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Analysis Of The Relationship Between Family Determinants And The Incidence Of *Stunting* In Toddlers In Karossa Sub-District, Central Mamuju District

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ABSTRACT

Background. *Stunting* is a condition where toddlers have a body length that is less when compared to age. *Stunting* has a very detrimental impact, both in the short and long term. Reducing the prevalence of *stunting* is prioritized to achieve Indonesia's target of 14%. The government, namely BKKBN, has developed a national action plan through the *stunting* risk family approach. Therefore, this researcher wants to analyze the incidence of *stunting* based on family determinants.

Objective. To analyze the relationship between family determinants and the incidence of *stunting* in toddlers in Karossa District.

Methods. The type of research used is quantitative analytic observational approach with *cross sectional study* design. The sample was 321 families. The sampling technique was *Proportionate stratified random sampling and purposive random sampling*. Data analysis using STATA program with chisquare test and logistic regression

Results. There were 7 variables studied on the incidence of *stunting* based on family determinants, 4 of which had an association with the incidence of *stunting*, namely inadequate latrines, PUS too old, PUS too many and PUS not participating in modern family planning. Logistic regression analysis showed that families with inadequate latrines, not participating in modern family planning and having many children had a 93.1% chance of having children.

Conclusion. This study found that families with improper latrines, not participating in modern family planning and having many children are associated with the incidence of *stunting* in children under five in Karossa Sub-district. The government needs to provide routine counseling or education on the importance of proper sanitation and counseling on the benefits of using modern family planning to regulate birth spacing as well as the number of children in order to help ensure that every child gets attention, adequate nutrition, and optimal health.

Keywords: *toddlers, family determinants, stunting*

1. INTRODUCTION

Stunting is a condition in which toddlers have less length or height when compared to age (Ministry of Health, 2018). *Stunting* has a very detrimental impact, both in the short and long term. Children born *stunted* will have a risk of low cognitive abilities, non-optimal height and have a greater risk of suffering from degenerative diseases in adulthood. In addition, it also provides enormous economic losses(1) . The WHO report states that the prevalence of *stunted* toddlers in the world in 2019 is around 144 million children (21.3%). According to UNICEF, this number is the highest among other malnutrition such as wasting as many as 47 million children (5.9%) and overwight as many as 38 million children (5.6%). In 2020, the prevalence of *stunting* increased to 149.2 million (22%) cases. Furthermore, in 2022 the global *stunting* prevalence rate showed a decrease to 148.1 million (22.3%) cases. Southeast Asia is the 2nd Asian continent region with the highest proportion of *stunted* children, totaling 13.9 million children (24.7%)(2)

Based on the Indonesian Nutrition Status Study (SSGI), the prevalence of under-fives in Indonesia with *stunting* cases is 27.7% in 2019, 24.4% in 2021, and 21.6% in 2022. Meanwhile, West Sulawesi province had a stunting prevalence in 2021 of 33.8% and in 2022 the *stunting* prevalence rose to 35.0% and was declared the second highest province with *stunting* cases in Indonesia(3) . The Central Mamuju District Health Office recorded the prevalence of *stunting* in Central Mamuju District in 2021 as 14.46%, which increased in 2022 to 14.58% and experienced another increase in 2023, namely 14.89%. Based on 5 sub-districts in Central Mamuju Regency, Karossa sub-district showed the highest *stunting* rate of 27.51% in 2023 and an increase compared to 2022, which was a *stunting* prevalence of 21.05% consisting of two health centers, namely the Durikumba health center and the Lara health center with 584 *stunting* cases .(4)

Reducing the prevalence of *stunting* is a major project that is prioritized to achieve the target in Indonesia in 2024 of 14%. The government, namely the National Population and Family Planning Agency (BKKBN) appointed as the *leading sector*, needs to develop new strategies and methods that are more collaborative and sustainable in implementing the accelerated stunting reduction program. In implementing the national strategy to accelerate *stunting* reduction, a national action plan was developed through the *stunting* risk family approach. A study conducted by(5) outlines indicators for assessing cross-sector collaboration in addressing stunting, which can be used as a guide for evaluating nutrition-sensitive interventions in Indonesia. The findings in this study underscore the importance of planning with a common grand design, which, although implemented differently by each agency, must be aligned with a jointly designed planning structure. The indicators developed can be implemented through partnerships with leading sectors, particularly the National Population and Family Planning Agency (BKKBN) in South Sulawesi. These indicators will serve as a tool to evaluate cross-sector collaboration in stunting prevention efforts.

Families at risk of stunting are target families who have risk factors for giving birth to *stunted* children, with the screening of risk factors involved being access to drinking water sources and inadequate latrines, as well as the condition of PUS (Fertile Age Pairs) 4 Too (too young, too old, too close, and too many) and PUS are not participants in modern family planning and the targets are families with infants, families with toddlers and pregnant PUS. Thus, the target families are said to be at risk of *stunting*: If at least 1 risk factor of latrine screening or inadequate drinking water source is fulfilled or at least 1 risk factor of PUS 4 Too fulfilled and not a participant in modern family planning. Based on data from the BKKBN of Mamuju Tengah Regency in 2023 regarding families at risk of *stunting*, there were 9,001 (40.91%) families at risk of *stunting* in Mamuju Tengah Regency and as many as 1,624 (41.48%) families at risk of stunting in Karossa District, Mamuju Tengah Regency .(6)

Research conducted(7) shows that there is a relationship between water sources and latrines with the incidence of *stunting*. Clean water facilities and the existence of latrines that do not meet the standards theoretically have the potential to affect the incidence of diarrhea in toddlers. The emergence of diarrhea in toddlers has a tendency to disrupt child growth due to food that is difficult to absorb.

The research conducted(8) shows that maternal risk factors (4T: Too old, Too young, Too many children and Too close pregnancy distance) have a positive correlation with families at risk of stunting. Based on this description, the researcher intends to conduct research on the relationship between the incidence of *stunting* based on family determinants. Where the family determinant factors are taken from the data on families at risk of *stunting* determined by BKKBN with the variables involved being access to drinking water sources and inadequate latrines, the condition of PUS 4 Too (too young, too old, too close, and too many) and PUS not participating in modern family planning in Karossa District, Central Mamuju Regency, West Sulawesi Province.

2. PARTICIPANTS & METHODS

This study uses a type of quantitative research using an analytical observational approach with a cross sectional study design between families at risk of stunting including inadequate drinking water sources, inadequate latrines, 4 conditions of PUS namely mothers too young, mothers too old, child spacing too close and the number of children too many and PUS not participating in modern family planning to the incidence of stunting observed simultaneously. The population of this study was 1,624 with a sample of 321 families. The sampling technique was Proportionate stratified random sampling and purposive random sampling. This study looked at the relationship between the incidence of stunting based on family determinants. The data consisted of stunting data, as well as family screening data at risk of stunting such as inadequate drinking water sources, inadequate latrines, PUS 4 too (too young, too old, too close, and too many) and PUS data who did not participate in modern family planning.

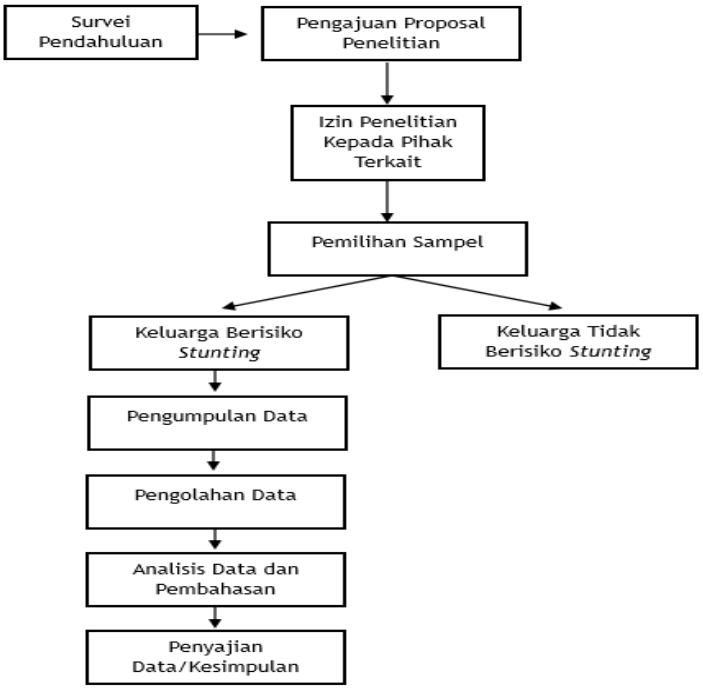

Figure 1 . Research Flow

Figure 2 . Research Documentation

The data in this study used secondary data obtained from the results of reporting and recording families at risk of stunting reported at the National Population and Family Planning Agency (BKKBN) of Mamuju Tengah Regency in 2023 and data on the incidence of stunting recorded at the Health Office and Puskesmas of Mamuju Tengah Regency in 2023. Data processing in this study also used Stata to determine the distribution and frequency and the relationship between the independent variables, namely inadequate drinking water, inadequate latrines, too (too young, too old, too close and too many) and not participating in modern family planning to the incidence of stunting. Univariate analysis was used to obtain an overview of the frequency distribution of variables. Bivariate analysis was conducted to determine the significance of the presence or absence of variable relationships using the chi-square test. Multivariate analysis in this study aims to see the magnitude of the variable relationship using logistic regression analysis.

Findings

1. Univariate Analysis

a. Distribution of Drinking Water Sources in Families at Risk of Stunting in Karossa Sub-district

Table 1. Distribution of Drinking Water Sources in Families at Risk of *Stunting* in Karossa Sub-district in 2023

Source of Drinking Water	n	%
Packaging/refills	145	45.2
Plumbing/PAM	103	32.1
Drilled well/pump	41	12.8
Unprotected well	32	9.9
Total	**321**	**100**

Based on Table 1, it can be seen that the source of drinking water in families at risk of *stunting* in Karossa Sub-district in 2023 is mostly sourced from bottled water/refills, namely 145 (45.2%), while the source of drinking water sourced from unprotected wells is only 32 (9.9%).

b. Distribution of Drinking Water Sources in Families at Risk of Stunting in Karossa Sub-district

Table 2. Distribution of Latrines Families at Risk of Stunting in Karossa Sub-district in 2023

Latrines	n	%
Own toilet with gooseneck and septic tank	132	41.1
Pit latrine in communal MCK with gooseneck and septic tank	189	58.9
Total	**321**	**100**

Based on Table 2, it can be seen that there are more latrines in families at risk of *stunting* in Karossa Sub-district in 2023 with the category of latrines in communal toilets with goose necks and septic tanks, namely 189 (58.98%), compared to privately owned latrines with goose necks and septic tanks which amounted to 132 (41.1%).

c. Distributions of 4 Too in Families at Risk of Stunting in Karossa Sub-district

Table 3. Distribution of 4 Too in Families at Risk of *Stunting* in Karossa Sub-district in 2023

4 Too	n	%
Too Young		
< 20 Years	21	6.5
≥ 20 Years	300	93.5
Too Old		
≥ 35 Years	96	29.9

< 35 Years	225	70.1
Too Close		
< 2 Years	16	5.0
≥ 2 Years	305	95.0
Too Much		
≥ 3 Children	168	52.3
< 3 Children	153	47.7

Based on Table 3, it can be seen that in the too young category most of the wife's age ≥ 20 years as many as 300 (93.5%) while the wife's age < 20 years amounted to 21 (6.5%). Then for the too old category, most of the wife's age was < 35 years as many as 225 (70.1%) while the wife's age was ≥ 35 years as many as 96 (29.9%). Then for the too close category, the majority of families with birth spacing ≥ 2 years were 305 (95.0%), while birth spacing < 2 years amounted to 16 (5.0%). For the too many category, the majority of families with ≥ 3 children totaled 168 (52.3%), while families with < 3 children totaled 153 (47.7%).

d. Distribution of Modern Family Planning Use among Families at Risk of Stunting in Karossa Sub-district

Table 4. Distribution of Modern Family Planning Use in Families at Risk of Stunting in Karossa Sub-district in 2023

Type of birth control	n	%
Injections	73	22.7
Implant	37	11.5
Pills	35	10.9
Condoms	7	2.2
IUD	7	2.2
MOW	6	1.9
MOP	1	0.3
No birth control	155	48.3
Total	**321**	**100**

Based on Table 4, it can be seen that the use of modern family planning in families at risk of *stunting* in Karossa District in 2023 mostly did not use family planning, namely 155 (48.3%), while the use of MOP family planning amounted to 1 (0.3%).

e. Distribution of stunting cases in families at risk of stunting in Karossa Sub-district

Table 5. Distribution of Stunting Cases Families at Risk of Stunting in Karossa Sub-district in 2023

***Stunting* Cases**	**n**	**%**
Stunting	170	53.0
Not *Stunting*	151	47.0
Total	**321**	**100**

Based on Table 5, it can be seen that *stunting* cases in families at risk of *stunting* in Karossa Subdistrict in 2023 were 170 (53%), while the *non-stunting* category amounted to 151 (47%).

3. BIVARIATE ANALYSIS

Bivariate analysis in this study was conducted to determine the relationship between each independent variable and the dependent variable. *Cross-tabs* between the independent variables (inadequate drinking water source, inadequate latrine, PUS 4 Too (Too Young, Too Old, Too Close and Too Many) and PUS not participating in modern family planning with the incidence of *stunting*.

Table 6. The Relationship of Stunting Incidence Based on Family Determinants in Karossa Sub-district in 2023

Family Determinants	*Stunting*				*Total*		*P Value*
	Yes		**No**				
	n	%	n	%	n	%	
Inadequate Drinking Water Source							
At Risk	16	47.1	18	52.9	34	10.6	0.466
Not at Risk	154	53.7	133	46.3	287	89.4	
Inadequate Latrine							
At Risk	118	62.4	71	37.6	189	58,9	0.000
Not at Risk	52	39.4	80	60.6	132	41,1	
PUS is Too Young							
At Risk	8	38.1	13	61.9	21	6.5	0.158
Not at Risk	162	54.0	138	46.0	300	93.5	
PUS is too old							
At Risk	59	61.5	37	38.5	96	29.9	0.046
Not at Risk	111	49.3	114	50.7	225	70.1	
PUS Too Close							
At Risk	10	62.5	6	37.5	16	5.0	0.433
Not at Risk	160	52.5	145	47.5	305	95.0	
Too Many PUS							
At Risk	113	67.3	55	32.7	168	52.3	0.000
Not at Risk	57	37.3	96	62.7	153	47.7	
PUS not participating in modern family planning							
At Risk	117	75.5	38	24.5	155	48.3	0.000
Not at Risk	53	31.9	113	68.1	166	51.7	

Table 6 shows that the results of the chi-square statistical test indicate that there is no significant relationship between improper drinking water sources and the incidence of stunting with a p-value of 0.466 (>0.05). There is a significant relationship between inadequate latrines and the incidence of stunting with a p-value of 0.000 (<0.05). There is no significant association between families who have children too young with the incidence of stunting with a p-value of 0.158 (>0.05). There is a significant relationship between families with children who are too old and the incidence of stunting with a p-value of 0.046 (<0.05). There is no significant relationship between families who have children with too close an age gap and the incidence of stunting with a p-value of 0.433 (>0.05). There was a significant association between Families with too many children and the incidence of stunting with a p-value of 0.000 (<0.05). and there was a significant association between

Families not participating in modern family planning and the incidence of stunting with a p-value of 0.000 (<0.05).

4. MULTIVARIATE ANALYSIS

Multivariate analysis was conducted to identify the factors most associated with the incidence of *stunting* in Karossa sub-district. In the multivariate analysis, the variables that were tested into the analysis model were statistically variables with a p value <0.25 based on the results of the bivariate test. The variables tested were PUS not participating in modern family planning, inadequate latrines, too many PUS and PUS too old.

Table 7. Logistic Regression Multivariate Analysis

Research Variables	OR	95% CI (*LL-UL*)	P-value
PUS not participating in modern family planning	9.48	5,070-17,738	0.000
Improper latrine	6.71	3,517-12,803	0.000
PUS is too much	2.88	1,648-5,053	0.000
PUS is too old	1.43	0,783-2,629	0,242

Based on the results of logistic regression analysis in Table 7, it can be seen that the variables of PUS not participating in modern family planning, inadequate latrines and PUS too many have a p value <0.05 while the variable of PUS too old is excluded from the analysis because it has a p value>0.05. This happened because all variables were tested together and not tested one by one and based on the results of the crosstab between PUS too old and PUS too much had a p>0.05 value, meaning that the variables of PUS too old and PUS too much had a significant relationship. So that the variables associated with the incidence of *stunting* in Karossa District are the variables of PUS not participating in modern family planning, inadequate latrines and too many PUS. Based on the calculation of this value using the formula, it shows that families with inadequate latrines, not participating in modern family planning and having many children have a 93.1% chance of having stunted children.

5. DISCUSSION

a. The Relationship of Inadequate Drinking Water Sources with the Incidence of *Stunting*

The results of the chi-square statistical test showed a p value = 0.466 (>0.05) which means that there is no significant relationship between inappropriate drinking water sources and the incidence of stunting in Karossa District, Central Mamuju Regency. The results of this study are in line with(9) research conducted at the Soasio Health Center, Tidore Islands City, which shows that there is no significant relationship between drinking water quality and the incidence of stunting in toddlers with a p value = 0.493 (>0.05) and also research conducted by(10) conducted in Leslie Village and Kuralele Village, Teon Nila Serua District shows the results of the Spearman correlation test analysis obtained a p-value> 0.05, namely 0.183 with a correlation value of 0.174 which means that there is no significant relationship between proper drinking water and the incidence of stunting in toddlers

In contrast to research conducted by(11) Unprotected drinking water sources were higher in children who were stunted (82.2%) compared to those who were not stunted (68.7%). This study is inversely proportional to the research(12) in Plangkau Village with a p value of 0.003 (<0.05), meaning that there is a relationship between the use of drinking water sources and the incidence of stunting because there are still those who consume murky drinking water sources due to the many activities of large ships. One of the factors that make toddlers grow slowly is due to frequent illness or diarrhea caused by consuming river water directly. Water that comes from unprotected sources can affect the occurrence of health problems such as diarrheal diseases, toddlers who have a history of diarrhea in the previous 2 months will be at risk of becoming stunted because diarrheal diseases will hamper the adequate intake of nutrients needed for growth. Therefore, the need for safe drinking water for families is needed, especially protected drinking water sources, especially in the first 1000 days of life (HPK) to prevent and reduce the occurrence of stunting in Indonesia.

b. Relationship between inadequate latrines and the incidence of *stunting*

This study shows a p-value of 0.000 (<0.05) which means there is a significant relationship between inadequate latrines and the incidence of stunting in Karossa District and in this study inadequate latrines have an OR = 6.54 (CI 95% 3.438-12.463). Which means that families who have inadequate latrines have a 6.54 times risk of having stunted children. This study is in line with a study(13) in developing countries where open defecation was significantly associated with the incidence of stunting in Ethiopia and children disposing of feces unsafely was a significant factor positively associated with stunting. This can be explained because open defecation-free status has a higher prevalence of diarrhea cases. Children who practice open

defecation are more likely to be stunted. This is due to the lack of access to toilets and other sanitation facilities.

Research conducted by(14) shows that if households that have access to proper sanitation services are increased by one unit, the prevalence of stunting in children under five will decrease by 0.318. However, this study is inversely proportional to research conducted by(15) The results of statistical analysis show a p value of 0.260 (>0.05) which means that there is no significant relationship between household latrine ownership and the incidence of stunting in infants aged 12-23 months. The latrine ownership variable shows that of the 9 households that do not have latrines, most of their children have a nutritional status that is not stunted, namely 6 people (66.7%). Whereas in households that have latrines, most toddlers (67.6%) have a nutritional status that is not stunted, namely as many as 334 respondents. Thus, this study found no relationship between the two variables.

c. The Relationship between Early Childbirth and *Stunting* Incidence

Maternal age has a close relationship with birth weight, at a young maternal age < 20 years, the development of reproductive organs and physiological functions is not optimal. In addition, the emotions and psychology are not mature enough, so when pregnant the mother cannot face her pregnancy perfectly, and complications often occur. In research(16) shows that the value of p = 0.000 (p < 0.05) means that there is a significant relationship between pregnancy and the occurrence of stunting in children. The high risks of teenage pregnancy experienced by mothers include miscarriage, bleeding, infection, anemia, which leads to prolonged and difficult labor. Risks for babies include low birth weight. research conducted by(17) found the prevalence of stunting was 47.4%. Low birth weight was found to be the most dominant risk factor for stunting in this study, and there was an association between low birth weight and stunting, with infants born with low birth weight 3.6 times more likely to be stunted than infants not born with low birth weight. Babies born with low birth weight (LBW) will experience obstacles in growth and development and the possibility of decreased intellectual function .(18)

However, this study shows different results from existing research and theory where the p-value is 0.158 (>0.05) which means there is no significant relationship between the age of pregnant women and the incidence of stunting in Karossa District. This occurred because the majority of mothers of toddlers (both stunted and non-stunted) were in the non-risk category during pregnancy and childbirth. This study is in line with research conducted by(19) in Kota Agung Timur District, Tanggamus Regency with a p value of 0.419 (>0.05) and means that the age of pregnant women has no relationship with the incidence of stunting in toddlers because researchers assume that stunting nutritional status is not related to the age of pregnant women because the age of pregnant women is an indirect factor affecting stunting.

d. Associations between too old a mother and the incidence of *stunting*

The pregnancy process is greatly influenced by the age of the mother when she is diagnosed as pregnant. If the mother's age during pregnancy is younger or older, she will be at risk of pregnancy complications. The physical condition of pregnant women over 35 years old will greatly determine the process of childbirth. This also affects the condition of the fetus(20) . Based on the results of this study, it shows that there is a significant relationship between families with too old age and the incidence of stunting in Karossa District with a pvalue of 0.046 (<0.05). This study is in line with research conducted by(21) which found that maternal age at risk of being too old (>35 years) has an association with the incidence of stunting in the highlands of Semarang City with a p-value of 0.003 and OR 3.151. This means that toddlers from mothers who are more than 35 years old during pregnancy are at risk of 3.151 times experiencing stunting compared to toddlers who have mothers aged <35 years in the highlands. There is a significant relationship between too old a pregnancy age and the incidence of stunting because mothers who are too old tend to experience a decrease in physical function and reproductive organs, causing less milk to be produced.

However, in contrast to research(22) which states that toddlers who experience stunting are more likely to come from mothers aged 26-35 years (not at risk) compared to mothers aged 35-45 years. The maternal age factor will affect the ability or experience that mothers have in providing nutrition to children. A more mature age makes a person not only rely on experience but also increase knowledge from various existing sources of knowledge. According to the researchers, maternal age is not what determines the occurrence of stunting but depends on the knowledge possessed by the mother.

e. Close proximity to *stunting* incidence

According to BKKBN, the ideal distance between pregnancy and the last childbirth for a mother is two years because the distance between pregnancies that is too close risks causing complications in mothers such as bleeding during pregnancy to childbirth and babies who are born are at risk of having low health quality. The results of research conducted by(23) The results of research at the Harapan Baru Samarinda Health Center show that the p-value is 0.0004 (0.05), meaning that pregnancy distance is associated with the incidence of stunting in toddlers. The first two years of a toddler's life is a golden period because during this time there is very rapid growth and development in toddlers so that mothers need adequate nutritional intake. If the mother cannot meet her nutritional needs, it can cause fetal growth and development to not be optimal.

However, this study shows different results from previous studies, namely that there is no relationship between the birth spacing of children who are too close (<2 years) with the incidence of stunting in Karossa District with a p value of 0.433

(<0.05). This occurred because the majority of birth spacing (both stunting and non-stunting) was in the non-risk category, namely birth spacing > 2 years. This study is in line with research conducted by(24) in Arongan Village with a p value of 0.263 (>0.05) which means there is no relationship between the distance of pregnancy and the incidence of stunting. This is because the subject's pregnancy distance with the previous child was on average above two years which is included in the non-risk pregnancy distance.

f. The relationship between overfeeding and *stunting*

The results of this study indicate that the majority of families who have stunted children with too many children (at risk) are 113 (67.3%) with a p-value of 0.000 (<0.05), which means that there is a significant relationship between the number of children with the incidence of stunting and an OR value = 3.06, which means that families with ≥3 children have a chance of having stunted children 3.06 times compared to families with <2 children in Karossa District. In contrast to research conducted by(25) at the Kedungtuban Health Center with a p-value of 0.272 (0.272>0.05) and an OR value of 0.31. Parity is not associated with the incidence of stunting because almost most mothers of toddlers have parity with a small category, namely ≤ 3 children. This study is also different from research conducted by(26) with the results of the study showed no relationship between the number of family members and the incidence of stunting in children aged 6-59 months in the Palakka Kahu Health Center Working Area, Bone Regency.

The same results were also obtained in research(21) In this study, it is known that too many children (>2 children) is a risk factor for stunting in toddlers in the highlands and lowlands in Semarang City with a p-value of 0.011 and OR 2.813. This means that families with more than 2 children have a 2.813 times risk of stunting compared to families with 1-2 children in the highlands. Furthermore, based on the results of the analysis, too many children also have an association with the incidence of stunting in the lowlands with a p-value of 0.000 and OR 5.336. This states that families in the lowlands who have more than 2 children have a 5.336 times risk of being stunted compared to families who have 1-2 children.

Based on the chi square test analysis, it is known that too many children (>2 children) is a risk factor for stunting in both the highlands and lowlands of Semarang City. Having too many children in a family can affect parenting and energy intake. In families with many children, especially if births are closely spaced, mothers may have difficulty providing exclusive breastfeeding for the first six months. After the exclusive breastfeeding period, complementary foods may also be suboptimal in terms of quantity, quality and frequency. This increases the risk of malnutrition in younger children. Research conducted by(27) Exclusive breastfeeding by multiparous mothers in Jeneponto Regency is still low at 26.3% and multiparous mothers who do not provide exclusive breastfeeding are 73.7%.

g. The Relationship between Non-Modern Family Planning Participants and the Incidence of

In forming a family that is expected to give birth to a golden generation, the government makes efforts, namely through family planning programs. The family planning program or commonly abbreviated as KB is one of the programs that can be used to create children with good human resources and government efforts related to stunting prevention interventions, namely the KB program along with improving the nutritional status of mothers and children specifically through programs implemented by BKKBN and the Ministry of Health(28) . The results of this study indicate that the majority of families who have stunted children with families who do not follow modern family planning (at risk) are 117 (75.5%) with a p-value of 0.000 (<0.05) which means that there is a significant relationship between families who do not follow modern family planning and the incidence of stunting and an OR value = 9.55 which means that families with PUS who do not follow modern family planning are likely to have stunted children 9.55 times compared to children in families who have PUS who use modern family planning in Karossa District.

This study is in line with research conducted by(29) with a p value of 0.014 (<0.05), meaning that there is a significant influence between the use of contraceptives on the incidence of stunting in Oetutulu Village. The results of interviews in Oetutulu Village showed that most couples of childbearing age had good knowledge about contraceptives, ranging from the definition of contraceptives, to the side effects caused. However, with this good knowledge, there are still couples of childbearing age who do not use contraceptives due to lack of awareness to use, lack of support from family or other factors such as cancer. Families who do not use modern family planning can also affect pregnancy spacing. Unplanned pregnancy spacing can cause problems such as if the child is not yet one year old and has a younger sibling, it will indirectly affect the growth and development of the first child. Short pregnancy spacing can lead to preterm labor and will result in low birth weight babies. research conducted by(30) shows that low birth weight below 2,500 grams will have a 4.192 times greater risk of stunting than children with normal birth weight.

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Author Contributions: Asmaul Husna, Nur Nasry Noor, Ida Leida Maria: Study concept and design. Asmaul Husna: Collecting and processing research data. All authors: preparation of publication manuscript.

Ethical Approval: This study has received ethical approval from the Health Research Ethics Committee (KEPK) of the Faculty of Public Health, Hasanuddin University with approval number 2057/UN4.14.1/TP.01.02/2024 dated September 6, 2024.

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