The Correlation Between Dietary Patterns with Nutritional Status on 10-12 Years Old Student

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ABSTRACT

Children disposed to rule out of the dietary pattern. Meanwhile, Dietary habits are needed by children to grow and develop optimally. This study aimed to analyze the correlation between dietary patterns with nutritional status on 10-12 years old students at Primary School Sumberkembar 03, Binangun. The research design was a cross-sectional study. Samples were 28 respondents chosen by using simple random sampling. The independent variable is the dietary pattern, and the dependent variable is nutritional status. The instruments used are food recall 3x24 hours and Body Mass index. Data were analyzed using Spearman's Rho with a significant level of p <0.005. The results had shown that there was no correlation between dietary patterns and nutritional status (p=0.364). This research was limited to the dietary design, while more factors can affect nutritional status. It can be concluded that food patterns did not correlate with the nutritional status of children aged 10-12 years old student, in further research with different research methods to assess nutritional status more accurately.

INTRODUCTION

A feeding pattern is an important thing that affects nutritional status (Kemenkes, 2014). The feeding pattern includes the type of food, amount of food, and frequency of eating. School-age children tend to aside proper feeding patterns due to a lack of understanding of its essential role for growth (Lubis, Amelia, Arrasyid, & Rozi, 2019). In this age, children prefer to play rather than eating. The children need adequate nutrient consumption for optimal growth and development according to age (Sinurat, Sembiring, Azlin, Faranita, & Pratita, 2018; Supartini, 2004). Moreover, children aged 10-12 years are in a fast growth period (N. Devi, 2012; Hadju, Yunus, Arundhana, Salmah, & Wahyu, 2017; Sa'diya, 2016).

School-age children tend to be picky when it comes to eating. They have a strong desire to choose the foods they like (Damayanti, 2013; Niga & Purnomo, 2017; Sarintohe & Prawitasari, 2005). Hence, the poor feeding pattern can cause a nutritional problem in children (Anzarkusuma, Mulyani, Jus'at, & Angkasa, 2014). World Health Organization explained that in 2013 the global prevalence of obesity children reaches more than 42 million, with 31 million live in a developing country (Organization, 2016). The prevalence of fewer weight children decreased from 24% in 1990 to 14% in 2014. Basic Health Research in 2013 found that the prevalence of skinny children aged 5-12 years reaches 11,2%, with 4% of them was very thin, and the other 7,2% were skinny (Agency for Health Research and Development Republic of Indonesia, 2013). The highest incident happens in Nusa Tenggara Timur (7,8%). The prevalence of obesity in children aged 5-12 years reaches 18,8%, with 10,8% of them were fat, and 8,8% others were obese (Agency for Health Research and Development Republic of Indonesia., 2013).

Adequate nutrient consumption needed during the growth and development phase; hence good feeding pattern needs to be applied to children (ANWAR, 2006; Diansari et al., 2019; Hastuti, 2012). Good nutrient consumption is food that contains appropriate nutrients include protein, fat, carbohydrate, mineral, and vitamin (Anugraheni, Mulyana, & Farapti, 2019; Levina & Sumarmi, 2019; Supartini, 2004). Nutritional status

measured by calculating body mass index. Body mass index related to age, gender, feeding pattern, and physical activity (Aritonang, Siregar, & Nasution, 2016; Gubbels et al., 2011). In a study conducted by Pradana in 2014 found that increased portion and frequency in eating affect obesity (Pradana, Seno, & Puruhita, 2014). People who eat high-fat food have a higher risk of being obese.

Nutritional status has several factors. The relationship between nutritional status and feeding pattern needs to explain more due to the importance of nutritional status in children's growth and development.

MATERIALS AND METHODS

This research was a cross-sectional study. This study sample consisted of 30 children aged 10-12 old who were chosen by using simple random sampling by considering inclusion and exclusion criteria. The Independent variable in this study was the feeding pattern of 10-12 years old students. The dependent variable in this study was the nutritional status of 10-12 years old student. Instruments used in this study were demographic characteristic questionnaire, food recall 24 hours questionnaire, and Body Mass Index measurement. Data were analyzed using Spearman's rho statistical test. This study has obtained ethical eligibility from the Health Research Ethics Committee.

RESULTS

Table 1. Demographic characteristic of children aged 10-12 years old

Respondents' characteristic	n	%
Age		
10	11	39.3
11	10	35.7
12	7	25.0
Total	28	100.0
Gender		
Male	14	50.0

Female	14	50.0
Total	28	100.0
Parents' Occupation		
Housewife	1	3.6
Trader	1	3.6
Farmer	17	60.7
Civil servant	2	7.1
Entrepreneur	7	25.0
Total	28	100.0
Parents' Education		
Elementary school	7	25.0
Middle school	12	42.9
High school	7	25.0
Diploma	1	3.6
College	1	3.6
Total	28	100.0

Table 1 showed that most of the respondents were aged ten years, with the number of 11 children (39.3%). Both female and male students have the same amount, 14 children (50%). The majority of parents work as farmers with many 17 respondents (60.7%). Most of the respondents' parents were educated at the same level as the middle school, with the number of 12 respondents (42.9%).

Table 2. Frequency of feeding pattern and nutritional status in children aged 10-12 years old

Variables	n	%
Feeding pattern		
Poor	7	25
Good	21	75
Total	28	100
Nutritional status		
Very skinny	0	0
Skinny	3	10.7
Normal	22	78.6
Fat	0	0
Obesity	3	10.7
Total	28	100

Table 2 shows some respondents have a good feeding pattern according to the regulation of the Ministry of Health Republic Indonesia Number 41 2014 about balanced nutrition guidelines, with 21 respondents (75.0%). While the remaining seven respondents (25.0%) have a poor feeding pattern, most respondents had a good nutritional status with the number of 22 respondents (78.6%), three skinny respondents (10.7%), and three obesity respondents (10.7%).

Table 3. Spearman's rho of feeding pattern and nutritional status children aged 10-12 years old

Feeding pattern	Nutritional status											
	Very skinny		Skinny		Normal		Fat		Obesity		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Poor	0	0	2	7.15	2	7.15	0	0	3	10.7	7	25
Good	0	0	1	3.55	20	71.45	0	0	0	0	21	75
P=0.364 r=-0.178												

Table 3 showed there were 20 normal nutritional status respondents (71.45%) and one skinny respondent (3.55%) with a good feeding pattern. Meanwhile, there were three obesity respondents (10.7%) and two skinny respondents (7.15%) with a poor feeding pattern. Statistical analysis using spearman's rho showed that there was no significant relationship between feeding pattern and nutritional status in children aged 10-12 years old with p=0.364.

DISCUSSION

The result showed no meaningful relationship between feeding patterns and nutritional status in children aged 10-12 years. According to the data collected, some children receive good feeding patterns hence have normal nutritional status. Seven respondents with poor feeding patterns were resulting in obesity. There were also two skinny and two normal children with a poor feeding pattern. It is in line with a study conducted by Alfath in 2015 that found no relationship between feeding patterns and nutritional status in school-age children. Meanwhile, another study showed a different result. Another study showed that feeding patterns and nutritional status in school-age children were related (Fitriana, Madanijah, & Ekayanti, 2015). The result found in this study found due to the limitation of the research that only concern about feeding patterns includes schedule, type, and amount of food. Meanwhile, many other factors affect nutritional status not observed in this study. Other factors related to nutritional status include food supply, food processing, sanitation, and family eating behavior (Arisman, 2009).

Skinny children with good feeding pattern might be caused by poor food processing and excessive activity. Poor food processing to some types of food makes food lose nutrition content. For example, deep frying tempeh damaging protein, washing rice in a long time will damage thiamine loss. Food materials have an important role as nutrient carriers, which bring many essential nutrients that we need, such as carbohydrate, fat, protein, mineral, vitamin, and others (Budiyanto, 2004). Excessive activity is a factor that affects nutritional status in children. It is in line with a study conducted by Franindya (2013) that physical activity related to nutritional status (Hapshari, 2013). Children who do not receive enough energy and children with excessive activity will use fat as

energy back up to fill the energy needs. Thus children become skinnier than before (Khomsan, 2003). Meanwhile, healthy nutritional status children with good feeding patterns can be developed by another condition, such as health condition. Some children experience illness right before the research conducted, thus affects appetite. On the other hand, less physical activity will maintain children having normal nutritional status even though they experience poor feeding patterns. The nutrient plays an essential role in children's growth and development, especially when children aged 10-12 year experience fast growth during this period (M. Devi, 2012; N. Devi, 2012). This growth phase needs nutrients in a considerable amount to improve children's growth and development to be optimal. One of the essential nutrients is protein. Impaired protein needs fulfillment will affect children's nutritional status as protein needed as transport and storage substances (Budiyanto, 2004).

CONCLUSION

Feeding patterns and nutritional status were not related. This study has several implications for promoting Indonesian children's nutritional status. The government should reinforce resources to support the nutritional status by giving proper feeding patterns to children and also need to observe other factors related to children's nutritional status. In collaboration with local governments, programs related to these problems can be carried out to reduce the number of malnourished children.

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