI/VII/2023) was obtained prior to the start of the study.

RESULTS

This research was conducted in Majene District by giving questionnaires to mothers who have toddlers aged 6-59 months. The minimum sample size in this study was 112 respondents. Characteristics of respondents with the highest maternal age being between 21-35 years old (75%). The highest toddler age is 6-24 months (39.30%), gender was women (50.90%), mother's job is mostly in the IRT category (71.40%). and most last education is high school (42%).

The results of the research carried out are illustrated in the following table:

Table 1. Distribution of stunting respondents based on the characteristics of respondents in the working area of the Majene District

Characteristics of Respondents	Stunting		Not Stunting		Total	
	f	%	f	%	f	%
Maternal Age Group						
<21 and >35 year	12	10.70	16	14.30	28	25
20-35 year	44	39.30	40	35.70	84	75
Toddler Age Group						
6-24 Month	19	17	25	22.30	44	39.30
25-43 Month	15	13.40	11	9.80	26	23.20
44-59 Month	22	19.60	20	17.90	42	37.50
Gender						
Man	25	22.30	30	26.8	55	49.10
Woman	31	27.70	26	23.2	57	50.90
Mother's Job						
Doesn't work	44	39.30	36	32.10	80	71.40
Work	12	10.70	20	17.90	32	28.60
Last Education						
Low education	14	12.60	10	8.80	24	21.40
Higher education	42	37.80	46	40.80	88	78.60

Table 1 explains about stunting based on the characteristics of the respondents; the most stunted mothers were aged 21-35 years (39.30%). In the toddler age group the most respondents were aged 44-59 months (19.60%). The

gender with the most stunting was women (27.70%). Mother's job with the highest stunting was IRT/URT (39.30%). And the education category with the highest stunting was SMA (25.90%).

Table 2. Risk Factors for Stunting in the Majene District

Variable	Stunting				95% CI for OR			p_{Va}
	Stunting		Not Stunting		OR	Lower	Upper	
	f	%	f	%				
Mother's age								
<21 & >35	12	21.40	16	.60	0.68	0.28	1.61	0.51
21-35	44	78.60	40	71.40				
Gender								
Man	25	44.60	30	53.60	0.69	0.33	1.47	0.45
Woman	31	55.40	26	46.40				
Mother's Job								
Doesn't work	44	78.60	36	64.30	2.03	0.87	4.72	0.14
Work	12	21.40	20	35.70				
Last Education								
Low education	14	25	10	17.90	1.53	0.61	3.82	0.49

Variable	Stunting				95% CI for OR			p_{Va}
	Stunting		Not Stunting		OR	Lower	Upper	
	f	%	f	%				
Higher education	42	75	46	82.10				
Kadarzi								
Not good	43	76.80	9	16.10	17.27	6.71	44.45	0
Good	13	23.20	47	83.90				
KAP								
Not good	1	1.80	3	5.40	0.32	0.03	3.18	0.61
Good	55	98.20	53	94.60				
Self-Efficacy								
Not good	6	10.70	2	3.60	3.24	0.62	16.80	0.27
Good	50	89.30	54	96.40				
Socio-cultural								
Not good	7	12.50	1	1.80	7.85	0.93	66.14	0.06
Good	49	87.50	55	98.20				
Total	56	100	56			100		

Table 2 shows that respondents who have mother's age 21-35 years are more stunted at 78.60% than not stunted at 71.40%. The calculation results show OR mother's age 0.68, which means it is not a risk factor but a protective factor against stunting. Women show more stunted, 55.40%, than not stunted, 46.40%. The calculation results show OR gender 0.69, which means it is not a risk factor but a protective factor against stunting. There are more respondents who don't work with stunting 78.60% as opposed to not stunting, 64.30%. The results of the calculation show that the OR Respondent Doesn't work is 2.03 times at risk of being stunted. Respondents with Low Education are more likely to be stunted by 25% than those who are not stunted 17.90%. The results of the OR calculation show that respondents with low education are 1.53 times at risk of being stunted. The OR calculation results show that respondents who have poor nutritional status are 17.27

times at risk of stunting. Respondents who had good KAP were more stunted at 98.20% than not stunted at 94.60%. The calculation results show OR KAP 0.32, which means it is not a risk factor but a protective factor against stunting. Respondents who had less good self-efficacy were more stunted at 10.7% than not stunted at 3.60%. The OR calculation results show that respondents who have poor self-efficacy are 3.24 times at risk of stunting. Respondents who had poor social culture were more stunted at 12.50% than not stunted at 1.80%. The OR calculation results show that respondents who have a poor social culture are 7.85 times at risk of stunting.

In step 2 the Socio-cultural variable has the smallest Exp(B) compared to Kadarzi, namely 1.72. So, socio-culture is excluded in step 2. In step 3 the variable that has the greatest risk compared to other variables for stunting is Kadarzi with a value of Exp(B)=17.27.

Table 3. Calculation Results of Multivariate Analysis Multiple Logistic Regression Test

		B	ρ	Exp(B)	95% C.I.for EXP(B)	
					Lower	Upper
Step 1	Kadarzi	2.73	0.00	15.38	5.73	41.30
	Socio-cultural	0.54	0.63	1.72	0.18	16.44
	Work	0.49	0.35	1.64	0.56	4.72
	Constant	-5.92	0.01	0.00		
Step 2	Ratezi	2.81	0.00	16.62	6.43	42.92
	Socio-cultural	0.54	0.63	1.72	0.18	16.44
	Constant	-4.94	0.00	0.00		
Step 3	Kadarzi	2.84	0.00	17.7	6.71	44.45
	Constant	-4.41	0.00	0.00		

DISCUSSION

This study was to determine the risk factors for mother's age, gender, mother's job, last education, Kadarzi, KAP, self-efficacy, socio-cultural and the variables most at risk of stunting in Majene Regency. The discussion of each variable is presented as follows :

Mother's age

In this study, the most research sample with stunting was mother's age 21-35 year 78.60%. The results of the OR 0.68 calculation show that mother's age is not a risk factor but a protective factor against stunting in Majene District.

Factors that can affect the nutritional status of children under five are food intake (energy and protein) and a history of infectious diseases. Mothers who are too young are often not ready for pregnancy and do not know how to manage their pregnancy. Young families often do not have their own house but still live with their parents, so even if the mother's preparation and knowledge about pregnancy and child rearing are not complete, she still benefits from the support and help of their parents. With the development of medical science and the increase in medical facilities and

infrastructure, the risks that may arise from getting pregnant too young or too old can now be minimized. In addition, women who are pregnant over the age of > 35 years are usually well-established in the economy and have sufficient knowledge about health so that they are better prepared to face their pregnancy (Kusumawati, Budiarti and Susilawati, 2020).

The mother's age factor will affect the mother's ability or experience in raising children. Increasing age makes people not only rely on experience but also supplement knowledge from many available sources of knowledge (Paramashanti, 2019).

The results of this study are also in line with research that has been conducted by Astuti (2016) which states that there is no relationship between maternal age and the incidence of stunting, as maternal age is considered to act as a psychological factor for the mother, such as acceptance of infant pregnancy birth, so this affects the views of the child's parents' model, in this case the parental nurturing model. This is consistent with Candra (cited in Wanimbo, 2020) which states that physiological factors of maternal age influence fetal development but a mother's intake of a balanced diet can have a positive impact.

The results of this study are not in line with the research of Hayyudini et al.

(2017 cited in (Marlani and Neherta, 2021) , stating that a mature mother's age will have seriousness in caring for, caring for and raising children which will affect her child's survival. Wanimboand Wartiningsih (2020) state that maternal age <20 years has a higher risk of having stunted offspring compared to mothers aged 20-34 years.

It can be concluded that maternal age is not a risk factor for stunting in the Majene District, based on the theory above. These results indicate that this study is in line with the existing theory that there is no risk between maternal age and stunting because maternal age is an indirect factor. influence the occurrence of stunting and also the presence of other factors that have a greater influence on nutritional status. Factors that can affect the nutritional status of children under five are food intake (energy and protein) and history of infectious diseases as well as indirect factors such as history of birth weight, economic status, education, employment, and exclusive breastfeeding.

Gender

The results of the analysis show that there are more respondents who are female with stunting 55.4% than those who are not stunted 46.4%. The OR result of 0.699 indicates that gender is not a risk factor but a protective factor against stunting in Majene District.

Based on hypotheses and researcher interview results, this happens because female toddlers generally have less appetite than males, and also males consume more or more frequently breast milk than females.

In theory, it is said that the reproductive function in girls develops faster than boys. But after going through puberty, the growth and development of boys will be faster (Ministry of Health, 2010). In general, girls are smarter and more diligent in studying, whereas boys tend to be more active in playing, without thinking about their developmental tasks.

This is supported by Wong's (2008) theory which suggests that in girls psychological and organ maturation is faster, so it greatly influences their social development (Laili, 2014). According to Soetjningsih (2012) boys get sick more often than girls, but it is not known for certain, maybe the reason for the difference is the difference in chromosomes between boys (xy) and girls (xx), so boys may experience more delays in development than girls.

Research (Habibzadeh et al., 2015) shows that the rate of stunting in girls is higher than that in boys, which is due to cultural and social gender discrimination. This means that some families pay more attention to the nutrition of boys than girls, which in turn can potentially lead to growth failure and other health problems in baby girls.

The results of the study by Anggraeni et al. (2020) are consistent with this study showing that the majority of respondents are women, specifically 26 respondents (54.2%), the gender indicator $p = 0.299 > 0.05$, so it can be concluded that there is no relationship between gender and the incidence of stunting in toddlers.

It can be concluded that gender is not a risk factor for stunting in Majene District. In sampling, more women experienced stunting due to socio-cultural gaps in society which pays more attention to the nutritional intake of men than women. Gender is not related to the incidence of stunting, because the rate of increase in height for boys and girls up to the age of 8 years tends to be the same. The nutritional control of boys and girls tends to be the same in family, so that both have controlled and monitored health conditions.

Mother's job

Based on the results of the study, the number of stunted toddlers in the group of mothers who did not work, in this case IRT/URT, was 78.6%. The OR results obtained 2.037, which means that the

mother's occupation is a risk factor for stunting in Majene District.

Based on the assumptions and results of interviews with researchers, this occurs due to several factors, one of which is family income; mothers who have a job tend to have a better income so that they can support children's growth because parents can meet their children's nutritional needs better than mothers who don't work. This can be connected with research conducted by Illahi (2017) which explains that families with high incomes are more likely to have children who are not stunted, while low-income families are likely to have children who are stunted.

Based on the theory by Simamora et al. (2019), work factors affect knowledge, someone who works will have wider knowledge than someone who does not work, because there are more people who work who obtain information. Researchers argue that the profession of a mother working outside the home to make a living, both for herself and for her family, is different.

Parents' occupations are closely related to family income, which affects family purchasing power. Families with limited income are often unable to meet their family's food needs in both quality and quantity. An adequate family income will support a child's growth and development because parents can meet all of their child's needs, both primary and secondary. Work is related to income and needs in the household (Simamora et al., 2019).

The above theory is consistent with the research conducted by Sulastri (2012) which explains that there is a relationship between maternal employment and stunting. Placement of multiple children is lower among non-working mothers than among working mothers. This happens because working mothers affect the family's income. An adequate income will support a child's growth and development because parents can meet all of their child's basic and secondary needs. In contrast, for

mothers who do not work, the number of stunted children is due to the fact that the average economic level is low, and the mother's knowledge about nutrition is low. Working mothers who spend more time outside the home will have more money to allocate or invest in their children and conversely the more time they spend at home with their children (eating and playing), the less time they have to earn a living. These two things (money and time) will affect the quality of children's nutrition.

It can be concluded that mother's work is a risk factor for stunting in the Majene District because working mothers will affect family income where mothers can provide better and quality nutrition to their children and working mothers will receive more information from their environment regarding good nutritional knowledge. In contrast, for mothers who do not work, the number of stunted children is due to the fact that the average economic level is low, and the mother's knowledge about nutrition is low.

Last education

The level of education is the last level and is a vehicle for underlying a person's scientific behavior. Education is one of the important elements that can affect the state of nutrition because it relates to a person's ability to receive and understand something; due to the level of education of a mother can affect food consumption patterns through the way of food selection in toddlers.

The results of the analysis showed that more respondents with low education were stunted at 25.0% than those who were not stunted at 17.9%. The results of the OR 1.533 calculation show that respondents with low education are 1.533 times at risk of stunting in the working area of the Majene District. This is in line with research (Basri et al., 2021) which states that there is a relationship between maternal education and the incidence of stunting, out of 101 respondents with low

maternal education, 59.4% suffered from stunting and 40.6% did not suffer from stunting, while 48 had higher education. 50.0% of people who suffer from stunting and 50.0% who do not suffer from stunting.

Based on the assumptions and results of interviews with researchers, many mothers with low education lack information about the importance of exclusive breastfeeding and posyandu. The higher the mother's education the better, the child's nutritional development, which is consistent with research showing that there is a significant association between knowledge and behavior in caring for young, stunted children. ($p < 0.000$; CI.95%) (Habibarrahman et al., 2023).

Formal education as a process of processing information to become knowledge can have an impact on a person's health or nutritional condition. Education instills reading, arithmetic, critical thinking skills, as well as providing direct information about health to women or mothers. Mothers with a good level of education can influence the preparation, procurement and selection of nutritious food for children, especially toddlers. A high level of education for the mother will also increase the mother's knowledge and attitude toward information related to nutrition and health (Dede Husnaniyah et al., 2023).

The research above is not in line with the results of research conducted by (Alderman and Headey (2017)). According to the results of the analysis in the study, it showed that there was no significant effect between the education level of the mother and the education level of the father on their knowledge of nutrition.

The results of this study are consistent with the study by Rahayu and Casnuri (2020). This shows that the mother's education level has a statistically significant relationship with the rate of stunting ($p < 0.05$). The level of education, especially that of the mother, affects health levels. This is related to its most important role in forming children's eating habits,

because it is the mother who prepares food, starts planning the menu, goes shopping, cooks, and prepares food. and distribute food. (Rahayu and Khairiyati, 2014).

We can conclude that the mother's most recent schooling is not a risk factor for stunting in the working area of the Majene District because information about correct nutrition is now easily available and studied anywhere.

The Relationship between Kadarzi and Stunting in Majene District

The Nutrition Awareness Family (Kadarzi) is the attitude and behavior of a family that can independently create the best possible state of nutrition reflected in the consumption of diverse and nutritionally balanced quality food (Oktaviani et al., 2019).

The results of the analysis showed that respondents who had poor levels of stunting were 76.8% compared to those who were not stunted, 16.1%. The OR result of 17.274 shows that respondents who have poor nutritional status are 17.274 times at risk of stunting in Majene District. Based on the analysis and results of interviews with researchers, this is because many people do not understand the importance of bringing Posyandu children regularly with an unfavorable weighing frequency rate of 35.7%. Families who rarely weigh their toddlers regularly have a tendency to have toddlers with underweight nutritional status. These results are consistent with research conducted in Bekasi, which showed that there was a significant relationship between regular weight and nutritional status of toddlers aged 24-59 months. ($p < 0.05$) (Oktaviani et al., 2019).

The participation of mothers and toddlers in posyandu is not only focused on weighing them. Regular weighing of toddlers can provide information on the current nutritional status of toddlers, making it easier to take action before the nutritional state worsens (Oktaviani et al., 2019).

The behavior of a family who is aware of nutrition related to the incidence of stunting is weighing regularly, giving exclusive breastfeeding, consuming a variety of foods, and using iodized salt. Regular weighing referred to in this study includes mothers who bring their children weighing their toddlers regularly to posyandu or puskesmas in the last six months. Consuming a variety of foods is the habit of eating a variety of staple foods, side dishes, vegetables and fruit every day. While the use of iodized salt includes the type of salt used by the family, where to get the salt, the use of salt in food processing, and the storage of the salt (, Kadir and Lalu, 2023) .

Kadarzi's behavior with the nutritional status of children under 5 years old has a relationship, in assessing nutritional status based on weight/age index, it can show sudden changes such as infection or changes in blood pressure. consumption way. Kadarzi, whose nutritional status is based on height-for-age index, describes past nutritional problems. Levelzi with nutritional status based on BB/TB index can be used to determine past and present status, excluding age factors. The better the implementation of Kadarzi's behavior in families that meet the five indicators, the better the nutritional status of toddlers based on the BB/A and TB/A index. Eating a variety of foods is an important indicator in Kadarzi which has an important link with the nutritional status of toddlers based on the index weight/age and height/age. (Wijayanti and Nindya, 2017) .

This study is also consistent with research (Apriani, 2018) which explains that there is a relationship between the behavior of Kardashians and the incidence of stunting in the Working Area of the Pucang Sawit Health Center in Surakarta City with the chi-square test results obtained $p < 0.001 < 0.05$. Households that have poor levels of implementation of Kadarzi have the opportunity to increase the risk of stunting in children under five

20.6 times greater than households that have good levels of implementation of Kadarzi.

This research is not in line with research (Sriyanti et al., 2017) stating that less than 50% of respondents experienced Kadarzi as many as 20 (35%) respondents, and those who were in the short stunting category were as many as 11 (19%) respondents. After calculating based on data on the relationship between a family who is aware of nutrition (Kadarzi) and stunting, then the data are tested using the chi-square test in the SPSS facility, the p value is $0.170 > 0.05$, so it is significant that H_a is rejected and H_o is accepted, which means there is no family relationship with awareness of nutrition (Kadarzi) with stunting at the age of 0–24 months in the working area of the Singotrunan Health Center, Banyuwangi Regency.

It can be concluded that Kadarzi has a relationship with the incidence of stunting in the Majene District because families with good Kadarzi will certainly pay attention to the nutritional intake and adequacy of children and families such as exclusive breastfeeding, a variety of foods, routinely bringing children to the posyandu every month, using iodized salt, and taking supplements from health workers which can prevent stunting.

The Relationship between KAP and Stunting in Majene District

OR results of this study obtained 0.321 which means it is not a risk factor but a protective factor against stunting in the Majene District. One indicator of KAP that was not good in the working area of the Majene District was not receiving additional food, 51.8%. Additional food in the form of biscuits from the Ministry of Health containing 380 kkl to 420 kkl energy and 12 grams to 14 grams of protein can have a significant effect on changing the nutritional status of toddlers for the better, although it is not yet known exactly how much influence the link between

PMT has on changes in nutritional status (Masri et al., 2021) .

Based on the observations of researchers, the provision of additional food is specifically for toddlers with stunting. According to a study conducted in Padang, PMT biscuits were distributed by the government to pregnant women and children under five years old, especially those with nutritional deficiencies to overcome anise. Every 100 grams of PMT biscuits contains macronutrients and micronutrients designed to meet the nutritional needs of young children. (Masri et al., 2021) .

The results of this study are in line with a study in Padang which stated that there was no effect of supplementary feeding interventions (PMT) on malnutrition status at the age of 6-24 months. Provision of supplementary food (PMT) together with Nutrition Counseling affects the nutritional status of underweight aged 6-24 months. However, there was no difference in the effect of the PMT intervention with the combination of PMT and Nutrition Counseling on undernourished status aged 6-24 months (Masri et al., 2021) . While the results of research conducted at Enrekang stated that there was an influence between the provision of additional food and the value of $p=0.002$ (Lela and Amelia, 2022) .

The KAP implementation intervention showed a significant change from intention to exclusive breastfeeding behavior in an effort to prevent stunting ($p < 0.050$). KAP interventions such as one-on-one communication, group and class discussions, and support group formation are strategies that have been successful in developing or increasing people's intention to exclusively breastfeed. According to the theory of planned behavior (TPB), intentions and behavior are products of normative beliefs regarding the expected outcomes of a behavior and the subjective and social norms that support the behavior as well as perceptions of behavioral control or autonomy behavior. Thus, CAP

becomes one of the strategies to influence knowledge, beliefs and behaviors in favor of exclusive breastfeeding to prevent stunting. and forming a support group is an effective strategy to develop or enhance the mother's intention to exclusively breastfeed her baby (Rahayu et al., 2022).

This research is not in line with research (Maulida and Suriani, 2021) which states that mothers in efforts to prevent stunting are 61.5%. Communication helps prevent malnutrition and stunting ($p < 0.001$).

It can be concluded that Interpersonal/Personal Communication (KAP) in Majene Regency is not a risk factor for stunting, but this KAP can be used as a measure to prevent stunting by continuing to invite mothers to the posyandu regularly, informing them of the importance of immunizing children's health and development.

The Relationship between *Self-Efficacy* and Stunting in Majene District

The OR results in this study were 3,240, indicating that respondents who had poor self-efficacy were 3.240 times at risk about the slow development in the working area of Majene District. Based on the analysis and results of interviews with researchers, this is because 43.9% of mothers are not sure that when they are sick that it can be contagious so they will not prepare food first, because in general people still depend on their wife/mother for all household affairs, especially the kitchen, so when they are sick (such as flu) the mother still prepares food.

Self-efficacy is also an important factor in shaping mother's behavior in supporting child nutrition. Good self-efficacy will support the formation of behavior. Previous research stated that there was a relationship between mother's self-efficacy in providing food with the nutritional status of toddlers. Mothers who have less self-efficacy have a higher risk of toddlers having abnormal nutritional status (Sholeca, 2018). The incidence of

malnutrition in toddlers is caused by indirect factors such as the mother's self-efficacy in feeding and behavior in toddler eating patterns. Self-efficacy is also an important factor in shaping mother's behavior in supporting infant nutrition. Previous research has shown a relationship between maternal self-efficacy for nutrition and nutritional status of children under 5 years old (Sholeca, 2018).

Mothers with low self-efficacy will increase the risk of abnormal nutritional status in their babies. The development of malnutrition in toddlers is caused by indirect factors such as mother's self-efficacy in eating and toddler's feeding behavior, but can influence this (Solikhah and Ardiani, 2019). Based on the observations of researchers, mother's self-efficacy in Taratara Village still needs to be improved as an effort to prevent stunting. A method of providing education with coaching techniques has never been given.

The results of this study contradict the results of research (Solikhah and Ardiani, 2019) showing a relationship between mothers' ability to feed themselves effectively and the nutritional status of toddlers with p value 0.031. Based on the OR value, it can be concluded that respondents with less self-efficacy have a risk of 0.091 times having abnormal nutritional status for toddlers compared to respondents who have good self-efficacy.

Based on the researcher's analysis, Self-efficacy is not a risk factor for stunting in children in Majene Regency because there are other factors that influence, one of which is exclusive breastfeeding where there are 25% of toddlers who do not get exclusive breastfeeding.

Socio-Cultural relationship to Stunting in Majene District

The results of the analysis of socio-cultural relations on the incidence of stunting in Majene District found that more respondents who had poor socio-culture were stunted at 12.5% than those who were not stunted at 1.8%. The OR results

obtained were 7.857, meaning that respondents with poor sociocultural backgrounds were 7.857 times more likely to be stunted in the Banggae II Majene Medical Center work area.

The socio-culture of mothers who did IMD was 99.10%, those who threw away colostrum from breast milk were 1.80%, abstained from consuming spicy food 67%, and mothers consuming herbal medicine 9.80%. And the socio-culture of toddlers in giving formula milk at birth is 25%, giving food other than breast milk to newborns in the form of honey 0.90%, and young coconut 0%, Provision of MP-ASI in the form of porridge to infants before the age of six months is 25%.

Cultural factors play an important role in a person's nutritional status. Culture assigns different roles and values to food. For example, food taboos are still found in some areas. Food taboos that are part of the culture consider certain foods to be harmful for illogical reasons. This indicates that the community's understanding of nutrition is still low and therefore various efforts are needed to improve it (Auditna et al., 2019).

This study is consistent with the study conducted by Ibrahim et al. (2021) in which analysis by chi-square statistical test obtained p 0.281 ($p > 0.05$), so hypothesis H_0 is accepted, meaning there is no meaningful difference in association between religious diet and stunting prevalence in toddlers aged 24-59 months in Bone-Bone Village, Baraka District, Enrekang Regency in 2020.

It was concluded that socio-cultural in the work area of the Banggae II Majene Health Center does not have a significant risk of stunting, because most mothers are no longer bound by culture.

Stunting Risk Factors in Majene District

The results of multivariate analysis with multiple logistic regression showed that Kadarzi obtained $\text{Exp}(B)$ 7.274, which means that Kardashian's poor performance

has the opportunity to increase the risk of stunting 7.274 times.

Kadarzi's behavior with the nutritional status of children under five years old has a relationship, in assessing nutritional status based on weight/age index, it can show sudden changes such as infection or changes in blood pressure and way of consumption. Kadarzi, whose nutritional status is based on height-for-age index, describes past nutritional problems. Levelzi with nutritional status based on BB/TB index can be used to determine past and present status, excluding age factors. The more Kadarzi behavior is implemented in families that meet all five indicators, the better the toddler's nutritional status based on BB/A and TB/A indicators. Consumption of diverse foods is an important indicator in Kadarzi that has a significant association with the nutritional status of toddlers based on weight-for-age and height-for-age indexes (Wijayanti and Nindya, 2017).

Based on research conducted by Galuh Astri Kirana entitled "Relationship between Nutrition Awareness Family Behavior (Kardzi) and Stunting Incidents in Toddlers in Wonosari District, Klaten Regency", there is an association between the behavior of nutrition-conscious families and the rate of stunting in Wonosari district, Klaten Regency. The higher the Kardashian behavior that is well implemented, the lower the number of toddlers with stunting, and vice versa (Anisah, 2021).

One of the reasons for the low nutritional status of toddlers is that the mother, who cares for and cares for her child, does not have good Kadarzi behavior. Behavior is a response or reaction to a stimulus. Health behavior is a person's actions in maintaining and improving their health, for example the success of a family in achieving a nutritionally conscious family (Apriani, 2018).

It can be concluded that enzyme has the greatest influence because weighing,

exclusive breastfeeding, consumption of various foods which are indicators of enzyme can cause toddlers to lack nutrition and are susceptible to disease so that stunting occurs more easily in toddlers in the Majene District. Therefore, Kadarzi is a problem that must be paid more attention to by health workers to reduce the incidence of stunting.

CONCLUSIONS

Based on the research results and discussions described in the previous chapter, the conclusions obtained from this study are as follows: Mother's Occupation (OR 2.037), Last Education (OR 1.533), Kadarzi OR 17.274, Self-Efficacy (OR 3.240) and Social Culture (OR 7.857) are risk factors for stunting in Majene District. Kadarzi (Exp (B) 7.274) is the biggest risk factor in increasing the incidence of stunting. It is hoped that mothers will pay more attention to their toddler's nutritional intake from birth, especially on exclusive breastfeeding, MP-ASI, and various foods, and mothers routinely take their toddlers to the posyandu every month to find out their toddler's nutritional growth and development.

REFERENCES

- Alderman, Harold, and Derek D. Headey. (2017). "How Important Is Parental Education for Child Nutrition?" *World Development* 94: 448–64. <https://doi.org/10.1016/j.worlddev.2017.02.007>
- Anggraeni, Zuhrotul Eka Yulis, Hendra Kurniawan, Mohammad Yasin, and Anis Dwi Aisyah. (2020). "The Relationship between Birth Weight, Birth Length and Gender with Stunting Incidents." *The Indonesian Journal of Health Science*, 12 (1): 51–56. <https://doi.org/10.32528/ijhs.v12i1.4856>
- Anisah Desma Fitriah, Leya Indah

- Permatasari, Ito Wardin. (2021). "The Relationship between Family Behavior Awareness of Nutrition (Kardzi) and Stunting Incidents in Toddlers in the Work Area of the Wangunharja Health Center, Jamblang District, Cirebon Regency." *Indonesian Journal of Health Research*, 4(20):32-46.
- Auditna, Wulan, Budiman, and Eka Baculu. (2019). "Perceptions of Pregnant Women on Taboo Foods in Bulubete Village, Dolo Selatan District, Sigi Regency." *Jurnal Kolaboratif Sains*, 1(1): 460–70.
- Aulia, Dian Ika Puspitasari, Nailiy Huzaimah, Yulia Wardita, and Aldi Prawira Sandi. (2021). "Stunting and Maternal Factors (Education, Knowledge of Nutrition, Parenting, and Self-Efficacy)." *Journal of Health Science Research*, 6(1):27–31.
<https://doi.org/10.24929/jik.v6i1.1498>
- Basri, Nurchalisah, Mansur Sididi, and Sartika. (2021). "Factors Associated with Stunting in Toddlers (24-36 Months)." *Window of Public Health Journal*, 1(5): 417–26.
- Central Bureau of Statistics. (2022). Maternal and Child Health Profile 2022. Catalog 42. *Jakarta: Central Bureau of Statistics*.
- Dedeh Husnaniyah, Depi Yulyanti, Rudiansyah. 2020. "Correlation between Mother's Education Level and Stunting Incidence." *The Indonesian Journal of Health Science*, 12(1): 1–10.
<https://doi.org/10.32528/ijhs.v12i1.4857>
- Erfince Wanimbo, and Minarni Wartiningsih. (2020). "Relationship Between Maternal Characteristics With Children (7-24 Months) Stunting Incident". *Jurnal Manajemen Kesehatan Yayasan RS.Dr.Soetomo*, 6(1):83-93.
<https://doi.org/10.29241/jmk.v6i1.300>
- Habibzadeh, H., H. Jafarizadeh, and A. Didarloo. 2015. "Determinants of Failure to Thrive (FTT) among Infants Aged 6-24 Months: A Case-Control Study." *Journal of Preventive Medicine and Hygiene* 56 (4): E180–86.
- Habibarrahman, St. Nurul Izzah, Yusriani, and Muhammad Khidri Alwi. (2023). "Knowledge Affecting Mother's Behavior In Treating Stunting Toddlers." *Hospital Management Studies Journal*, 4(2): 115–21.
<https://doi.org/10.24252/hmsj.v4i2.37639>
- Hotimah, Husnul, Haeruddin, and Ikhrum Hardi. (2021). "Factors Influencing Stunting Incidents in Toddlers in Bonto Langkasa Selatan Village, Gowa Regency." *Window of Public Health Journal* 2 (5): 1295–305.
<https://doi.org/10.33096/woph.v2i3.485>
- Illahi, Rizki Kurnia. (2017). "Relationship between Family Income, Birth Weight, and Birth Length with Stunting in Toddlers 24-59 Months in Bangkalan." *Journal of Health Management Foundation RS Dr. Soetomo*, 3(1): 1–14.
<https://doi.org/10.29241/jmk.v3i1.85>
- Kusumawati, Dhiah Dwi, Tri Budiarti, and Susilawati. (2020). "Identification of Stunting Toddler Characteristics at UPTD Puskesmas Cilacap Tengah II Year 2020". *JIKA*, 5(2): 25–31.
- Lela, Nur, and Andi Rizki A. (2022). "The Relationship between Use of Village Funds and Decreasing Stunting Cases in Sumillan Village, Alla District, Enrekang Regency." *Journal of Muslim Community Health (JMCH)*, 4(4): 170–83.
- Ministry of Health of the Republic of Indonesia. (2022). *Pocket Book of*

- Results of the Year 2022 Indonesian Nutrition Status Study (SSGI)*. Jakarta: RI Ministry of Health.
- Marlani, Reky, and Meri N. 2021. "Description of Mother Characteristics Affecting the Incidence of Stunting Toddlers Aged 24-59 Months at the Talang Banjar Health Center, Jambi City". *Batanghari Jambi University Scientific Journal*, 21(3): 1370–73. <https://doi.org/10.33087/jiubj.v21i3.1748>
- Masri, Erina, Wulan Kartika Sari, and Yensasnidar Yensasnida (2021). "The Effectiveness of Supplementary Feeding and Nutrition Counseling in Improving the Nutritional Status of Toddlers." *Perintis's Health Journal*, 7(2): 28–35. <https://doi.org/10.33653/jkp.v7i2.516>
- Maulida, Maulida, and Suriani Suriani. 2021. "The Influence of Communication and Mobilization of Posyandu Cadres on Stunting Prevention Efforts." *Sriwijaya Journal of Nursing*, 8(1): 1–10. <https://doi.org/10.32539/JKS.V8i1.15734>
- Nasution, Indah Syafitri, and Susilawati. (2022). "Analysis of Factors Causing Stunting in Toddlers Age 0-59 Months." *Health Scientific Journal*, 1(2):1–6. <https://doi.org/10.55904/florona.v1i2.313>
- Oktaviani, Putri Pratiwi, Meylina Djafar, and Adhila Fayasari. (2019). "Application of Nutrition Aware Family Behavior (KADARZI) and Nutritional Status of Toddlers Age 24-59 Months at the Kranji Health Center in Bekasi." *Nutri-Science: Journal of Nutrition, Food and Its Applications*, 3(2):115–26. <https://doi.org/10.21580/ns.2019.3.2.3421>
- Paramashanti, Bunga Astria. (2019). *Nutrition for Mothers and Children: For Health Students and the Public*. Yogyakarta: New Press Library.
- Rahayu, Atikah, and Laily Khairiyati. (2014). "Mother's Education Risk for Stunting in Children 6-23 Months." *The Journal of Nutrition and Food Research*, 37(2): 129–36.
- Rahayu, Ida, Syamsulhuda Budi M, and Apoina Kartini. (2022). "Interpersonal Communication Strategy (ICS) in Overcoming Stunting: A Review." *International Journal of Health, Education and Social (IJHES)*, 5(7): 43–54.
- Satriawan, Elan. 2018. National Strategy to Accelerate Stunting Prevention 2018-2024. *TNP2K*. Jakarta: TNP2K.
- Siti Nur Ain B. , Sunarto Kadir, Nur Ayini S. Lalu (2023). "Relationships of Nutritionally Conscious Family Behavior With Stunting Incidence in Toddlers At Motolohu Health Center." *Journal Health & Science: Gorontalo Journal and Science Community*, 7(1):153-162. <https://doi.org/10.35971/gojhes.v7i1.16110>
- Simamora, Verawati, Sabar Santoso, and Nanik Setiyawati. 2019. "Stunting and Development of Behavior." *International Journal of Public Health Science* 8 (4): 427–31. <https://doi.org/10.11591/ijphs.v8i4.20363>
- Sumarmi, Sri, Ratna Dwi W, Lailatul Muniroh, Asri Meidyah Agustin, et al. (2021). Strengthening the National Health System (SKN) Through the Implementation of Interpersonal Communication (KAP) and Implementation of Behavioral Change in Stunting Prevention. *Angewandte Chemie International Edition*, 6(11), 951–52.

- Sriyanti, Titis, Essy Sonontiko Sayekti, and Diana Kholida. 2017. "Family Relationships Awareness of Nutrition (Kradezi) with Stunting in Toddlers Aged 0-24 Months in the Working Area of the Singotrunan Health Center, Banyuwangi Regency." *Healthy*, 5(2): 56–71.
- Sujianti, and Suko Pranowo. 2021. "Analysis of Factors Associated with Stunting in Toddler Age." *Indonesian Journal of Nursing Health Science*, 6(2):104–12.
- Sulastri, Delmi. 2012. "Determinants of Stunting in School-Age Children in Lubuk Kilang District, Padang City." *Majalah Kedokteran Andalas*, 36 (1):39–50. <https://doi.org/10.22338/mka.v36.i1.p39-50.2012>
- Utami, Riana Pangestu. (2021). "Analysis of the Effect of KADARZI Indicators on the Nutritional Status of Toddlers in Indonesia." *CHMK Health Journal*, 5(2): 334–42.
- Wanimbo, Erfince, and Minarni Wartingsih. (2020). "Relationship between Mother Characteristics and Baduta Stunting (7-24 Months)." *Journal of Health Management Foundation RS Dr. Soetomo*, 6(1): 83–93. <https://doi.org/10.29241/jmk.v6i1.300>
- WHO. (2021). "Malnutrition." WHO. 2021.
- Wijayanti, Santik, and Triska Susila Nindya. (2017). "The Relationship between the Application of Kadarzi Behavior (Nutrition Aware Families) and the Nutritional Status of Toddlers in Tulungagung Regency." *Amerta Nutrition* 1(4): 379–88. <https://doi.org/10.20473/amnt.v1i4.2017.379-388>