

PERCEPTION AND QUALITY OF BREAKFAST ON PRIMARY SCHOOL CHILDREN

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ABSTRACT

Introduction: The determination of nutrition in breakfast is done by observing the quality of breakfast, such as the variety of food and the energy intake. One of the factors that influence the quality of breakfast is perception. Based on the results of preliminary survey, approximately 65% of students less understand about the importance of breakfast. *Objective:* This study aimed to determine the relationship between perception and the quality of breakfast, including food variety and energy intake, on primary school children at Madrasah Ibtida'iyah Muhammadiyah (MIM) Innovative Gonilan Kartasura. *Methods:* It is an observational study with cross sectional approach and sample size of 57 children were selected by simple random sampling. Perception was measured using a *Likert* scale questionnaire, the variety of food was measured using a questionnaire of food variation and the assessment of energy intake was done through interview using a 24-hour food recall form, then analyzed by Pearson product moment correlation test and Spearman rank test. *Results:* The perception of breakfast was considered *adequate* by 66.7%, the variety of food was classified as *less* by 50.9% and energy intake was considered *more* by 93%. *Conclusion:* there is no correlation between perceptions of breakfast and variety of food ($p= 0,651$) and energy intake ($p= 0,696$).

Keywords: *Perception, quality of breakfast*

INTRODUCTION

The occurrence of less-nutrition and over-nutrition problems indicate that many Indonesian people, especially school-aged children whose food consumption or nutritional intake has not met the balanced nutrition. The factor that affects the condition of this nutritional status is the attitude of children in choosing and consuming food. In general, diet manner in Indonesia includes breakfast, lunch, dinner, and snacks.

One of the messages in the Indonesian Nutrition Guidelines is to have breakfast as a routine activity. An analysis on food consumption data by Ministry of Health on children aged 4 to 18 years old indicates that breakfast has an important contribution in total daily diet and the results showed that 40.6% of the population consumed food lower than 70% from the Recommended Dietary Allowance (RDA) in 2004 (1). This situation was found in 41.2% of school-aged children.

The indirect cause of nutritional problems, especially breakfast, is the lack of adequate information related with it. Ambarwati found that 34 students (37.8%) of SDN Banyuanyar III have insufficient nutrition knowledge (2). Currently, there are many extension programs and nutrition education organized by the government, including the program of *Pekan Sarapan*

Nasional (PESAN) that has been initiated since 2013 and also supported by private sector/health institution to increase nutrition awareness and knowledge of school-aged children on the significance of breakfast as a routine activity. PESAN is National breakfast week as an annual program held by the government to address the food and nutrition problems in Indonesia. However, the program has not been conducted on regular basis so the children are likely to practice their previous behavior for not having breakfast routinely.

Perception about breakfast are able to develop eating behavior in choosing the variety and quantity of food. Perception is one of the psychological elements, which forms and influences the habits of a high quality breakfast. Spronk mentioned that perceptions affect a person's attitude, meaning they can establish person's behavior to determine the quality of the breakfast (3).

According to Hardinsyah and Aries, the quality of the nutrition of food consumption is a value to determine whether the food is nutritious or not (4). According to the study carried out by Perdana and Hardinsyah, 80.9% of children aged 6 to 12 years old have very low value of breakfast nutrition quality (5). Meanwhile, the quality of breakfast for children aged 6 to 12 years old should be based on the variety of food ingredients, which are complete sources of food consisting of carbohydrates, proteins, vegetables, fruits, and beverages. In fact, it only consumes by 0.6% of children.

Based on preliminary survey performed at MIM Innovative Gonilan Kartasura, it found out that students who had insufficient knowledge about the importance of breakfast were as much as 65%. The research was expected to provide a positive impact on the perception of the students at grade IV and V about the importance of breakfast, therefore the children will be able to know and choose the variety and quality of breakfast.

METHODS

Research design used in this study was observational research with cross sectional approach. The research took place in MIM Innovative Gonilan Kartasura. It involved a total of 57 children as the respondents, which were selected through random sampling technique. The variables in this research were perception about breakfast as independent variable and quality of breakfast, including food variety and breakfast energy intake, as dependent variable. The advantages of this research are the development of the instrument based on the construction stage, comprising of the initial survey, the literature review, the instrument validation, scaling and determination of score of each item on the instrument.

The perception of breakfast was measured using a *Likert* scale questionnaire with five response categories (strongly disagree, disagree, neutral, agree, strongly agree). The analysis of item scaling used summated rating scale method, by calculating the z-score based on the favorable or unfavorable items. The scaling was used to find out the score of perception about breakfast. The results of internal consistency based inter-item correlation obtained excellent results with a *Cronbach alpha* of 0.948. The results of item difference index test that were tested using item total correlation yielded the reliability of 20 items ($r \geq 0.3$). The quality of breakfast based on the variety of food was measured using a questionnaire of food variations with the output of the variety of foods. In addition, the quality of breakfast based on the energy intake was revealed by interview using a 24-hour food recall form, compared the result with the total intake per day based on RDA, and expressed it as percent (%). Manual On Methodology for Food Consumption Studies book mentions that recall method should not be taken in Friday, Saturday, and Sunday, because the average produced consumption is less able to describe the

actual consumption. The interview of 24-hour food recall method used food model and cutlery (spoon, glass, plate, bowl) to know the size of household, hence researchers could know the weight (gram) of food consumed by the respondents.

Univariate analysis was done by describing the frequency of each variable, namely the perception of breakfast, the variety of food and the energy intake of breakfast. Bivariate analysis was conducted to determine the correlation between variables. Test for normality using the *Kolmogorov-Smirnov* test, while *Pearson Product Moment* Correlation was used for normally distributed data and *Spearman's Rank* was used for unevenly distributed data. This study was approved by the Ethics Committee for Health Research, Faculty of Medicine, Universitas Muhammadiyah Surakarta with a number of *ethical clearance* No: 371 | B.1 | KEPK-FKUMS | X | 2016.

RESULTS

The results of the analysis included the characteristics of the subjects, namely gender, age, perception of breakfast, variety of foods, and breakfast energy intake can be seen in Table 1.

Table 1. Characteristics of Children at Primary School

Variable	Frequency	Percentage (%)
Gender		
Man	32	56.1
Women	25	43.9
Age		
9 years	25	43.9
10 years	24	42.1
11 years old	8	14.0
Perception of Breakfast		
<i>Low</i>	10	17.5
<i>Adequate</i>	38	66.7
<i>Good</i>	9	15.8
Variety of Food		
<i>Less</i>	29	50.9
<i>Adequate</i>	28	49.1
<i>High</i>	-	-
Energy intake		
<i>Less</i>	2	3.5
<i>Adequate</i>	2	3.5
<i>More</i>	53	93

From 57 respondents, 32 of them are male students (56.1%). The percentage of sample was similar to Mutalazimah and Asyanti, in which 56% of the respondents are male students (6). Men generally have higher muscle mass than women. These more muscles require more energy, so men need more energy than women (7).

In this study, the age of the respondents ranged from 9 to 11 years old. According to Adriani and Wirjatmadi, the children around 9 to 11 years old are in vulnerable state during their

growth and activities, thus their needs for nutritious food based on the appropriate quantity and quality of food to support their health are necessary. From the total of 57 respondents, 25 respondents (43.9%) were 9 year-old children (8).

The division of categories according to Azwar is low, adequate and good. This categorization uses the mean and standard deviation as the basis of categorization (9). Furthermore, this categorization was applied to the perception of breakfast, which obtained the following results: the children are considered to have *good* perception when the value > 75.18 ; *adequate* perception if the value was $68.12 - 75.18$; and *low* if the value < 68.12 . This study showed that 38 respondents (66.7%) had adequate perception of breakfast.

The quality of breakfast was divided into two parts, namely the variety of food and the energy intake. Each section has three categories. The categories of food varieties included less, moderate and high. This categorization is based on FAO, that subjects are considered to have *less* variety of food if they consume ≤ 3 varieties of food, *adequate* if they consume 4-5 varieties of food, and *high* if they consume > 5 varieties of food (10). The variety of food in this study showed that 29 respondents (50.9%) had less variety of food.

The categorization of energy intake is based on the comparison between the percentage of breakfast energy intake and the RDA. Khomsan asserted that the respondents are considered to have *less* energy intake if the energy intake percentage $< 20\%$, *adequate* if the percentage is $20-25\%$, and *more* if the percentage $> 25\%$ (11). This study indicated that as many as 53 respondents (93%) had *more* energy intake. Meanwhile, Pratama reported 60.8% of respondents in his study experienced sufficient energy intake (12).

The variables in this study were perception, variety of foods, and breakfast energy intake. The distribution of respondents based on descriptive statistics can be seen in Table 2.

Table 2. Descriptive Statistics of Perception of Breakfast, Variety of Food, and Energy Intake

Variable	Average	Std Deviation	Median	Minimum Value	Maximum Value
Perception of Breakfast	71.65	3.53	72.0	63.00	76.00
Variety of Food	3.49	1.05	3.0	1	5
Energy intake	38.21	8.43	39.25	18.75	58.50

Table 2 showed that the average value of perception of breakfast was 71.65, which implies that the subject had *less* perception about breakfast. The average value was higher than previous study carried out by Nursita, which was 69.73 (13). The average variety of breakfast food was 3.49, while indicated the average breakfast energy intake of 38.21% and can be classified as *more*.

DISCUSSION

The adequate perception of breakfast is caused by the acceptance of child stimulation from various sources of information about breakfast that can be accepted by them. However, in the process of reaction, an individual—whose perception has been formed—does not necessarily practice it directly into actions in accordance with the perceptions that have been formed in the stimuli. Pareek & Khanna affirmed that to form an action reaction on a person, a willingness and encouragement to take action is required (14).

The respondents are considered to have a quality breakfast based on the adequate variety of food, in which the respondents consume at least 4 (four) variations of food, as represented

by the questionnaires. The children consume rice (carbohydrate source) with side dish of fried tempeh (protein source), glass of milk (source of fat), various dark green or non-green vegetables and fruits (micronutrients). Mhurchu, Kawafheh, and Adolphus *et al.*, concluded that children are more willing to participate in learning activities when they are in good health (15)(16)(17). Meanwhile, Cooper *et al.* and Pivik *et al.*, reaffirmed that breakfast has a positive effect on children's cognitive performance (18)(19).

Based on the results of *food recall* 24 hours, the subjects have *adequate* energy intake that can be described as follows, some respondents consume rice with fried tofu and tempeh¹ before going to school. Some respondents also prefer to buy snacks at school. They buy dishes, such as meatballs and fried noodles which contain relatively high energy. Sources of energy from breakfast consumed by the children included staple foods, such as rice, noodles, fried chicken, and eggs as side dishes. Based on previous research carried out by Yanti, some favorite snacks at school include ²nasi liwet, fruit juice, biscuits, ³dumplings, and noodles (20).

This study showed that the respondents who had *good* perception of breakfast and tend to have *less* variety of breakfast foods were 5 (five) respondents (51.8%) and those who had *adequate* breakfast perception with *adequate* variety of foods were 20 respondents (52.6%). Meanwhile, the respondents who had *low* breakfast perception with *less* variety of foods were 6 (six) respondents (60.0%). Based on the *Spearman rank* correlation test, the results showed that there was no relationship between perceptions of breakfast and variety of food on the respondent of the study ($p = 0.651$).

The *adequate* perception of breakfast with *less* variety of foods can be caused by some factors. One of the factors is the lack of available foods for breakfast. This can also be due to the lack of willingness of the respondents in performing the action (breakfast) in accordance with the perception that has been formed from the obtained information (21). Pareek and Khanna have pointed out that to form a reaction to action, a willingness and a drive for action are required (14). Albashtawy, McDonnell *et al.*, Perera *et al.*, Perera and Frei revealed that the main sources of information about breakfast habits can be obtained from the support of family, friends and peer groups, teachers, parents and the whole community, particularly on the important issue about healthy food habits (22)(23)(24)(25).

The variety of food that is widely consumed by the respondent is cereals (53 respondents). The respondents rarely consume fruits as breakfast, which confirmed by the results of interviews with questionnaires of the quality of food varieties in which there were only 3 (three) respondents who consume fruits as breakfast. Hermina & Prihatin showed that almost all people in Indonesia consume vegetables (94.8%), but only few consume fruits (33.2%) (26). Meanwhile, research carried out by Sari *et al.*, at Medan State Primary School indicated that the most frequently consumed dishes as breakfast are rice, fish, and vegetables (18.9%).

Furthermore, this study showed that the respondents who have *good* breakfast perception tend to have *more* breakfast energy intake were 8 (eight) respondents (88.9%) and those who have *adequate* breakfast perception and tend to have *more* breakfast energy intake were 36 respondents (94.7%). Meanwhile, the respondents who have *low* breakfast perception with *more* breakfast energy intake were 9 (nine) respondents (90.0%). Based on the results of *Pearson*

1 Tempeh is a food from the fermentation of the soybeans.

2 Nasi liwet is rice cooked with coconut milk and served with side dish of boiled chicken, egg, and chayote.

3 Dumplings are boiled vegetables such as of cabbage, potatoes, pare, eggs and served with peanut sauce.

Product Moment Correlation test, there was no correlation between perception of breakfast and breakfast energy intake on the respondents of this study ($p = 0.696$).

The respondents who have an *adequate* perception of breakfast with *more* breakfast energy intake, meaning that the respondent has been aware of the importance of breakfast, but they have not practiced it in daily life in relation with the amount of food should be consumed for breakfast. According to Khomsan, breakfast energy should be able to contribute at least 20% of the intake of daily needs (11). If a child continues to have breakfast on a regular basis, it will donate energy more than 25% of the intake of daily needs that can affect nutritional status of the child.

CONCLUSIONS

In this study, it was revealed that there is no correlation between perception of breakfast and food variety ($p = 0.651$) and breakfast energy intake in primary school children ($p = 0.696$). This may be due to some factors, such as economic status, individual attitudes, parent's knowledge, culture, infectious diseases and food availability, in which these factors were not included in this study. It is expected that the school regularly provides motivation for the students and raises their awareness to have breakfast with adequate portion and various kinds of food, as well as conducts counseling, and education about nutrition content of foods.

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