



Consumption of Cariogenic Food and Nutritional Status of Children in PAUD Ummu Aiman Kartasura Sukoharjo

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Abstract

The state of infection and food intake is a direct factor affecting nutritional status. The frequency of children consuming cariogenic foods that generally contain many carbohydrates can certainly affect the child's nutritional intake. If it happens for a long time and is not offset by variations of nutritious food, then the child will deficiency other macronutrients and micronutrients. Based on a preliminary survey conducted in PAUD UMMU AIMAN Kartasura Sukoharjo, known 3% of children had more nutrition, 10% had undernutrition, and 87% were normal. The objective of this was study to know the relationship between cariogenic food consumption with nutritional status in children aged 3-5 years in PAUD UMMU AIMAN Kartasura Sukoharjo. The method of this study was an observational study with a cross-sectional study design. The frequency data of cariogenic food consumption was obtained by using a food frequency (FFQ), nutritional status data was obtained by using direct measurement of height and weight of the student. Data were analyzed using Fisher's Exact Test. The result was 52.8% of respondents had low cariogenic food consumption levels, and 47.2% had high levels of dietary cariogenic consumption. That as many as 13.9% of respondents have abnormal nutritional status, while 86.1% have normal nutritional status. There was a correlation between consumption of cariogenic food and nutritional status ($p = 0.016$).

Keywords: cariogenic food, nutritional status.

INTRODUCTION

Nutritional status is an expression of a state of equilibrium in the form of a particular variable, or the embodiment of nutrition in the form of a particular variable (Supariasa, et al, 2014). Nutritional status is influenced by 2 factors that cause direct and indirect factors. The occurrence of an imbalance between intakes with the use of nutrients will affect one's nutritional status. Diverse intake will more easily meet the nutritional needs of individuals. The age of children tends to like cariogenic foods or sweet foods.

Cariogenic foods are foods containing carbohydrate fermentation causing plaque pH to 5.5 or less and stimulate caries processes (Ramayanti and Indral, 2013). Children are often consuming cariogenic foods that contain carbohydrates can affect the child's nutritional intake if not balanced by the consumption of various foods. Children will tend to lack other nutrients such as protein, fat, vitamins, and minerals (Handayani, 2016).

A preliminary survey was conducted at the UMMU UMMU AIMAN Kartasura Sukoharjo, known that 3% of children have more nutrition, 10% less nutrition, and 87% of children with normal nutritional status. Researchers wanted to know the relationship of cariogenic foods with nutritional status in children aged 3 - 5 years in Early Childhood Education AIMAN Kartasura Sukoharjo.

The purpose of this study was to determine the relationship between dietary consumption of cariogenic with nutritional status in children aged 3-5 years in early childhood UMMU AIMAN Kartasura Sukoharjo.

METHODS

Subjects

Food consumption of cariogenic and nutritional status data was collected in early childhood UMMU AIMAN Kartasura Sukoharjo. The study was conducted from April to November 2016, with a population of 50 children. The number of samples used in this study was 32 children. To avoid the things that are not desirable then the number of samples added 10% as a backup. So the total sample size of 35 children.

Experimental Design

This study was an observational study with a cross-sectional design. Taking or measuring data was done at the same time. Measurements of dietary cariogenic consumption of children averaged in a day, measured by food recall filled by mothers or nannies.

Cariogenic food consumption was considered low if its daily consumption was lower than average consumption, while cariogenic food consumption was considered high if its daily consumption exceeded its average daily consumption in a group. Nutritional status was measured using anthropomorphism. An Anthropometric index was used weight by height than included in the Z-score formula by gender. The healthy weight of nutritional status when Z-score was -2 to +2. Not normal nutritional status when Z-score more than + 2 or less than -2. The measurement scale was using nominal (Ministry of Health RI, 2010).

RESULT AND DISCUSSION

General Description

Geographical Location

Paud Ummu Aiman is one of the early childhood schools located in Sukoharjo. Schools that apply the concept of Full Day School had a very strategic location and were conducive to learning. The school was located far from the food stalls. The student's food was more assured, because the school provides one snack and lunch, with a varied

menu every day. The school provided water, sweet tea every morning, and fresh milk every once a month.

Teaching staff and number of students

This school has an age limit of 3-5 years for students. It had 8 (eight) lecturers. All lecturers were women (ustadzah). This school also had 2 cooks.

Univariate Analysis

Respondents characteristics by gender

A total of 36 respondents had participated in this study. It had been chosen randomly with the number of respondents set by the calculation using the Lemeshow formula (1997). It could be seen in table 1.

Table 1. Respondents' distribution by gender

Gender	Amount (n)	Percentage (%)
Male	25	69.4 %
Female	11	30.6 %
Total	36	100 %

It could be seen that from 36 respondents there was 69.4% of male and 30.6% were female.

Characteristics of respondents based on the consumption of cariogenic foods

Observation of cariogenic food consumption had been done on 36 respondents. The average respondent had consumed cariogenic foods as much as 9.78 times a day. Most of the respondents consumed cariogenic foods 12 times a day. The kind of cariogenic food consumed by 36 respondents in a day was snacks 63 times, formula 55 times, candy 39 times, and ice cream 34 times.

It had been known as the number of respondents' food consumption of cariogenic each day. Then from the data was classified into low consumption and high consumption. It could be seen in table 2.

Table 2. Sample distribution based on the total consumption of cariogenic food

Cariogenic food consumption	Amount (n)	Percentage (%)
Low	19	52.8 %
High	17	47.2 %
Total	36	100 %

The consumption of cariogenic foods is said to be high if the amount of daily consumption exceeds the average amount per day. While the consumption of cariogenic food is said to be low if the amount of consumption per day is less than the average daily consumption per day in the group, which is as much as 9.78 times. Of the 36 respondents, 52.8% of respondents of low cariogenic food consumption level, and the rest of which is 47.2% have high consumption level of cariogenic food.

Characteristics of respondents based on nutritional status

Measurement of nutritional status is done by an index of measurement of weight / height. For that in this case also carried out measurements of weight and height. Then included in the z-score formula. The results could be seen in table 3.

Table 3. The Results of weight, height, and z-score

	Height (cm)	Weight (kg)	Z - score
Average	105.77	16.9	- 0.47
Minimal	94.60	10.0	- 4.50
Maximum	117.30	34.0	5.01

The respondent's average height reached 105.77 cm, with the lowest height reached 94.60 cm, and the highest body height reached 117.30 cm. The respondent's average weight reached 16.9 kg, with the minimum weight reached 10.0 kg, and the maximum weight reached 34.0 kg. The average value of z-score from 36 respondents reached the normal value but on the threshold minus, that was 0.47. The minimum z-score value was - 4.50 which was included in the very thin category (Kemenkes RI, 2010). The maximum z-score value was 5.01, which was included in the category of fat (Kemenkes RI, 2010). From table 3, on z-score value could be grouped into the normal nutritional status and abnormal nutritional status. It could be seen in table 4.

Table 4. Respondent distribution based on nutritional status

Nutritional status	Amount (n)	Percentage (%)
Abnormal	5	13.9 %
Normal	31	86.1 %
Total	36	100 %

The measurement of nutritional status from 36 respondents showed 13.9% have abnormal nutritional status, while 86.1% have normal nutritional status.

Bivariate analysis

The relation of cariogenic foods consumption with nutritional status

Table 5. Distribution of cariogenic food consumption and nutritional status

Cariogenic Food Consumption	Nutritional status				Total		Correlation*
	Abnormal		Normal		n	%	
	n	%	n	%			
Low	0	0 %	19	100 %	19	100.0 %	0.016
High	5	29.4 %	12	70.6 %	17	100.0 %	

*Fisher's Exact Test

It showed that 100.0% of respondents consumed low cariogenic foods and had normal nutritional status. 12 children (70.6%) of respondents who consumed high cariogenic food and had normal nutritional status. 5 children (29.4%) of respondents who consumed high cariogenic food had abnormal nutritional status. Most of the abnormal nutritional status is included in the category of thin. Children who consumed high cariogenic foods will feel quickly full, so the intake of nutrients will be less. If it was long and continuous it will affect the nutritional status of children, like the nutritional status, will decrease.

The results of Fisher's Exact Test statistic analysis obtained p-value = 0.016. It showed that the value of $p < 0.05$ which means that H_0 was rejected, so it can be concluded that there was a relationship between the consumption of the cariogenic food

with nutritional status. It showed that the variation of foods consumption among students had a significant effect on nutritional status (Handayani, 2016). Kartikasari (2013) said that cariogenic foods consumption was not related to nutritional status.

CONCLUSION

There was a correlation of cariogenic food consumption with nutritional status with a p-value = 0.016

SUGGESTIONS

PAUD Agency

The agency through the teacher can give understanding to the children about the importance of eating a variety of foods.

Mother

The mother should pay more attention to the consumption of foods eaten by children, especially for the consumption of cariogenic foods.

Science

A growing science should further broaden individual and group knowledge, especially regarding other factors that may affect the nutritional status of an individual who contributed indirectly.

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