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## The Efforts of Stunting Prevention Through Increasing Maternal Knowledge: a Cross Sectional Study



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### Abstract

Stunting refers to a condition characterized by short or very short stature based on the length/height for age, below -2 Standard Deviation (SD) on the WHO growth curve. This condition typically appears from chronic malnutrition, which is often linked to low socioeconomic status, inadequate nutritional intake, maternal health issues, a pattern of recurrent illness, and inappropriate feeding practices during infancy and early childhood. Stunting becomes a serious health problem and requires immediate treatment. In this case, the Indonesian government has made several efforts to improve the reduction of stunting as stated in the 2018 national plan. The World Health Organization (WHO) estimates that 22,2% or 149,2 million children under 5 years old will be stunted by 2020. This was quantitative research with a cross sectional approach. The independent variable in this research involved mothers' knowledge about stunting as well as being the population, while the dependent variable was the prevention efforts in toddlers. The sampling technique employed probability sampling, namely by stratified random sampling. Inclusion criteria in this research were: a) Mothers and children under five, who live in the RW 01 area of Banyumudal Village, Moga District, Pemalang Regency; b) Mothers who have children under five years old; c) Understand Indonesian; d) Physically and mentally healthy, and e) Willing to be a respondent. The results of the Chi Square test with an error degree of  $\alpha = 0,05$  obtained a p value =  $0,001 < \alpha = 0,05$ . It means that there was a correlation between maternal knowledge about stunting and efforts to prevent it in toddlers in RW 01 Banyumudal Village, Moga District, Pemalang Regency. Stunting will affect long-term brain development, which in turn affects cognitive ability and school performance.

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## INTRODUCTION

Stunting refers to a condition characterized by short or very short stature based on the length/height for age, below -2 Standard Deviation (SD) on the WHO growth curve. This condition typically appears from chronic malnutrition, which is often linked to low socioeconomic status, inadequate nutritional intake, maternal health issues, a pattern of recurrent illness, and inappropriate feeding practices during infancy and early childhood (Kemenkes RI, 2022). In the framework of human resource quality development, the problem of stunting, as one part of the double burden of malnutrition (DBM), has a very detrimental impact both in terms of health and economic productivity and in the short and long-term conditions. In the short term, stunting is related to the development of brain cells, which will eventually lead to a suboptimal level of intelligence. This means that children's cognitive abilities will be lower in the long run and ultimately reduce productivity and hamper their economic growth (BKKBN, 2021). According to another source, stunting in children may result in impaired mental development and reduced cognitive function, subsequently diminishing their learning capabilities in school (Wicaksono et al., 2021). Stunting becomes a serious health problem and requires immediate treatment. In this case, the Indonesian government has made several efforts to improve the reduction of stunting as stated in the 2018 national plan (Najib et al., 2023).

The World Health Organization (WHO) estimates that 22,2% or 149,2 million children under 5 years old will be stunted by 2020. The Asian region has the highest rate of stunting at 79 million children (52,9%), mainly in Southeast Asia (54,3 million children), followed by Africa at 61,4 million children (41,1%), and Latin America at 5,8 million children (3,8%) (Kemenkes RI, 2022). Southeast Asia has a stunting prevalence of 24,7%, making the Asian region becomes the second highest stunting prevalence after South Asia (Global Nutrition Report, 2020). It also reports that the prevalence of stunting in children under 5 years of age in Indonesia is still higher than the Southeast Asian average despite progress in achieving stunting reduction targets. For this reason, the government set development targets in Presidential Regulation Number 72 of 2021 concerning the acceleration of stunting reduction and fulfilling the Sustainable Development Goals (SDGs), especially in the second goal, target 2.2.1 Prevalence of stunting (short and very short) in children under five years of age. The goal to be achieved in accelerating or developing the reduction

of stunting aims to realize healthy, intelligent and productive human resources, and the achievement of sustainable development goals through achieving the national target of stunting prevalence measured in children under 5 (five) years of age which must be achieved by 14% (fourteen per cent) by 2024 (Kemenkes RI, 2022).

The latest data based on Basic Health Research (*Riskesdas*) reveals that the prevalence of stunting in Indonesia was 37,6% in 2013, and decreased to 30,8% in 2018. Based on the results of SSGI, the national stunting prevalence rate decreased from 2019 by 27,7%, in 2021 by 24,4%, to 21,6% in 2022 (Kemenkes RI, 2022). Based on data from Indonesia's Nutrition Status Monitoring (PSG) over the past three years, stunting has exhibited the highest prevalence among various nutritional issues, surpassing several problems, such as malnutrition, underweight, and obesity in children. The prevalence of stunted children under five has risen from 27,5% in 2016 to 29,6% in 2017 (Widiyanto et al., 2019). The global prevalence of stunting is classified as a high category because it is between 20% - <30%. Based on the 2021 Global Hunger Index (GHI), Indonesia ranks 73<sup>rd</sup> out of 116 countries with a moderate hunger score. The indicators included in the GHI are the prevalence of wasting and stunting in children under five years old.

Based on the 2021 and 2022 SSGI stunting rates from 34 provinces, South Kalimantan, North Kalimantan, and South Sumatra are the three provinces with the largest decrease in stunting case. For Central Java, the prevalence of stunting was 20,9% in 2021 and decreased to 20,8% in 2022. Meanwhile, the prevalence of stunting by district/city in Central Java Province, Pemalang Regency ranks 19<sup>th</sup> out of 35 districts at 19,8% in 2022 (Pemerintah Kabupaten Pemalang, 2019). Pemalang Regency Government issued a regulation in the form of Regent Regulation (*Perbup*) Number 84 of 2019 concerning the Regional Action Plan for the Acceleration of Stunting Prevention and Control in Pemalang Regency. This regulation aims to reduce the prevalence of stunting to below 18% by 2024 for children under two years old and children under five years old. In the *Perbup*, 10 villages are designated as the locus of stunting management, one of which is Banyumudal Village. Based on data from the Pemalang Health Office in 2019 in *Perbup* No. 84 of 2019, the number of stunted children under five in Banyumudal Village had reached 22,60% and very stunted children 8,22%. This research aimed to increase the mothers' knowledge in preventing stunting case by providing education for the mothers

related to pregnancy, balanced nutrition, as well as child growth and development. This is important as children will experience the "golden period" where

they will experience rapid growth so that the nutrition must be fulfilled properly.

**METHODS**

This was quantitative research with a cross sectional approach. The independent variable in this research involved mothers' knowledge about stunting as well as being the population, while the dependent variable was the prevention efforts in toddlers. This research was conducted at Banyumudal Village RW 01, Moga Subdistrict, Pemalang Regency, Central Java totalling 62 people, and took place in December 2023. The research process was started with the data collection process using preliminary research conducted by the researcher. Banyumudal Village consists of 8 neighborhood associations (RT), and each of them was randomly sampled, resulting in a total sample of 54 respondents. Then, the respondents were provided a questionnaire related to stunting using a previously prepared questionnaire. Then, the results were analyzed to prepare a report.

The sampling technique employed probability sampling, namely by stratified random sampling. Inclusion criteria in this research were: a) Mothers and children under five, who live in the RW 01 area of Banyumudal Village, Moga District, Pemalang Regency; b) Mothers who have children under five years old; c) Understand Indonesian; d) Physically and mentally healthy, and e) Willing to be a respondent. Meanwhile, the exclusion criteria were: a) Mothers who have children under five years old, who are less than 1 year old, and more than 5 years old; b) Do not understand Indonesian; c) Mothers of children under five, who were sick, and d) Not willing to be respondents. Sampling in this research used the following formula:

$$n = \frac{N}{1 + N(d)^2}$$

Description:

N : amount of population (N = 62 people)

n : sample size

d : significance level (p) of 0,05

with the formula above, the sample size used in this research was 54 people. For research sampling, it used the percentage formula as follows:

$$\text{number of research sample} = \frac{\text{number of children per RT}}{\text{total population}} \times \text{sample size}$$

The tool used in data collection in this research is a questionnaire adopted from previous studies conducted by (Aritonang, 2021) and (Mutiah, 2022). Two types of questionnaires used in this research were stunting prevention efforts and knowledge about stunting. Univariate data analysis aimed to explain and describe the characteristics of all research variables, namely variables of respondent characteristics, knowledge level, as well as prevention efforts. Meanwhile, bivariate analysis aimed to see the correlation between two variables using the Chi Square test.

## RESULTS

The characteristics of respondents include age, education, and occupation. The following describes the frequency distribution of respondent characteristics in RW 01 Banyumudal Village, Moga Subdistrict, Pemalang Regency.

Table 1 Distribution of Respondent Characteristics (n = 54)

	Respondent characteristics	f	%
1.	Age		
	21 – 30 years	16	29.6
	31 - 40 years	28	51.9
	41 - 50 years	10	18.5
2.	Education		
	Graduated at Primary School	5	9.2
	Graduated at Junior High School	33	61.1
	Graduated at Senior High School	7	13.0
	Graduated at Diploma/Bachelor degree	9	16.7
3.	Occupation		
	Worked	17	31.5
	Unemployed	37	68.5
	Total	54	100

Table 1 shows that the majority of respondents aged 31-40 years as many as 28 respondents (51,9%), the education level of respondents graduated from junior high school as many as 33 respondents (61,1%), and respondents did not work or unemployed as many as 37 respondents. (68,5%).

Table 2 Distribution of mother knowledge about stunting

No	Mother knowledge	f	%
1.	Good	49	90.7
2.	Moderate	5	9.3
3.	Less	0	0
	Total	54	100

Based on table 2, it shows that 49 respondents (90,7%) have good knowledge about stunting and 5 respondents (9,3%) have a moderate level of knowledge about stunting.

Table 3 Description of efforts to prevent stunting in toddlers

No	Prevention efforts	f	%
1.	Good	51	94.4
2.	Moderate	3	5.6
3.	Less	0	0
	Total	54	100

Based on table 3, it shows that efforts to prevent stunting in toddlers in the good category are 51 respondents (94,4%), while efforts to prevent stunting in toddlers in the moderate category are 3 respondents (5,6%).

Table 4 The correlation between maternal knowledge about stunting and prevention in toddlers

Mother knowledge about stunting	Prevention efforts for toddler					
	Moderate		Good		Total	
	$\Sigma$	%	$\Sigma$	%	$\Sigma$	%
Moderate	3	5.6%	2	3.7%	5	9.3%
Good	0	0.0%	49	90.7%	49	90.7%
Total	3	5.6%	51	94.4%	54	100%

Result of Chi-square test p value = 0,001  $\alpha$  = 0,05.

Table 4 shows that out of 54 respondents, the majority of mothers' knowledge about stunting is good, and the efforts to prevent stunting in toddlers are also good, by 49 respondents (90,7%). Respondents with sufficient maternal knowledge about stunting and prevention efforts in toddlers are 3 respondents (5,6%) and respondents with sufficient maternal knowledge about stunting and prevention efforts in toddlers are good as many as 2 respondents (3,7%). Based on the results of the Chi-square test with an error rate of  $\alpha = 0,05$ , the p value = 0,001 <  $\alpha = 0,05$ . This means that  $H_a$  is accepted and there is a correlation between maternal knowledge about stunting and prevention efforts in toddlers in RW 01 Banyumudal Village, Moga District, Pemalang Regency.

## DISCUSSION

Table 2 presents that the majority of respondents has good knowledge about stunting, by 49 respondents (90,7%). Several factors contribute to the prevalence of stunted children in Indonesia, including maternal education, socioeconomic status, premature birth, and inadequate health service coverage, particularly in rural areas (Beal et al., 2018). According to the researchers, mothers with good knowledge will more easily absorb existing information, so that they will be better at managing the family, especially in caring for children and feeding them by paying attention to the right and good nutritional needs. Factors that can affect maternal knowledge are age, education, occupation, sources of information, and culture. The results of this research are in line with (Rahayuningsih & Fajri, 2021), which states that there is a correlation between maternal knowledge and stunting prevention behaviour in toddlers. Mothers who have good knowledge make it possible to be able to update and add existing knowledge, so that mothers can more easily accept new information to be provided as long as the information is in accordance with the facts and has a trusted source. If mothers lack knowledge about stunting, it will cause children to be at risk of stunting (Puspitasari et al., 2021).

Knowledge is the result of human sensing, or the result of someone knowing objects through their senses (eyes, nose, ears, and so on) (Notoatmodjo, 2017). Furthermore, knowledge is a variety of things obtained by a person through the five senses. The cause of the lack of knowledge level consists of several influencing factors. Based on the sociodemographic, the characteristics of respondents including age, latest education, occupation, and educational or occupational background are the factors that influence the lack of knowledge level. According to the researchers, the factor that affects maternal knowledge is the age of the mother. Table 1 states that almost half of the respondents are 31-40 years old, by 26 respondents (53,1%). This means that the mother already has quite a lot of knowledge in the

family, where the age of the mother 31 - 40 years has the highest value. Age can affect a person's power of capture and mindset. Increasing age will further develop a person's ability to capture and think so that the knowledge gained will improve. Age becomes a determining factor in the process of gaining knowledge about stunting because it will affect the mother's catchability and mindset in receiving various information. A more mature age will be wiser in sorting and absorbing information so that all information received can be applied in daily life. The more mature the mother's age, the more experience she has in caring for children (Puspitasari et al., 2021).

Besides the aspect of age, education can also affect a person's knowledge. The results of this research show that most of the respondents' education level is junior high school, by 33 respondents (61,1%). This will certainly have an impact on the ability to capture and understand in analyzing various information. If the knowledge possessed is only limited to knowing but not accompanied by a good understanding of stunting and how to prevent it, then the mother's awareness in making efforts to prevent stunting from an early age in the form of implementing parenting and fulfilling nutrition to children is reduced due to the mother's lack of knowledge (Deviyanti, 2022). Higher education will make it easier for someone to absorb and understand the information provided and the information that has been received can be implemented in daily life. The results revealed that mothers with junior high school education had good knowledge about stunting as many as 31 respondents (63,3%). The level of maternal education can affect health status as maternal education can influence safe pregnancy planning, fulfilment of good nutrition in good parenting of mothers to children (Deviyanti, 2022). Good maternal knowledge about stunting since pregnancy is expected to be able to improve good attitudes and behaviour in an effort to prevent stunting, including in efforts to fulfill nutrition since pregnancy (Kristiyanti et al., 2021). A research states

that there is a positive influence between maternal education and families at risk of stunting, the more mothers with low education levels in an area, the more likely the stunting rate will increase in that area (Nugroho et al., 2023).

According to (BKKBN, 2021), stunting is a condition of growth failure caused by chronic malnutrition in the 1000 *HPK* (First Days of Life) of children, started from the womb to the age of 2 years. The problem can be in the form of insufficient nutritional intake over a long period of time, generally because the food consumed is not in accordance with nutritional needs. A research found that the prevalence of stunting shows a serious case so that it must remain as a priority problem (Simbolon et al., 2021). The existence of stunting indicates poor nutritional status (malnutrition) over a long period of time or chronically (Candra, 2020). Table 3 shows that the majority of respondents made efforts to prevent stunting in the good category, by 51 respondents (94,4%). This is evidence of a person's readiness to act in a certain way towards specific things. The majority of stunting prevention efforts made by mothers are in the good category. In this study, one of the factors that can influence maternal treatment is personal experience. Respondents who have received counselling on stunting, balanced nutrition, and parenting are expected to implement this knowledge to their children. The second factor is mass media, where in the current era of globalization, the use of mass media is increasing, making it easier for mothers to get various information about stunting. The third factor is the influence of other people, such as health workers who provide counselling on balanced nutrition and stunting. This will be able to influence the mother's treatment of children to stay healthy and avoid various conditions, such as stunting. Children experiencing several obstacles in their growth and development, one of the causes is the lack of adequate food intake and the presence of recurrent infectious diseases (Komalasari et al., 2020).

Another factor that influences mothers in stunting prevention efforts is the type of work or occupation. Based on table 1, it is found that almost half of the respondents did not work or unemployed (housewives), by 37 respondents (68,5%). It means that there is more time for mothers to pay attention to children's nutritional needs. According to the researcher, the mother's employment status has a correlation with stunting prevention efforts because mothers who do not work have more time with their children, so they can better perform stunting

prevention, such as providing breastfeeding for the first 6 months, giving nutritious food intake, attending Integrated service post/*Posyandu* activities regularly, and maintaining the cleanliness of the surrounding environment. Meanwhile, working mothers have more obstacles to implementing stunting prevention efforts, such as not being able to bring children regularly to *Posyandu* and provide exclusive breastfeeding due to work so they replace it with formula milk, and less control over children's food intake because children are usually entrusted while mothers are at work.

The results of the Chi Square test with an error degree of  $\alpha = 0,05$  obtained a p value =  $0,001 < \alpha = 0,05$ . It means that there is a correlation between maternal knowledge about stunting and efforts to prevent it in toddlers in RW 01 Banyumudal Village, Moga District, Pemalang Regency. Mothers who have good stunting knowledge tend to be able to update and increase existing knowledge. So that mothers can more easily accept new information that will be provided as long as the information is in accordance with the facts and has a trusted source. This is in line with (Carolina et al., 2023) where knowledge based on understanding will foster a positive attitude in stunting prevention efforts. This is also in line with (Sulung et al., 2023) where most (71.9%) high knowledgeable mothers have good prevention efforts against stunting. If mothers have high knowledge about the meaning, symptoms, consequences of stunting and prevention in the First 1,000 Days of Life (*HPK*), the better the prevention efforts in toddlers.

Stunting will affect long-term brain development, which in turn affects cognitive ability and school performance. In addition, impaired linear growth will affect endurance and work capacity. Long-term effects are also associated with a decreased ability to oxidise fat, leading to the risk of obesity and degenerative diseases, including hypertension, type 2 diabetes mellitus and cardiovascular diseases (Kemenkes RI, 2022). Therefore, in an effort to prevent this case, efforts to overcome the problem of stunting are necessary. Overcoming stunting includes prevention and treatment efforts that can be done by ensuring that children have a good health status, receive adequate nutrition in the first 1000 days of life (*HPK*), and receive immunisations and a clean lifestyle to prevent disease. Preventive measures that parents can take to prevent their children from stunting include; fulfilling nutritional needs in 1000 *HPK* children, fulfilling nutritional needs for pregnant women, consumption

of protein with appropriate levels for children over 6 months, maintaining sanitation hygiene and meeting the need for clean water, as well as routinely bringing children to *Posyandu* at least once a month (Kemenkes RI, 2018). Another source indicates that several measures can be implemented to prevent stunting, such as ensuring access to clean water, providing latrines and waste disposal facilities, as well as managing garbage disposal. Moreover, efforts such offering Maternal and Child Health (MCH) services, family planning services, health insurance for disadvantaged individuals, education, and improving the nutrition of stunted toddlers are also crucial. These initiatives also address issues related to early marriage (Hadijah Batjo et al., 2022).

## CONCLUSION

Factors influencing mothers' knowledge about stunting and prevention efforts in toddlers include age, education level, and type of maternal work. There is a correlation between mothers' knowledge about stunting and efforts to prevent it in toddlers in RW 01 Banyumudal Village, Moga District, Pemalang Regency.

## SUGGESTION

Based on the research findings, it is expected that future researchers can conduct the research on the factors that cause stunting in toddlers, so that parents are more clearly aware of the factors that cause stunting.

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## CONFLICTS OF INTEREST

The author declares there is no conflict of interest in this research, funding, and publication.

## AUTHOR CONTRIBUTIONS

All authors fully contribute to research activities starting from drafting activities, tabulating data

management, writing drafts of manuscripts and analysis. Each author makes a positive contribution to this activity from start to finish, including publishing articles in this journal.

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