

## THE RELATIONSHIP OF KNOWLEDGE, DIETARY INTAKE AND NUTRITION-CONSCIOUS FAMILY WITH THE INCIDENCE OF STUNTING / SEVERE STUNTING

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### ABSTRAK

Latar Belakang: Stunting adalah suatu kondisi yang dialami oleh anak balita yang memiliki panjang atau tinggi badan lebih dari 2 standar deviasi median Standar Pertumbuhan Anak World Health Organization. Faktor langsung penyebab stunting adalah asupan makanan. Salah satu faktor tidak langsung terjadinya masalah gizi adalah tingkat pengetahuan dan kesadaran akan pentingnya status gizi anak. Berdasarkan laporan data pengelola program gizi 2021 yang mengutip hasil pemutakhiran laporan e-PPGBM hingga Mei 2021 di Puskesmas Karya Mukti, jumlah balita sebanyak 1.246, dan ditemukan 197 balita. pendek dan sangat pendek.

Tujuan Penelitian: Mengetahui hubungan antara pengetahuan, asupan makanan dan keluarga sadar gizi dengan kejadian stunting dan stunting berat di Puskesmas Karya Mukti tahun 2021.

Metode: Jenis penelitian adalah deskriptif kuantitatif. Metode kuantitatif digunakan untuk mengetahui hubungan pengetahuan, asupan makanan dan kesadaran gizi keluarga dengan kejadian stunting dan stunting berat. Desain penelitian yang digunakan adalah cross sectional, artinya penelitian dilakukan dengan cara mengukur atau mengamati pada waktu yang sama atau pada satu waktu. Populasi dalam penelitian ini adalah anak balita yang berjumlah 197 anak yang mengalami stunting yang tersebar di wilayah kerja Puskesmas Karya Mukti. Sampel dalam penelitian ini adalah balita di wilayah kerja Puskesmas Karya Mukti, dan respondennya adalah ibu balita yang mengalami stunting. Pengambilan sampel dilakukan secara acak dan diperoleh 66 orang.

Hasil : uji statistik Chi-Square pada variabel pengetahuan diperoleh p-value 0,035 ( $\leq 0,05$ ), pada variabel asupan energi makanan diperoleh p-value 0,035 ( $\leq 0,05$ ), pada variabel asupan energi protein diperoleh p -nilai 0,008 ( $\leq 0,05$ ) dan pada variabel keluarga sadar gizi diperoleh p-value 0,028 ( $\leq 0,05$ )

Kesimpulan ada hubungan yang signifikan antara pengetahuan, asupan energi makanan, asupan energi protein dan kesadaran gizi keluarga dengan stunting dan stunting berat di Puskesmas Karya Mukti tahun 2021.

Saran : Puskesmas Karya Mukti lebih aktif memberikan penyuluhan kepada bidan terkait kejadian stunting dan stunting berat

Kata kunci: Asupan makanan stunting, Keluarga sadar gizi, Pengetahuan, Stunting

### ABSTRACT

Background: Stunting is a condition experienced by children under five years who have a length or height that is more than -2 standard deviations of World Health Organization Child Growth Standards median. The direct factor that causes stunting is dietary intake. One of the indirect factors in nutritional problems is the level of knowledge and awareness about the importance of the nutritional status of children. According to the 2021 nutrition program manager data report citing the results of the updated report until May 2021 e-PPGBM at Karya Mukti Public Health Center, the total number of children under five years was 1,246, and 197 children under five years were found to be short and very short.

Research Objective: to find out the relationship between knowledge, dietary intake and nutrition-conscious family with the incidence of stunting and severe stunting at Karya Mukti Public Health Center in 2021.

Methods: the type of study was a descriptive quantitative. Quantitative methods were used to find out the relationship of knowledge, dietary intake and nutrition-conscious family with the incidence of stunting and severe stunting. The research design used was cross sectional, meaning that the study was carried out by measuring or observing at the same time or at one time. The population in this study were children under five years, totaling 197 children who experienced stunting spread across the work area of Karya Mukti Public Health Center. The sample in this study was children under five years in the work area of Karya Mukti Public Health Center, and the respondents were mothers of children under five years who experienced stunting. Random sampling was conducted and obtained 66 people.

Results : statistical test, Chi-Square on knowledge variable was obtained p-value of 0.035 ( $\leq 0.05$ ), on dietary energy intake variable was obtained p-value of 0.035 ( $\leq 0.05$ ), on protein energy intake variable was obtained p-value of 0.008 ( $\leq 0.05$ ) and on the nutrition-conscious family variable was obtained p-value of 0.028 ( $\leq 0.05$ ).

Conclusion that there was a significant relationship between knowledge, dietary energy intake, protein energy intake and nutrition-conscious family with stunting and severe stunting at Karya Mukti Public Health Center in 2021.

Suggestion: It is recommended that Karya Mukti Public Health Center should be more active in providing counseling to midwives related to the incidence of stunting and severe stunting

Keywords: stunting, knowledge, dietary intake, stunting, nutrition-conscious family

## INTRODUCTION

Stunting is a condition experienced by children under five years who have a length or height that is more than  $-2$  standard deviations of World Health Organization Child Growth Standards median. Short children (severe stunting and stunting) are one of the nutritional problems experienced by children not only in Indonesia but also in the world (Sari et al., 2020).

In addition, stunting also has an impact on children's health, both in the short and long term. Disruption of brain development, intelligence, impaired physical growth, and metabolic disorders in the body are short-term impacts of stunting experienced by the children. Then, in the long term, the children with stunting will experience a decrease in cognitive abilities, in learning achievement and in immunity so that they will be prone to get sick and have a high risk for the emergence of diabetes, obesity, heart and blood vessel disease, cancer, stroke, and disability in old age (Astuti & Purwaningsih, 2019).

Globally, the World Health Organization (WHO) estimates that 149 million children under 5 years experienced stunting in 2018. Furthermore, African countries (58.8 million) and Asian countries (81.7 million) contributed for the highest incidence of stunting, followed by Latin American countries (9.6 million) and Karabia 4.8 million. Stunted children are dominated by lower-middle income countries with 65% of the total stunting incidence (UNICEF/WHO/The World Bank, 2019).

Indonesia is in the third place for the highest prevalence of stunting in Southeast Asia with an average prevalence from 2005-2017 of 36.4% (Kemenkes RI, 2018).

The results of the Basic Health Research conducted by the Balitbangkes of the Ministry of Health in 2018 showed that the prevalence of stunting in Indonesia was 30.8%, in South Sumatra Province 31.7% and Ogan Komering Ulu District 27, 97% (Riskseddas, 2018). There is a downward trend from the results of the Indonesian Toddler

Nutrition Status Survey in 2019 in which the prevalence of stunting in Indonesia was 27.67%, the prevalence in South Sumatra Province was 28.98% and the prevalence in Ogan Komering Ulu District was 27.97% (SSGBI, 2019).

In 2020, based on electronic data the tronic of recording community-sourced nutrition reporting, the prevalence of stunting in Indonesia was 11.6%, the prevalence of stunting in South Sumatra Province was 7.2% and the prevalence of stunting in Ogan Komering Ulu District was 3.73% (e-PPGBM, 2020).

According to the 2021 nutrition program manager data report citing the results of the updated report until May 2021 e-PPGBM at Karya Mukti Public Health Center, the total number of children was 1,246 and 197 children under five years were short and very short (e-PPGBM, 2021)

Based on the data above, the researchers were interested in conducting a study on "The Relationship of Knowledge, Dietary Intake and Nutrition-Conscious Families with Stunting and Severe Stunting at Karya Mukti Public Health Center in 2021".

## RESEARCH METHODOLOGY

The type of this study was a descriptive quantitative. Quantitative methods were used to find out the relationship of knowledge, dietary intake and nutrition-conscious family with the incidence of stunting and severe stunting. The research design used was cross sectional, meaning that the study was carried out by measuring or observing at the same time or at one time.

The population in this study were children under five years, totaling 197 children who experienced stunting spread across the work area of Karya Mukti Public Health Center.

The sample in this study was children under five years in the work area of Karya Mukti Public Health Center, and the respondents were mothers of children under five years who experienced stunting. Random sampling was conducted and

obtained 66 people. The primary data in this study were obtained directly from respondents using a questionnaire, including data regarding mother's knowledge of stunting, dietary intake consumed by the children in the form of a semi-quantitative food frequency questionnaire, and nutrition-conscious family. Then, to determine the nutritional status of the children under five years who experienced stunting, the researchers analyzed the nutrition report of nutrition program at Karya Mukti Public Health Center by citing the updated results of the e-PPGBM application. The secondary data in this study was in the form of data obtained through documents from Karya Mukti Public Health Center, as well as from the health office. In addition, the secondary data was obtained from RISKESDAS data in 2018 and SSGBI data in 2019. The data source could be descriptive data obtained from reading materials or references as secondary data. Univariate analysis and bivariate analysis using chi square were carried out.

## RESEARCH RESULTS

### Univariate Analysis

**Table 1.**  
**Frequency Distribution of Stunting Incidence at Karya Mukti Public Health Center in 2021**

Stunting	Frequency (N)	Percentage %
Very Short	29	43,9
Short	37	56,1

From the table 1 above, it shows that out of 66 respondents, mothers with very short children are 29 respondents (43.9%), and 37 respondents (56.1%) have short children.

**Table 2.**  
**Frequency Distribution of Mother's Knowledge at Karya Mukti Public Health Center in 2021**

Knowledge	Frequency (N)	Percentage (%)
Good	28	42,4
Poor	38	57,6

From the table 2 above, it shows that of the 66 respondents, 28 (42.2%) mothers have good

knowledge about stunting and 38 mothers (57.6%) have poor knowledge

From the table 3 above, it shows that of the 66 respondents, 38 respondents (57.6%) have poor dietary energy intake and 28 respondents (42.4%) have normal dietary energy intake.

**Table 3.**  
**Frequency Distribution of Dietary Energy Intake at Karya Mukti Public Health Center in 2021**

Dietary Energy Intake	Frequency (N)	Percentage (%)
Poor	38	57,6
Normal	28	42,4

**Table 4.**  
**Frequency Distribution of Protein Intake at Karya Mukti Public Health Center in 2021**

Protein Intake	Frequency (N)	Percentage (%)
Poor	36	54,5
Normal	30	45,5

From the table 4 above, it shows that of the 66 respondents, 36 respondents (54, 5 %) have poor protein intake and 30 respondents (45, 5 %) have normal protein intake.

**Table 5.**  
**Frequency Distribution of Nutrition-Conscious Family at Karya Mukti Public Health Center in 2021**

Nutrition-Conscious Family	Frequency (N)	Percentage (%)
Nutrition-Conscious Family	32	48,5
No Nutrition-Conscious Family	34	51,5

From the table 5 above, it shows that of the 66 respondents, 32 respondents (48.5 %) have nutrition-conscious family and 34 respondents (51.5%) have no nutrition-conscious family

### Bivariate Analysis

**Table 6.**  
**The Relationship of Knowledge with the Incidence of Stunting and Severe Stunting at Karya Mukti Public Health Center in 2021**

Knowledge	The Incidence of Stunting and Severe Stunting				Total	Sig	OR
	Yes	%	No	%			
Good	17	25,8	11	16,7	28	0,032	3,3
Poor	12	18,2	26	39,4	38		

Based on table 6 above, it shows that the percentage of short stunting in poor knowledge

group is higher than that in good knowledge group, namely: 39.4% compared to 16.7%.

**Table 7**  
**The Relationship of Dietary Energy Intake with the Incidence of Stunting and Severe Stunting at Karya Mukti Public Health Center in 2021**

Dietary Energy Intake	The Incidence of Stunting and Severe Stunting				Total	Sig	OR
	Yes	%	No	%			
Poor	12	18,2	26	39,4	38	0,035	0,2
Normal	17	12,3	11	16,7	28		

Based on the table 7 above, it shows that the percentage of severe stunting and short stunting in poor dietary energy intake group is higher than that

in normal dietary energy intake group, namely: 39.4% compared to 16.7%.

**Table 8**  
**The Relationship of Protein Intake with the Incidence of Stunting and Severe Stunting at Karya Mukti Public Health Center in 2021**

Protein Intake	The Incidence of Stunting and Severe Stunting				Total	Sig	OR
	Yes	%	No	%			
Poor	10	15,2	26	39,4	36	0,008	0,2
Normal	19	28,8	11	16,7	30		

Based on the table 8 above, it shows that the percentage of severe stunting and short stunting in poor protein intake group is higher than that in

normal protein intake group, namely: 39.4% compared to 16.7%.

**Table 9**  
**The Relationship of Nutrition-Conscious Family with the Incidence of Stunting and Severe Stunting at Karya Mukti Public Health Center in 2021**

Nutrition-Conscious Family	The Incidence of Stunting and Severe Stunting				Total	Sig	OR
	Yes	%	No	%			
Nutrition-Conscious Family	19	28,8	13	19,7	32	0,028	3,5
No Nutrition-Conscious Family	10	15,2	24	36,4	34		

Based on the table 9 above, it shows that the percentage of severe stunting and short stunting in families who have no nutrition awareness is higher

than those who have nutrition awareness, namely: 36.4% compared to 19.7%.

## DISCUSSION

The results of statistical tests using chi-square showed that there was a significant relationship between knowledge and the incidence of stunting and severe stunting with the p value of 0.035 ( $p < 0.05$ ). The Odds Ratio (OR) value was 3.3, meaning that the incidence of severe stunting and stunting has a 3.3 times chance occurred in poor knowledge group than that in good knowledge group.

The results of this study are in line with the results of a study conducted by Hasriani et al. (2020) in Singakerta Village, Gianyar Regency showing that there was a significant relationship between mother's knowledge and the incidence of stunting with the p-value of  $0.001 < 0.005$  in which mothers who have poor knowledge had a 4.8 times greater risk for their children to experience stunting compared to mothers who have good knowledge about nutrition for their children.

The present study is also in line with the results of a study conducted Dewi et al. (2021) in Gianyar Regency revealing that there was a significant relationship between mothers' knowledge about nutrition and the incidence of stunting in children with p-value of  $0.007 < 0.05$ , in which mothers' knowledge about nutrition could reduce the risk of stunting in children.

Parents' knowledge regarding the symptoms, the effects that arise, including the prevention of stunting can be a determinant of their attitude in maintaining their children's health so that stunting can be prevented. Information obtained from parents about stunting must be truly comprehended and remembered by parents so that stunting prevention can be carried out (Rahmawati, et al 2019). Information regarding stunting prevention is really crucial for cadres, so that counseling for mothers can be provided and it is hoped that stunting incidence can be decreased (Maywita, 2018).

According to Notoatmodjo (in Yoga and Rokhaidah, 2020) knowledge is the result of knowing after someone has sensed an object using the five senses they have, such as the senses of sight, smell, hearing, touch, and taste. In addition, He adds that knowledge is a guide to the formation of one's behavior and attitudes in which this knowledge fosters one's understanding of behavior.

In this study, the results of statistical tests using chi-square showed that there was a significant relationship between dietary energy intake and the incidence of stunting and severe stunting with the p-value of 0.035 ( $p < 0.05$ ). The Odds Ratio (OR) value was 0.2, meaning that the

incidence of stunting and severe stunting is 0.2 times more likely to occur in poor dietary energy intake group compared to normal dietary energy intake group.

The results of this present study are in line with the results of a study conducted by Nugraheni et al. (2020) in East Nusa Tenggara Province which showed a significant relationship between low intake of energy, protein, iron, and zinc and the incidence of stunting. The study explains that energy intake has a 16.71 times greater risk of stunting. It is also supported by the results of a study carried out by Fitri et al. (2020) showing a significant relationship between energy intake and the incidence of stunting in children at Lima Puluh Kota Pekanbaru Health Center with p- value of  $0.001 < 0.005$ .

Based on the results of the analysis in this study, it shows that good or bad nutritional intake can have a positive or negative impact on the growth process of children. The adequacy of nutritional intake in children can affect children's metabolic processes which will directly have an impact on children development which can lead to stunting in children. Therefore, it is very important to detect the energy intake deficiency and improve energy intake in children when they are under 2 years because it can reduce the risk of malnutrition in children. Adequate energy intake in children can reduce the risk of stunting.

Nowadays, there are various types of food consumption survey methods. The identification of various methods can be distinguished based on their objectives. The food consumption survey method according to its target can be divided into two categories, namely the individual food consumption survey method and the group food consumption survey method. The individual food consumption survey methods are the 24-hour food recall method, food weighing, food record, and dietary history. The group food consumption survey methods are food frequency questionnaire, food accounts and food balance sheet (Food Consumption Survey, 2018).

The food frequency questionnaire method focuses on the frequency of food consumption in the subject. The frequency of consumption will provide information on the number of repetitions of several types of food in a certain period of time. Repetition is defined as the amount of exposure to food consumption in the subject which will ultimately be positively correlated with the subject's nutritional intake status and the accompanying health risks. The food frequency questionnaire method cannot be used for the purpose of knowing the level of

nutritional intake. The information collected includes the most frequently consumed foods. This method requires careful preparation. Good preparation includes an initial survey of food and beverages at the survey site. The food frequency questionnaire method is not compared with the Nutritional Adequacy Ratio (RDA) so that is why this method is not used to assess the percentage of nutritional intake. The ultimate information obtained from this method is a disease related or not related to the frequency of eating certain foods or not (Food Consumption Survey, 2018).

The results of statistical tests using chi square in this study showed that there was a significant relationship between protein intake and the incidence of stunting and severe stunting with the p-value of 0.008 ( $p < 0.05$ ). The Odds Ratio (OR) value was 0.2, meaning that the incidence of stunting and severe stunting is 0.2 times more likely to occur in poor protein intake group than that in normal protein intake group.

The results of this present study are in line with the results of a study carried out by Nugraheni et al. (2020) in East Nusa Tenggara Province which showed a significant relationship between low intake of energy, protein, iron, and zinc on the incidence of stunting. The study explains that protein intake has a 26.71 times greater risk of stunting.

The results of the present study are also in line with a study conducted by Azmy and Mundiastuti (2018) showing that there was a relationship between energy, protein, fat, carbohydrate, and zinc intake in children under 5 years with nutritional status (TB/U), so that adequate intake of nutrients is needed during toddlerhood.

Nurmalasari et al. (2019) in her study found that there was a relationship between protein adequacy and the incidence of stunting in children under 5 years in Mataram Ilir Village, Seputih Surabaya, Lampung Tengah Regency in 2019. The results of the analysis showed p-value of  $0.000 < 0.05$ . Thus, nutritional adequacy is very important for the health of children under five years and the children growth development is influenced by the nutrition intake in the children. Factors related to nutritional status is nutritional intake. Abnormal nutritional status in children is due to lack of good nutritional intake which has an impact on the nutritional status of these children. Therefore, it is recommended that mothers who have children under five years provide a variety of foods that function for children growth and development and take advantage of health services such as

discussing with the health authorities if their children have an eating disorder so that poor or abnormal nutritional status in children can be prevented. Hence, the efforts are made to provide a balanced diet so that children remain healthy. Children's health can be achieved through efforts to provide a balanced diet and a good diet in accordance with their nutritional needs.

According to Hutabarat (2019) there is a relationship between protein intake and the incidence of stunting (with the p-value = 0.000) in children at SDN 054901 Sidomulyo, Stabat District, Langkat Regency. Thus, it is necessary to carry out socialization and counseling by health workers to parents in order to apply balanced nutrition guidelines for children's growth and development.

Azmy and Mundiastuti (2018) in their study found out that there is a relationship between energy, protein, fat, carbohydrate, and zinc intake with nutritional status in children, so that adequate intake of nutrients is needed during toddlerhood.

The results of statistical tests using chi-square in this present study showed that there was a significant relationship between nutrition-conscious family with the incidence of stunting and severe stunting with the p value of 0.028 ( $p < 0.05$ ). The Odds Ratio (OR) value obtained was 3.5 meaning that the incidence of stunting and severe stunting is 3.5 times more likely to occur in families who have no nutrition awareness compared to families who have nutrition awareness.

The results of this study are in line with the results of a study carried out by Saenal (2019) in Tarowang Village, Tarowang District, Jeneponto Regency showing that there was a significant relationship between nutrition-conscious family behavior and the incidence of stunting in children under five years.

It is also supported by the results of a study conducted by Apriani (2018) in Pucang Sawit Public Health Center working area, Surakarta City showing that there was a relationship between the implementation of nutrition-conscious family with the incidence of stunting, p value of  $0.001 < 0.005$ . Families who have a poor level of nutrition awareness have the opportunity to increase the risk of stunting in children under two years, in which it is 20.6 times greater than that families who have a good level of nutrition awareness

Based on the results of the present study, the implementation of nutrition-conscious family in the household is closely related to the nutritional status of the children. The higher the implementation of nutrition-conscious family in the household, the lower the incidence of stunting in the

children. On the other hand, the lower the implementation of nutrition-conscious family in the household, the higher the incidence of stunting in the children. According to Elvzahro (2019), a nutrition-conscious family is a family that is able to recognize and prevent nutritional problems for each member of the family.

## CONCLUSION

Based on the results of the study at Karya Mukti Public Health Center in 2021, it could be concluded that there was a significant relationship between knowledge, dietary energy intake, protein intake and nutrition-conscious families with stunting and severe stunting at Karya Mukti Public Health Center in 2021. It was indicated by the results of the Chi-Square test on the knowledge variable that obtained the p-value of 0.035 ( $\leq 0.05$ ), on the dietary energy intake variable that obtained the p-value of 0.035 ( $\leq 0.05$ ), on the protein intake variable that obtained the p-value of 0.008 ( $\leq 0.05$ ) and on the nutrition-conscious family variable that obtained p-value of 0.028 ( $\leq 0.05$ ).

## SUGGESTION

It is recommended that Karya Mukti Public Health Center should be more active in providing counseling to midwives related to the incidence of stunting and severe stunting. Then, this study can be used as a reference in an effort to improve health services, especially in handling the incidence of stunting and severe stunting at Karya Mukti Public Health Center.

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