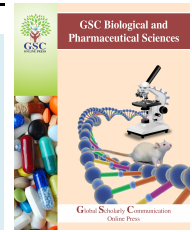


Available online at [GSC Online Press Directory](http://www.gsonlinepress.com)

GSC Biological and Pharmaceutical Sciences

e-ISSN: 2581-3250, CODEN (USA): GBPSC2

Journal homepage: <https://www.gsonlinepress.com/journals/gscbps>

(RESEARCH ARTICLE)



The role of family's socio-economic status at stunting adolescences food intake in second growth spurt

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Publication history: Received on 08 October 2018; revised on 24 October 2018; accepted on 29 October 2018

Article DOI: <https://doi.org/10.30574/gscbps.2018.5.2.0113>

Abstract

Stunting is a chronic nutritional problem in various developing countries, including Indonesia. The purpose of this study was to analyze the socioeconomic role of families on macro and micro nutrient intake in adolescent stunting. This research is a quantitative study with cross sectional design on 52 adolescent stunting. Enforcement of a stunting diagnosis using WHO's anthroplus software. The data used are age, gender, and height with the results of Z score TB / U. Data analysis uses SPSS with chi-square test. The results of the descriptive analysis showed that the proportion of male stunting (46.2%) and female (53.8%) was almost the same. They consumed fat (44.2%) and protein (59.6%) excess but carbohydrate deficit (40.4%). While the amount of micronutrient intake is actually a deficit of both vitamin A (57.7%), Fe (92.3%), and Zn (86.5%). Parental education and work were not related to macronutrients and micronutrient adolescent intake of stunting ($p > 0.05$). The result of cross tabulation, the stunting of adolescents in socioeconomic status is not really getting good macro intake (60.7%). As for micro intake, at high socioeconomic status, less intake (79.2%). Parents pay more attention to the quality of adolescent food intake to maximize growth potential at the second growth acceleration.

Keywords: Stunting; Adolescents; Second growth spurt; Intake food; Family's socio economy status

1. Introduction

Indonesia was one of the developing countries with some complex health problems. Therefore, health problems become one of the priorities to be overcome. This was because a strong human resource can be obtained from a healthy physique. Of the many health problems that occur, nutrition into health problems that have occurred since the first until now. Chronic malnutrition issues that in 2018 became the priority of handling the Indonesian government was stunting in 100 cities and districts. Indonesia stunting rates were higher compared to Myanmar, Vietnam and Thailand. Approximately 17.9% of underfives underweight nationally, 4.5% have malnutrition. [1]

Basic Health Research Data of 2013 found the nutritional status of 13-15 year olds was known to be 36.1% in the stunting category (13.8% severe stunting and 22.3% mild stunting) Stunting was a less chronic malnutrition problem. enforced in infants, toddlers, and adolescents <18 years who have Height Age Zscore (HAZ) <2 SD [2]. The immediate cause of stunting was infectious diseases and poor quality and long lasting quantity of nutritional intake. The nutritional intake in question includes macronutrients and micronutrients. The micronutrient focus to be studied includes vitamins A, Fe and Zn. This is because all three have the same function that is very influential on the growth [3]. In addition, stunting is also caused by the socio-economic condition of the family. According to the chart of the causes of nutritional problems, the low socio-economic family will have an effect on the provision of food [4].

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In the life cycle, there was acceleration of growth as much as 2 times, there were when toddlers and adolescents. Stunting in toddlers and adolescents has a difference. Among them, in the toddler more easily pursued to achieve standards according to age. While in adolescents not many who understand that stunting also still be pursued in the growing phase of adolescent chase. Known for its second chase of growth. Whereas stunting will have an impact if not handled optimally. In order to maximize the second chase, nutritional intake of adolescent stunting need to be improved both quality and quantity. In the future, short people will not have equal opportunity to achieve success compared to normal people. For example, being an athlete, a job that requires a certain height, and also low self-esteem [5]. In the study area, there was a small population of 32% of adolescents. This was a problem, considering the stunting limit set by the WHO said to be a problem if the percentage is > 10%. This study aims to analyze the role of socio-economic status of adolescent stunting family in nutritional intake of adolescent stunting.

2. Material and methods

2.1. Study setting and participant

Selected location for this study is in SMP 15 Kota Semarang. The research started from February to May 2017 which started from the initial survey until the data was completed. The sampling of the research was done by measuring the height of all students. The results obtained 105 stunting adolescents as the study population. The number of samples obtained using slovin formula is 52 by random sampling. The type of research selected was explanatory research using cross sectional design.

2.2. Variables, instrument and measurements

Measurement of height using microtoa that has a precision of 0.1 cm. While age, seen from student report cards. Then calculated using WHO Anthroplus to get the value of Zscore TB / U. Other data retrieval using questionnaires that contains all components of research variables. The questionnaire also included informed consent because there were some question points on the sensitive questionnaire, such as income. The socio-economic status of the family is an independent variable. While the intake of nutrient in question was the intake of macronutrients and micronutrients that have a position as a dependent variable. The determination of the socioeconomic status of the family is obtained by scoring on the level of education, occupation, income, home ownership, home building area, motor ownership, car ownership, and the total burden of family members. Scoring variables of socioeconomic family status, micronutrient intake, and macronutrients are added up. Then, each variable is organized into 2 categories (good and less). Macronutrient intake includes carbohydrate, fat, and protein intake. While the micro intake consists of Fe, Zn, and vitamin A. Nutrient intake data obtained from recall 2 x 24 hours. The results were made into 5 categories and the scores are deficit (1), less (2), enough (3), good (4) and more (5).

2.3. Statistics analysis

SPSS is used as Software to analyze statistics. The test is descriptive and bivariate. Perform tabulation of data for socioeconomic status with macronutrient and micronutrient intake. The value of p value was obtained from bivariate test using chi square test.

3. Results and discussion

Sex distribution of male respondents was 46.2% and women 53.8%. Minimum, maximum, mean, and standard deviation values are presented in Table 1. The highest mean macronutrient intake in carbohydrate intake. The highest intake of micronutrients in vitamin A.

In addition to the average, the nutritional intake of adolescents stunting was also categorized into 5. Presentation of data in table 2 compiled as a whole in 52 respondents, not distinguished by socioeconomic status. Fat intake (44.2%) and protein (59.6%) adolescents stunting, mostly excessive. As for the intake of carbohydrate deficit (40.4%). As for micronutrient adolescents stunting on all three nutrients deficit most.

Table 1 Descriptive analysis for nutrition intake

Variables	Min	Max	Mean ±SD
Fat	28.9	203	93.1±38.7
Carbohydrate	93	574.2	275.2±111.6
Protein	40	235.6	97.9±36.5
Vit A	91.3	878.15	372,81± 184.9
Fe	2.45	28.95	6.8±5.9
Zn	2.60	18.6	5.9±3.6

Table 2 Distribution of percentage (%) of food intake

Category	Fat	Carbohydrate	Protein	Vitamin A	Fe	Zn
Deficit	21.2	40.4	13.5	57.7	92.3	86.5
Low	1.9	11.5	3.8	15.4	1.9	5.8
Enough	23.1	17.3	11.	7.7	3.8	5.8
Good	9.6	9.6	11.5	3.8	0	0
Over	44.2	21.2	59.6	15.4	1.9	1.9

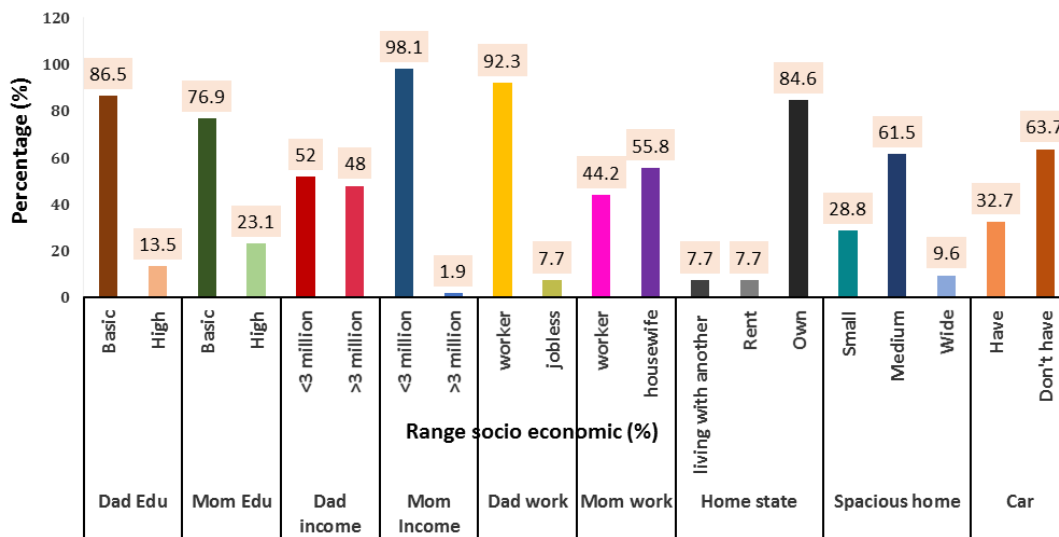


Figure 1 Socio-economic state parameter distribution

Figure 1 shows both the father and the mother, most of whom only have elementary education, ie up to junior high school level. Most of the income of father and mother is less than 3 million. Most fathers work and mothers do not work. Almost all families have their own homes with medium size. All have a motorcycle but a small part of it has a car.

The result of family socioeconomic status variable test with macronutrient and micronutrient intake showed no relationship ($p > 0.05$). Tabulation data was shown in table 3. In adolescent stunting from family of less socioeconomic status, showed better macronutrient intake (60.7%). While on micronutrient intake, both in adolescents from socioeconomic status good and less, less intake.

Table 3 Socio-economic state and nutrition intake tabulation

Socio-economic state	Macronutrient intake (p>0,05)		Total macronutrient	Micronutrient intake (p>0,05)		Total micronutrient
	Less	Good		Less	Good	
Less	11	17	28	23	5	28
	39.3	60.7	100	82.1	17.9	100
Good	12	12	24	19	5	24
	5	50	100	79.2	20.8	100
Total	23	29	52	42	10	52
	44.2	55.8	100	80.8	19.2	100

The second period growth spurt is the period in which one's growth can be pursued if height and weight have not reached the standard. However, most people are less aware of it. A stunting teenager, considered to be genetic. Parents just leave it alone, without thinking of the future effect [5]. In this study, the number of female teenagers stunting more than men. This result was in line with studies in Bangladesh, young women experience menses early in life, which causes psychological stress and an impact on their nutritional intake [6].

The socioeconomic status of families usually seen only from parents' income alone. However, in this study not only presents it alone but also other factors that can be a symbol of socioeconomic status of families in general in Indonesia. Some theories explain that good family socioeconomic status will increase the availability of food [7]. But in this study shows different things. Adolescents stunting from socioeconomic status either or less do not get the necessary micronutrient intake, even all deficits.

As with macronutrient intake, some adolescents stunting from low socioeconomic groups, in fact the intake was mostly good (table 3). The problem that has become a culture in Indonesia, the priority of macronutrient consumption, especially carbohydrates to meet the needs of "hungry". So that the intake of micronutrients become neglected. Adolescents at junior high school was not separated from the snacks served around it. Based on a short observation, most of the snack foods were processed with fried, which resulted in excessive fat intake (table 2).

The work of parents with low incomes is susceptible to increasing the incidence of infection because of the tendency to consume poor quality foods [8].

Limited family income has a big part in determining the quality and quantity of food served. The results of research in Sambongpari community health center, Mangkubumi Sub-District, Tasikmalaya City, showed the relationship between the family's economic conditions on nutritional status [9]. Parental education and income affects parental parenting. Family income was an important factor in providing an adequate nanny and ensuring the necessary needs in child growth [10]. The media show evidence of low family socioeconomic status has a negative impact on the child. The parent will focus on how to increase income rather than having to provide good parenting to her child.

However, the availability of food to support the quality and quantity of nutritional intake of adolescents stunting, not only influenced by socioeconomic status alone. In this case, his position as a quantitative variable. However, it requires awareness of the family to pay attention to what was consumed daily. The average junior high school in Semarang, spending time in school, from 07:00 to 16:00 Monday to Friday. When calculated, the time spent with the family, much less than outside school. What is consumed outside the school, can not be controlled optimally. As a result, their nutritional intake does not suit their needs.

Some of the variables that may be the cause of poor quality and quantity of nutritional intake of adolescent stunting is mother's nursing pattern, knowledge, and action if adolescents have been diagnosed stunting.

4. Conclusions

The socioeconomic status of adolescent family of stunting, either insufficient or good, is not related to nutritional intake of adolescent stunting. Given the consequences of stunting in the future, parents should be more instrumental in improving the quality and quantity of nutritional intake of adolescent stunting.

Compliance with ethical standards

Acknowledgments

The author is very grateful to Dr. Guruh Fajar Shidik, MCs as the Dean of the faculty of Health at Dian Nuswantoro University, Semarang, Central Java, Indonesia, so that this research can run well.

Disclosure of conflict of interest

All authors declare that they have no conflict of interest.

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How to cite this article

Setyawati VA, Hidayat DK, Andika HS, Pradani AN, Rimawati E, Isworo S. (2018). The role of family's socio-economic status at stunting adolescences food intake in second growth spurt. *GSC Biological and Pharmaceutical Sciences*, 5(2), 48-52.
