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Daily Protein Intake among Stunted Toddlers in Cimahi, Indonesia

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ABSTRACT

This study aimed to determine daily protein intake levels in stunted toddlers. This study involved 64 mothers of stunted toddlers aged 1–5 years. Daily protein intake was assessed using the semi-quantitative Food Frequency Questionnaire (FFQ). The results show that children aged 1–3 years had a moderate category of protein intake of 18.9±8.4 g. Meanwhile, children aged 4–5 years had a less good category of protein intake of 20.0±6.3 g.

Keywords: protein intake, stunting, toddlers

INTRODUCTION

Stunting is a chronic nutritional problem caused by the lack of nutritional intake over a long period of time and the provision of food with inadequate nutrition. Cimahi City is one of the cities with chronic acute stunting problems, and the prevalence of stunting in this city is 27.8% (Kamaludin 2018). The 2018 report states that the prevalence of stunting in under–five children in Cimahi Village, located in the Central Cimahi District area, is 25.8%. Another study deploys that several health and nutritional factors that directly cause stunting in toddlers are history of infectious diseases, nutritional knowledge, nutritional status, and nutritional intake (Uliyanti *et al.* 2017). Toddlers with low protein intake are 1.6 times more likely to be stunted than toddlers with sufficient protein intake. This shows that protein intake is pivotal in determining under-five children's nutritional status (Soumokil 2017). This study aims to investigate the daily protein intake levels of stunted toddlers in Cimahi Village, Central Cimahi District, Cimahi City.

METHODS

The research employed a cross-sectional design. The population of this research was 172 stunted toddlers aged 12–59 months who were recruited from the Cimahi Village, North Cimahi Subdistrict, Cimahi City, West Java Province. The data were collected from March to April 2019. Dietary intake data was assessed using the two-days 24-hour food recall instrument and the Food Frequency Questionnaire (FFQ) from the mothers of stunted toddlers. The number of subjects was determined based on Slovin's formula with an error degree of 10%; thus, the total subjects was 64 stunted toddlers. The inclusion criteria were toddlers' height or length categorized stunting and toddlers' parents who were willingly interviewed about their child's protein intake. The exclusion criteria were stunted toddlers who were sick during data collection.

Data analysis

The data were analyzed using a quantitative descriptive manner in MS Excel. The daily protein adequacy status was classified into five different groups based on the criteria suggested by Supariasa (2002).

RESULTS AND DISCUSSION

The majority of stunted children were 1–3 years old (72%). The other was children aged 4–5 years old (28%). The majority of the stunted children were boys (69%). Nutritional status assessment has revealed that most stunted children are moderately underweight (86%), while 14% of them are severely underweight.

The Minister of Health of the Republic of Indonesia No. 28 of 2019 regulates that protein intake for toddlers aged 1–3 years is 20 g/day and that for toddlers aged 4–5 old is 25 g/day. The details of protein adequacy levels are presented in Table 1. The average protein intake for stunted

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Table 1. Groups of nutrient adequacy levels

Characteristics	n (%)	Average±SD (g)
Category of protein intake		
1–3 years		18.9±8.4
Excess	9 (19.6)	
Enough	16 (34.8)	
Moderate defisit	3 (6.5)	
Mild deficit	3 (6.5)	
Severe deficit	15 (32.6)	
4–5 years		20.0±6.3
Excess	2 (11.1)	
Enough	4 (22.2)	
Moderate defisit	2 (11.1)	
Mild deficit	4 (22.2)	
Severe deficit	6 (33.4)	
Sources of protein intake	Animal $\bar{x}$±SD (g)	Vegetable $\bar{x}$±SD (g)
1–3 years	12.6±8.4	6.3±3.5
4–5 years	12.0±7.4	8.0±3.6

toddlers aged 1–3 years was 18.9±8.4 g, while that for stunted toddlers aged 4–5 years was 20.0±6.3 g. These findings show that the two groups still have lower protein intakes than the recommended intake. These findings agree with Soumokil (2017), who has discovered 67% of stunted toddlers in Central Maluku Regency have protein intake below the recommended adequacy.

Proteins derived from animals have high biological values because such proteins contain all types of essential amino acids in appropriate amounts of growth. The data show the protein intake of stunted toddlers aged 1–3 years primarily sources from animal ingredients for 12.6±8.4 g (66.8%), and 6.3±3.5 g (33.2%) from vegetables. The animal protein intake of stunted toddlers aged 4–5 years was 12.0±7.4 g (61.0 %), and their vegetable protein intake was 8.0±3.6 g (39.1%). Ernawati (2016) deployed that, on average, stunted toddlers in Indonesia have a higher percentage of animal protein intake by 60% (2.4 g) than vegetable protein intake by 40% (15.52 g).

CONCLUSION

Protein intake of stunted children aged 1–3 years was 18.9 g/day, and that of children aged 4–5 years was 20.0 g/day. The findings show that the two groups did not achieve the recommended levels of daily protein intake. Adequate protein is mostly met from animal protein sources. Eggs were the source of animal protein that the two groups most frequently consume.

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DECLARATION OF INTERESTS

The authors assert they have no conflicts of interest.

REFERENCES

Ernawati F, Prihatini M, Yuriestia A. 2016. The profile of vegetable-animal protein consumption of stunting and underweight children under five years old in Indonesia. Penelitian Gizi dan Makanan 39(2):95–102. https://doi.org/10.22435/pgm.v39i2.6973.95-102

Kamaludin H. 2018. Ada 7.965 Anak Stunting di Kota Cimahi, Ini Kata Dinas Kesehatan. Tribun Jabar. 1 Agustus 2018. https://jabar.tribunnews.com/2018/08/01/ada-7965-anak-yang-alami-stunting-di-kota-cimahi-begini-kata-dinkes [Accessed 30th May 2019].

Supariasa IDN. 2002. Penilaian Status Gizi. Jakarta (ID): Buku Kedokteran EGC.

Soumokil O. 2017. Hubungan asupan energi dan protein dengan status gizi anak balita di Kecamatan Nusalaut Kabupaten Maluku Tengah. Global Health Science 2(4):341–350. http://dx.doi.org/10.33846/ghs.v2i4.163

Uliyanti U, Tamtomo DG, Anantanyu S. 2017. Faktor yang berhubungan dengan kejadian stunting pada balita usia 24–59 bulan. Jurnal Vokasi Kesehatan 3(2):67–77. https://doi.org/10.30602/jvk.v3i2.107