



Research Article

Energy And Protein Intake In Stunting Toddlers In The Work Area Of Public Health Center City South Region, Kediri City

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DOI: 10.33086/mphj.v6i2.3006

Article History:

Received, June 22nd, 2022

Revised, July 22nd, 2022

Accepted, July 29th, 2022

Available Online: September 13th, 2022

Please cite this article as:

Laila Adhani, E., & Rizky Indrasari, O., "Energy And Protein Intake In Stunting Toddlers In The Work Area Of Public Health Center City South Region, Kediri City". Register: Medical Technology and Public Health Journal, Vol. 6, No. 2, pp. 123–130, 2022.

ABSTRACT

The stunting factor is the lack of food intake that contains energy and protein. The purpose of this study was to determine the description of energy and protein intake in stunting toddlers in the Work Area of the Southern City Health Center, Kediri City. This descriptive study was conducted in four villages with a sample of 10 respondents who were stunted toddlers. Assessment of individual nutrient intake through a food consumption survey using the semiquantitative food frequency questionnaire method. The results that most toddlers had less energy intake as many as 10 toddlers, and most toddlers had less protein intake as many as 8 toddlers. Energy intake in toddlers is said to be lacking and has not met the energy intake that has been set at the nutritional adequacy rate (RDA) of (1350 kcal) for ages 2-3 years, and has not met the energy intake that has been determined by the RDA (1400 kcal) for ages 4- 5 years. Protein intake in toddlers there are, 2 toddlers have protein intake that meets the RDA (20 grams), while 8 toddlers have not met the protein intake that has been set at the nutritional adequacy rate (RDA) (25 grams). It is hoped that mothers of toddlers will increase the diversity of food intake for toddlers and pay more attention to the nutritional content of food in toddlers according to their, so that they can support the process of optimal growth and development of toddlers.

Keywords: Energy intake, nutritional adequacy, protein intake, stunting, toddlers

INTRODUCTION

Stunting is one of the nutritional problems faced in developing countries such as Indonesia. Nutritional problems often occur due to low consumption of energy and protein substances in the daily diet. *Stunting* is a form of failure in growth (*growth faltering*) caused by the accumulation of insufficient nutrition for a long time or for a long time starting from pregnancy until the age of 24 months so it is included in chronic nutritional problems (Sutarto, 2018).



The incidence of *stunting* is influenced by several factors, one of which is food intake. Children's food intake is often low in quality and quantity. Good quality food is the most critical component in the diet of toddlers and children, including sources of macronutrients (carbohydrates, fats, proteins) and micronutrients (zinc and calcium) all of which play an essential role in the growth of toddlers (Fitra, 2017).

The protein adequacy level is the protein adequacy rate with the recommended percentage per person per day for each age group and gender. Nationally, the average level of protein adequacy for children aged 0-59 months in Indonesia is 36.9 grams, above the RDA (25.5 grams). Toddlers who consume protein with sufficient quality and quantity accompanied by sufficient energy consumption will have an optimal growth process (Suprihartini, 2018).

Protein intake is needed by the body as a building material, and is useful for maintaining and repairing tissues in the body. Lack of protein intake in toddlers has a significant influence on the nutritional status of toddlers. Energy intake also affects toddler nutrition. Energy intake in *stunting* (short) toddlers, tends to be lower than normal toddlers. Lack of energy intake at the age of toddlers can occur due to poor food habits, inadequate food and nutrition availability, and fussy behavior in toddlers when eating (Fitra, 2017).

Indonesia was ranked fourth in the world in 2018 for the number of children in *stunting* and in the province of East Java itself in 2019, it was (27.7%) 4. The Southern Region City Health Center houses 4 (four) urban villages, namely Ngronggo, Rejomulyo, Manisrenggo, and Kaliombo. Based on secondary data obtained in 2019 the incidence of *stunting* in toddlers was 207 toddlers. In 2020 there was an increase in the incidence of *stunting* among 248 toddlers. Of the 4 (four) regions, the *stunting* occurred in the Ngronggo area, with a *stunting* of 83 toddlers in 2019 and as many as 71 toddlers in 2020. In the Ngronggo region alone, *stunting* was in the banana posyandu with 8 toddlers in 2019 and 10 toddlers in 2020 (Nutrition Data, 2020).

Based on the description above, this study aims to determine the description of energy and protein intake in *stunting* toddler in the Work Area of the City Health Center in the Southern Region of Kediri City.

METHODS

The type of research used in this research is descriptive. This research was carried out at the Pisang Posyandu in the South Region City Health Center Work Area. The Pisang Posyandu is located in Ngronggo Village, Kediri City District. The population in this study was 10 *stunting* toddlers. The sample taken in this study was the entire population, namely 10 toddlers with *stunting* cases in the banana posyandu area.

Data collection consists of primary data and secondary data. Primary data collection by interviewing respondents, namely mothers of stunted toddlers *stunting* aged 2-5 years using a questionnaire sheet covering data on, energy and protein consumption of toddlers in the Semi FFQ (*Food Frequency Questionnaire*). Meanwhile, secondary data collection was obtained through a study of the nutritional report recapitulation of the Southern City Health Center in 2019 and 2020, Basic Health Research in 2018. Univariate analysis was used to describe each variable between energy intake and energy presented in a frequency distribution.

RESULTS

Problem Identification

Fishbone Diagram are using to identificate the problem in this article.

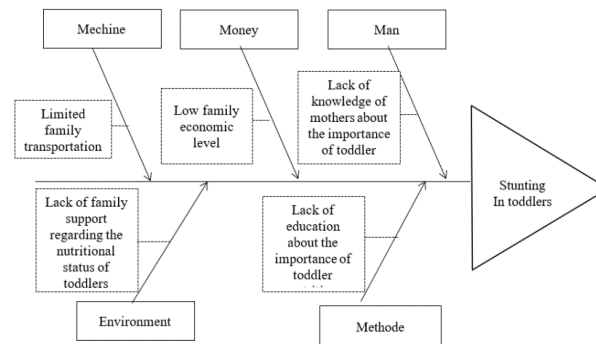


Figure 1. Fishbone Diagram

Parent's Work Frequency Distribution

Table 1. Parent's Work Frequency Distribution

Occupation	n	%
Homemakers	8	80
Entrepreneurs	2	20
Total	10	100

Based on table 1 above, it can be seen that the distribution of parents' occupations is mostly 8 homemakers (80%).

Frequency Distribution of Parents' Income

Table 2. Frequency Distribution of Parents' Income

Income	n	%
<UMR	7	70
UMR	1	10
>UMR	2	20
Total	10	100

Based on table 2 it is known that most of the parents' income <UMR 7 people (70%).

Frequency Distribution of Toddler Age

Table 3. Frequency Distribution of Toddler Age

Age Toddler	n	%
2-3 years	7	70
4-5 years	3	30
Total	10	100

Based on table 3 it is known that the average is 2- 3 years for as many as 7 respondents (70%).

Distribution of Toddler Frequency by Gender

Table 4. Distribution of Toddler Frequency by Gender

Gender	n	%
Male	5	50%
Female	5	50%
Total	10	100

Based on table 4 it can be seen that under five are male, with as many as 5 toddlers (50%) and 5 children under five (50%).

Energy Intake of Toddlers

Table 5. Frequency Distribution of Toddlers Energy Intake

Energy Intake	n	%
Enough	0	0
Less	10	100
Total	10	100

Based on table 5 it can be seen that all toddlers with low energy intake were 10 respondents (100%).

Protein Intake of Toddler Protein

Table 6. Frequency Distribution of Toddlers Protein Intake

Intake Protein Intake	n	%
Enough	2	20
Less	8	80
Total	10	100

Based on table 6 it is known that most the toddlers have less protein intake as many as 8 respondents (80%).

DISCUSSION

Parents Occupation

The results showed that the average parent's occupation as homemakers, as many as 8 people (80%). The profession of, women works outside the home to earn additional income both for themselves and for their families. A mother's employment status significantly affects the provision of nutrition to toddlers. Working mothers have an impact on the low time together between mothers and children, so that food intake cannot be fulfilled and is not appropriately controlled so that which can trigger growth and development in toddlers (Andarwulan et.al, 2019).

These results are in line with the research results conducted by Setiana (2019), showing the Chi-Square test obtained a p-value of 0.409. This value is smaller than = 0.5, which means that homemakers influence children's growth and development because homemakers have more time to interact in raising children. Hence, homemakers have a more significant opportunity to become educators and give their attention to caring for their children. Encourage children's growth and development, such as supervising food intake in children or toddlers. This will undoubtedly reduce the risk of *stunting* in the toddlers themselves (Irviani, 2014).

Income of Parents of Respondents

The results showed that most of the income of parents <UMR were 7 respondents (70%). Parents with low incomes can affect the level of consumption in toddlers. Usually, low-income parents consume cheaper food so that the availability of food in the household is less varied, generally, they do not always focus on increasing the consumption of nutrients needed by the body. Parents or families with low incomes are not good at managing food availability in the household. They mostly buy food in small quantities and pay less attention to the nutritional quality of the food consumed. This can affect the state of nutrient intake in family members (Irviani, 2014).

This result is also in line with the results of Nuraeni's (2021) study which showed that the chi-square test value obtained p-value = 0.02 (<0.05) so that the income or income of parents has an impact on the nutrition of children under five, this is due to low income or income. Low levels in parents cause parents' limitations in fulfilling and serving nutritious food so that children have a higher chance of experiencing stunting.

Toddler Age

Based on the study results, it was shown that most of the toddlers aged 2-3 years were seven toddlers (70%). The toddler period is a period where the growth and development of bones, teeth, muscles, and blood begins, so at this time, toddlers require more nutritional intake than adults. Toddlers need nutrient intake during the growth and development process because the process of toddler growth and development is influenced by the food they consume (Prakhasita, 2018).

This study is in line with the results of Agnes' research (2018), which explains that children aged 2-5 years need to get more attention to meet their nutritional needs because children are in a period of growth and development. The age of 2-5 years is when children are no longer given breast milk, so it is necessary to fulfill nutrients from the food consumed to avoid stunting (Rihi Leo et al, 2018).

Overview of Energy Intake

Based on the results of this study, energy intake in respondents aged 2-5 years who have less energy intake with a percentage of 100%. The calculation of energy adequacy in Respondent 1 is 1125.0 kcal, indicating that they have not met the RDA (1350 kcal). Respondent 2 has an energy intake of 501.2 kcal, indicating that they have not met the RDA (1350 kcal), Respondent 3 has 648.3 energy intake kcal, indicating that they have not met the RDA (1350 kcal), and Respondent 4's energy intake, 394.4 kcal, indicates that they have not met the RDA (1350 kcal), Respondent 5's energy intake is 328.3 indicating that they have not met the RDA (1350 kcal), Respondent 6 have 626.3 kcal energy intake indicating that they have not met the RDA (1400 kcal), Respondent 7's energy intake is 308.6 indicated that they have not met the RDA (1400 kcal), Respondent 8's energy intake is 260.7 kcal indicating that they have not met the RDA (1400 kcal).), Respondent 9's energy intake was 293 kcal, indicating that they had not met the RDA (1350 kcal), and Respondent 10 had an energy intake of 360.0 kcal, indicating that they had not met the RDA (1350 kcal). Toddlers aged 2-3 years with less energy intake and did not meet the energy adequacy rate (1350 kcal) were

seven toddlers, while toddlers aged 4-5 years were three with energy intake that did not meet the RDA (1400 kcal).

Energy is one of the products of metabolism between carbohydrates, proteins and fats. Lack of energy intake in toddlers is possible because of the availability of a variety of food in the family that is less so that it affects the quality and quantity of food consumed. Energy deficiency occurs when the energy consumed through food is less than the energy expended, so the body tends to experience an energy balance. If this happens to a toddler, it can inhibit the growth and development process of the toddler's body. The toddler will have an excellent opportunity to be at risk of *stunting* (short) and the symptoms caused such as weakness, lack of enthusiasm and decreased resistance to infectious diseases (Fitri L et. al, 2020).

These results are in line with the analysis of previous research by Lalu, Bambang and Sandra (2020) which was conducted to determine the relationship between energy and protein intake in toddlers aged 22-60 months in Mangkung Village, Central Lombok District which showed 0.000 (p-value <0.05) which means that there is a significant relationship between energy intake and the incidence of *stunting* in toddlers aged (25-60 months) with a Prevalence Odds Ratio (POR) of 9.9 with a range (95% CI 6.397-15.239) which means toddlers who have less energy intake will have a 9.9 times chance of experiencing *stunting* compared to toddlers who have sufficient energy intake.¹³

Overview of Protein Intake

Based on the calculation of protein intake in respondents aged 2-3 years, *stunting* has protein intake. Most of them have less protein, with a percentage of 70%. Meanwhile, protein intake for all respondents aged 4-5 years with *stunting* has less protein intake with 30%.

The results of the calculation of protein intake in Respondent 1 are 54.1 grams, indicating that the toddler has met the RDA (20 grams), and Respondent 2 has a protein intake of 22.2 grams, indicating that the toddler has met the RDA (20 grams), Respondent 3 has protein intake 19, 3 grams indicates that the toddler has not met the RDA (20 grams), Respondent 4's protein intake is 19.8 grams indicating that the toddler has not met the RDA (20 grams), Respondent 5's protein intake is 12.1 grams, indicating that the toddler has not met the RDA (20 grams), Respondent 6 had a protein intake of 22.7 grams indicating that the toddler had not met the RDA (25 grams), Respondent 7 had a protein intake of 13.5, indicating that the toddler had not met the RDA (25 grams), Respondent 8 had a protein intake of 9.1 gram indicates that the toddler has not met the RDA (25 grams), Respondent 9 protein intake is 12.3 grams indicating that the toddler has not met the RDA (20 grams). Respondent 10 protein intake is 17.4 indicates that the toddler has met the RDA (20 grams).

Toddlers aged 2-3 years have a nutritional adequacy rate (20 grams of RDA) protein intake in the excellent category as many as two toddlers, while five other toddlers have an adequate protein intake in the less category. Toddlers aged 4-5 years have protein intake in the category of less because they have not met the nutritional adequacy rate (RDA) for protein (25 grams). The protein quality in food is determined by the composition and amount of essential amino acids. Toddlers who consume protein of sufficient quality and quantity accompanied by sufficient energy consumption will have an optimal growth process (Suprihartini, 2018). Protein intake is needed by the body as a building material, maintaining and repairing tissues. The quality and quantity of protein consumption significantly affect

nutritional intake and insulin *growth factor* I (IGF-I) levels, bone matrix and growth bound to bone formation. Apart from being a protein-building substance, it plays an important role in the growth and development of toddlers, if toddlers lack protein for a long time, it is feared that they will experience growth failure.

CONCLUSION AND SUGGESTION

Based on the results of research that has been carried out, several conclusions were obtained as follows:

1. Energy intake in toddlers is said to be lacking and has not met the energy intake that has been set at the nutritional adequacy rate (RDA) of (1350 kcal) for ages 2-3 years, and has not met the energy intake that has been determined by the AKG (1400 kcal) for age 4-5 years..
2. Protein intake for toddlers aged 2-3 years, there are 2 toddlers who have protein intake that meets the RDA (20 grams), while 8 toddlers have not met the protein intake that has been set at the nutritional adequacy rate (RDA) (25 grams).

It is hoped that mothers of toddlers can increase the diversity of food intake for toddlers and pay more attention to the nutritional content of the food given to toddlers according to their age to support the growth process and optimal development of toddlers.

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