

Relationship Between the Level of Knowledge and Street Food Consumption Patterns with Nutritional Status of Children

Towi Kusmandayu and Lailatul Muniroh⁺

Department of Nutrition, Faculty of Public Health, Airlangga University Surabaya Indonesia

Abstract. This study aimed to analyze the relationship between knowledge level and street food consumption patterns with nutritional status of children. This study is an observational analytic with cross sectional design. The population was the students in grade IV and V Elementary School of Keputran I and III Tegalsari Surabaya. The sampling technique was simple random sampling. Data analyzed by Spearman test. The results showed there was no correlation between the level of knowledge about street food and nutritional status ($p > 0,05$), there was a correlation between the level of energy and protein intakes of total food and nutritional status ($p < 0,01$), there was no correlation between consumption levels of energy and protein snacks and nutritional status ($p > 0,05$), and there was a correlation between energy and protein contribution of street food with low nutritional status ($p < 0,05$). The conclusion is the street food contributes to sufficiency level of energy and protein. Knowledge about the snacks does not affect nutritional status. The nutritional status of children is not only influenced by consumption of street food but also by the level consumption of total food consumed daily.

Keywords: Level of knowledge, Street food, Nutritional status, Elementary school children

1. Introduction

Food is always associated with human efforts to preserve life and running life, such as convalescence, activity, growth and development. One type of food is widely consumed and has become an integral part of community life, both in urban and rural is snack food (street food). Street food consumption in the community are increase because the limited time of family members to process the food by themselves. Data from the National Socio Economic Survey conducted by the Central Bureau of Statistics (2004) showed that the percentage of family expenditures for street food in Indonesia reached 18,84% per capita per week of total family expenditures for food and beverages, or 10,36% of the total family expenditure [1].

Street food is one of the potential to contribute the nutrient intake for school-age children in everyday life, in addition to main meals which include energy 36%, protein 29% and 52% iron. The snack food has an important role on the growth and learning achievement of school children[2]. Various studies that have been conducted on school children both in urban and rural areas in Indonesia, found the fact that in general the height and weight average primary school children are under the normal size is accompanied by a nutritional deficiency. Not rare in primary school children found signs of nutritional disorders [3]. Based on the results of the National Household Health Survey (NHHS) 2004 [4] shows that good nutrition at school age children and adolescents aged 5-17 years by 74%, with 18% less nutrition and 8% over nutrition. The highest prevalence of malnutrition in school age children are 21%.

Based on research in Surakarta (2008) street foods favored by school age children are interesting foods that are colored, tasty, packed attractive, has not been tried by the child and give a gift in it. The preferred type of beverage is an interesting color, taste sweet, refreshing and also giving a gift. Most of these street foods have a low nutrient content [5].

⁺ Corresponding author. Tel : +62315964808; fax : +62315964809
Email address: lailagizi@gmail.com

The results of preliminary surveys at 60 children in Elementary School of Keputran I and III Surabaya showed that 91,7% of students consumed snack with frequency ≥ 2 times a day. Student allowance average between Rp.1000,00 – Rp.5000,00 per day. 50 -100% that allowances they use to buy street food. 65% of students usually buy food at the food vendors that are outside the school. The habit of eating snacks in elementary school children is very high because in this period they are very like of eating snacks at school and at home, it is also because of their knowledge about street food is still lacking.

Usually the child prefers to street foods attractive shapes and colors, but they do not know whether it's good street food to be consumed. One contributing factor of that is the lack of information or knowledge about good and not good snack foods for consumption. The level of knowledge affects child attitudes and behaviors in selecting food, especially in choosing street foods [6].

This study aims to analyze the relationship between the level of knowledge and street foods consumption patterns with nutritional status of children in elementary school of Keputran I and III Surabaya.

2. Research Methods

This study is an observational analytic with cross sectional design. The study population was students in grade IV and V Elementary School of Keputran I and III Tegalsari Surabaya. The samples are from random of the population, the sampling technique is the Simple Random Sampling. The sample size obtained using the following formula[7]:

$$n = \frac{N p q}{(N - 1) D + p q} \quad D = \frac{B^2}{4}$$

Sample size calculation from formula samples produced by 63 respondents.

2.1. Research Variables

The variables studied were the characteristics of respondents, level of knowledge about street food, the amount of pocket money, breakfast habits, the habit of bring the lunch to school, food consumption patterns that include total food and street food, the levels of energy and protein intake of total food and street food, donations energy and protein from food snacks and nutritional status of respondents.

2.2. Data Analysis

Analysis to determine the relationship between the level of knowledge and street food consumption patterns with the nutritional status of children performed a statistical test spearman correlation.

3. Results

Table 1. Characteristics of respondents in elementary school of Keputran I and III Surabaya

Characteristics of Respondents	n (63)	%
Age		
10 years	37	58,7
11 years	23	36,5
12 years	3	4,8
Gender		
Male	27	42,9
Female	36	57,1
The amount of pocket money		
Rp 1.000,00 – Rp 2.000,00	19	30,2
Rp 3.000,00 – Rp 4.000,00	21	33,3
\geq Rp 5.000,00	23	36,5
Breakfast habits		
Never	17	27,0
Sometimes	29	46,0
Always	17	27,0
The habit of bring the lunch		
Never	35	55,6
Sometimes	25	39,7
Always	3	4,8

3.1. Characteristics of Respondents

Most of respondents were 10 years (58%), female (57,1%), have \geq Rp 5.000,00 for pocket money (36,5%), sometimes breakfast (46%), and never bring the lunch to school (55,6%).

3.2. Level of Knowledge About Street Food and Nutritional Status

The level of knowledge about street food that are categorized into three namely less if answering the question correctly ≤ 4 , moderate if the answer correctly 5-6, and good if answered correctly 7-8.

Table 2. The level of knowledge about street food on the various categories of nutritional status

The level of knowledge About Street Food	Nutritional Status											
	Very thin		Thin		Normal		Fat risk		Fat		Obesity	
	n	%	n	%	n	%	n	%	n	%	n	%
Less	1	50,0	3	42,9	0	0	1	9,1	0	0	0	0
Moderate	1	50,0	3	42,9	10	28,6	3	27,3	4	57,1	0	0
Good	0	0	1	14,2	25	71,4	7	63,6	3	42,9	1	100,0

Table 3. The consumption patterns of total food and street food on the various categories of nutritional status

	Nutritional Status											
	Very thin		Thin		Normal		Risk overweight		Overweight		Obesity	
	n	%	n	%	n	%	n	%	n	%	n	%
Energy consumption level of total food												
Deficit	2	100,0	7	100,0	21	60,0	2	18,2	0	0	0	0
Less	0	0	0	0	6	17,1	2	18,2	0	0	0	0
Moderate	0	0	0	0	7	20,0	5	45,4	1	14,3	0	0
Good	0	0	0	0	1	2,9	2	18,2	6	85,7	1	100,0
Protein consumption level of total food												
Deficit	2	100,0	3	42,8	2	5,7	0	0	0	0	0	0
Less	0	0	2	28,6	5	14,3	0	0	0	0	0	0
Moderate	0	0	2	28,6	16	45,7	2	18,2	0	0	0	0
Good	0	0	0	0	12	34,3	9	81,2	7	100,0	1	100,0
Energy consumption level of street food												
Low	0	0	0	0	3	8,6	1	9,1	3	42,9	0	0
Moderate	2	100,0	6	85,7	26	74,3	9	81,8	4	57,1	0	0
High	0	0	1	14,3	6	17,1	1	9,1	0	0	1	100,0
Protein consumption level of street food												
Low	0	0	0	0	4	11,4	1	9,1	3	42,9	0	0
Moderate	2	100,0	7	100,0	25	71,4	8	72,7	4	57,1	0	0
High	0	0	0	0	6	17,2	2	18,2	0	0	1	100,0
Energy contributions of street food												
Low	0	0	0	0	0	20,0	2	18,2	4	57,1	0	0
Moderate	2	100,0	6	85,7	21	60,0	8	72,7	3	42,9	1	100,0
High	0	0	1	14,3	7	20,0	1	9,1	0	0	0	0
Protein contributions of street food												
Low	0	0	0	0	4	11,4	2	18,2	5	71,4	0	0
Moderate	2	100,0	7	100,0	23	65,7	9	81,8	2	28,6	0	0
High	0	0	0	0	8	22,9	0	0	0	0	1	100,0

Based on the results of these studies after the statistical test using spearman correlation test with $\alpha = 0,05$ is obtained $p\text{-value} = 0,076 > 0,05$ indicates that there is no relationship between the level of knowledge about street food with nutritional status of respondents.

3.3. The Consumption Patterns of Total Food and Street Food

Average energy and protein intake of the total food is 1542,08 kcal and 50,21 g, while the energy and protein intake of snack foods is 286,77 kcal and 11,19 g.

Based on the results of these studies tested by spearman correlation $p = 0,000 < 0,01$ indicates that there is a relationship between energy consumption and protein levels of total food with nutritional status. Spearman correlation coefficients for energy = 0,690 and protein = 0,682 indicates there is a strong direct relationship.

Spearman test correlation between the level of energy and protein consumption of snack foods showed there are no relationship for energy ($p = 0,949 > 0,05$) and protein $p = 0,965 > 0,05$. Meanwhile, there is a relationship between energy and protein contribution of street foods, which the energy values obtained for $p = 0,015 < 0,05$ and protein = 0,047 $p < 0,05$. Spearman correlation coefficients for the energy = -0,305 and protein = -0,251, indicates that the relationship between energy and protein contribution of street foods with nutritional status of the respondent is a weak relationship.

4. Discussion

4.1. Characteristics and Knowledge About Street Food

Most of respondents were 10 years old and female. At the age of 10-12 years children need energy and protein intake greater than the previous age. The gender difference is not very influential on changes in nutritional status [8].

The level of knowledge about street food most well categorized. The level of knowledge about nutrition is very influential in the selection of the daily diet. A child's knowledge about food-related needs in the selection of street food hawker, so that children do not suffer from nutritional deficiency or excess⁶. The level of knowledge about street food and the level of energy and protein consumption of street foods is not influential in nutritional status. School children are more likely to choose food that tastes good and gives a sense of satiety regardless of nutritional content and eventually did not also affect the nutritional status. Nutritional status depends on the quality and quantity of food that indicate the presence of all the nutrients the body needs. All of these nutrients is obtained not only from street food alone but also from total food consumed [9].

4.2. Nutritional Status of Respondents

The results showed that most of respondents were normal nutritional status. Nutritional status is essentially a result of developments between the consumption of foods with nutrients from the food expenditure that has been consumed. Adequacy of nutrients, especially energy is calculated according to the requirements for age, sex, or condition of an individual. Good nutritional status occurs when the body gets enough nutrients so that the physical growth, brain development, employability and health can be achieved optimally [10].

4.3. The Consumption Patterns of Total Food and Street Food

Street foods have an important role in energy and protein intake for school children³. Most of respondents have a level of total energy consumption were deficit categorized, while the street foods were moderate categorized. The level of protein intake from total foods were well categorized, while the level of protein intake from street foods were moderate categorized. Adequacy of proteins can be used properly to perform its functions when the energy needs are fulfilled. When the energy needs are not fulfilled, protein will be used for energy needs [11]. Street food is one of the potential food that contribute to nutrient intake for school children in everyday life. The results showed that the contribution of energy and protein from street food were moderate categorized. Healthy street foods are varied and comprehensive in terms of

quantity and quality of nutritional content, can help children to fulfilled their energy and protein need and can support their daily activities.

The consumption level of energy and protein from total food and nutritional status as well as contributions of energy and protein from street food with nutritional status showed no relationship. Nutritional state is a manifestation of the body needs, so physical growth and mental development is going well and perfect, otherwise if nutritional needs are not sufficient, then the body will use up nutrients and can changes anatomy and physiology of the body or person will become malnourished [12].

The relationship between energy and protein consumption levels of total food with nutritional status is a strong positive relationship with the direction that the better of energy consumption and total protein from the food make better nutritional status, but the relationship between energy and protein contribution of street foods with nutritional status weak negative relationship with the direction that the higher contribution of energy and protein from street food lower nutritional status. This happens because a person's nutritional status is not only influenced by the large contributions of energy and protein street food alone but large contributions of food energy and protein from the total that includes a main meal and street foods. In addition, street food is often consumed by the respondent is a candy, powdered drinks, snacks and others that do not provide a meaningful contribution was almost zero nutritional content, except energy.

Therefore, the street foods to excess and become the diet reduces appetite and children at home will only add to the input of energy in the body without giving the nutrients, so that if left unchecked will disrupt the state of nutrition and general health [13].

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