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Factors associated with food choice motives of adolescents in Yogyakarta Special District*

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ABSTRACT

Background: *Adolescents begin to have eating autonomy which causes changes in behavior and habits related to food selection. Various factors are considered to be able to influence food choice motives.* ***Objective:*** *The study aimed to determine factors related to adolescents' food choice motives.* ***Methods****: A cross-sectional study involving 121 students who studied at two state Junior High School in Yogyakarta Special District (YSD) from April to May 2020. The independent variables are gender, perception of body image, nutritional knowledge, peer influence, school location, amount of pocket money, family income, parental education, and media influence. The dependent variables are nine food choice motives. Data collection was used online questionnaires via an online form. The data were analyzed by using multiple linear regression.* ***Results:*** *Most respondents had health motive as their primary motive in food choice, followed by natural content, price, and ethical concern. This research also found that there was a relationship between nutritional knowledge with a natural content motive; media influence, nutritional knowledge, and amount of pocket money with ethical concern motive; parental education with price motive; perception of body image, media influence, amount of pocket money, and nutritional knowledge with weight control motive (p<0,05).* ***Conclusions:*** *Perception of body image, nutritional knowledge, media influence, amount of pocket money, and parental education were related to food choice motives of adolescents. Future intervention strategies related to healthy eating behavior in adolescents can be designed based on these factors.*

KEYWORDS: *adolescents; dietary behavior; food choice; food selection; nutrition knowledge*

INTRODUCTION

In the adolescent period, adequate nutritional intake is needed for the growth process. One of the things that affect nutritional intake is the pattern of food choice. The wrong food choice pattern will have a bad impact on the body [1]. Adolescent girls tend to pay attention to health and weight control in food choice [2]. Adolescents with low nutritional knowledge pay less attention to nutritional aspects in food choice [3]. Adolescents's perceptions of body image can also influence their diet and food choices [4]. Peers have a strong influence on adolescents's food choices associated with the desire to be accepted and become popular [5]. Adolescents are also easily influenced by food advertisements displayed in the media [6]. Location differences are also related to differences in the types of food that are frequently accessed. Someone who lives or has a lot of activities in rural areas will find it difficult to access fast food than someone in urban areas [7]. The amount of pocket money is also associated with freedom in choosing food [8]. Family socio-economic aspects such as family income and parental education are also related to food choice based on price motives [9].

Until now, there has been no program related to choose healthy foods for adolescents. However, there was a program for elementary school students (or equivalent) called the School Child Nutrition Program (Program Gizi

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Anak Sekolah/ProGAS). This program aims to improve hygiene and healthy living behavior, nutritional intake, and student learning abilities [10]. If a program like this is also applied to adolescents, this program is deemed ineffective because the nutritional knowledge obtained by students cannot be applied if it is not balanced with the availability of healthy food in the school environment.

Research on high school students in Padang showed that factors related to food choice were allergies, gender, and food aroma [11]. Other research related to food choice among high school students in Yogyakarta and concluded that factors related to food choice were the family's role and the level of knowledge [12]. Recent research on junior high school students in East Jakarta concluded that factors related to food choice motives were gender and family income [13].

The conceptual framework in this was rooted in the socio-ecological model. This model explains that various levels and layers of life can influence individual behavior. In this model, the factor level starts from within the individual itself, then intrapersonal and interpersonal factors, then it is also influenced by factors outside the individual, such as environmental, physical, social/ cultural, economic, and informational factors. Factors from a larger level include influenced by smaller levels. Thus that the resulting interaction between factors that can relate to the food choice motives [14].

Recent research had examined the relationship between food choice motives with gender, parent's education, parent's occupation, household socio-economic status, BMI, and knowledge about nutrition for junior high school students in Jakarta [13]. However, there has been no similar research in Yogyakarta Special District (YSD) with other variables such as perception of body image, peer influence, school location, amount of pocket money, family income, and media influence. Therefore, we performed this study with the aim to investigate the food preferences of high school students and the factors associated with the choices.

METHODS

Study design and participants

This was an observational study with a cross-sectional research design conducted from April to May 2020 in YSD. The study population was adolescents and schools in YSD. The research subjects were adolescents aged 12-15 years old in Yogyakarta Junior High School with the inclusion criteria that received approval from their parents and were willing to become research subjects by filling in the informed consent; have been enrolled in the participating schools for at least one year; and adolescent students who are willing to follow the course of the research. The exclusion criteria were chronic disease patients; pregnant; and persons with disabilities.

The sample size is calculated using the sample size formula for a cross-sectional study of the proportion of two populations with a confidence level of 80% and a significance value of 10%. Obtained a minimum sample size of 49 people for each population. Then add 10% to 54 people per population. So the minimum total sample required in this study is 108 people.

The selection of research locations using purposive sampling based on rural and urban categories according to the Regulation of the Head of BPS (The Central Bureau of Statistics) No. 37 of 2010. It was obtained Junior High School 2 Yogyakarta for the urban population and Junior High School 1 Imogiri for the rural population. The school used purposive sampling to select research subjects by selecting three study groups from class VIII to become research subjects. This research has obtained ethical permission from the Ethics Commission of the Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada with the number: KE/FK/0320/EC/2020.

Measures

The independent variables in this study were gender, nutritional knowledge, perception of body image, peer influence, school location (rural or urban), amount of pocket money, family income (differentiated into < or ≥YSD provincial minimum wage), parental education (divided into graduated from Elementary School to Graduate Degree), and the media influence. This study's dependent variables were nine food choice motives that are health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity, and ethical concern. Data collection was used online questionnaires via an online form.

Before the research was carried out, we conducted a questionnaires validity and reliability test first. The questionnaires was tested on respondents who have the same characteristics as the research respondents. The selection of the location for the questionnaire trial was based on locations that had lower health literacy. This was done to ensure that the questionnaires used were easily understood and answered by respondents from various locations. Therefore, the researchers conducted a questionnaire trial in junior high schools located in rural areas.

The trial of this questionnaires was carried out in April 2020. The number of samples used was 30 students of class VIII. Samples were taken from students who did not become research respondents. The validity test used the Biserial Point formula and Pearson Product Moment correlation. The reliability test used the KR (Kuder Richardson) 20 test and Cronbach's Alpha. The results show that the questionnaires used is valid and reliable.

Nutritional knowledge. The measurement used a nutritional knowledge questionnaire in the form of 14 true or false questions. These results were divided into three categories: good (answered> 75% of statements correctly), moderate (answered 61 - 75% of statements correctly), and poor (answered ≤ 60% of statements correctly) [15]. The questionnaire's material was taken from the subject of natural science class VI and class VII and VIII Biology subject. This questionnaire has been tested for validity (0.358 - 0.573) and reliability (0.719) in YSD.

Perception of body image. Measurements used a modified Body Shape Questionnaire by Evans and Dolan (1993) which consists of 8 questions and translated into Indonesian. This questionnaire uses a 6-point Likert scale with the response "never" has a value of 1 to "always" has a value of 6. The overall score is the total value of the 8 items. In the body image perception, a person was ignored body shape if the score was <19. Someone was said to pay attention/conscious to body shape if the score was >19 [16]. This questionnaire has been tested for validity (0.647 - 0.853) and reliability (0.897) in YSD.

Peer influence. The measurement used a peer influence questionnaire with a dichotomous type of answer (yes or no) consisting of 8 questions. Peer influence was categorized into strong and weak with the average as a cut of point. This questionnaire is a modification of Saifah's (2011) thesis to approach the research conducted [17]. This questionnaire has been tested for validity (0.372 - 0.721) and reliability (0.708) in YSD.

Media influence. The measurement used a dichotomy (yes or no) media influence questionnaire consisting of 17 statements. The media's influence was categorized as strong and weak with the average as a cut of point. This questionnaire is a modification of Saifah's (2011) thesis to approach the research conducted [17]. This questionnaire has been tested for validity (0.376 - 0.720) and reliability (0.850) in YSD.

Food choice motive. The measurement used the Food Choice Questionnaire (FCQ), which has been translated into Indonesian. The assessment uses a 4-point Likert scale with the response "not important at all" with a value of 1, "rather important" with a value of 2, "quite important" with a value of 3, and "very important" with a value of 4. The Likert scale results could be categorized as the average motive of selecting food [18]. This questionnaire has been tested for validity (0.446 - 0.926) and reliability (0.967) in YSD.

Data analysis

The data analysis used was univariate and bivariate analysis. Univariate analysis is performed to describe the characteristics of the subject, and the variables studied. The bivariate analysis carried out was multiple linear regression on each dependent variable. The stepwise method is chosen to obtain the most suitable model for the study results. Before the bivariate analysis is applied, the researcher carried out the classical assumption test first in the form of linearity test, residual normality test, multicollinearity test, and heteroscedasticity test. All assumptions are met so that regression testing can be done. Data analysis was performed using statistics software.

RESULTS

Respondent characteristics

The results of the analysis based on the characteristics of the respondents (**Table 1**) showed that

of the 121 respondents, most of the respondents were female (58.68%), go to school in urban areas (50.41%), had family income less than YSD Provincial Minimum Wage (51.24%), and parents with a high school education level/equivalent (37.19%). The pocket money/day was categorized into high and low with the average as the cut of point. As a result, most respondents had a low amount of pocket money/day (70.25%).

The nutritional knowledge score showed the number of respondents who answered correctly on the nutritional knowledge questionnaire. As a result, most of the respondents had insufficient knowledge of nutrition (69.42%). Only 9.09% of the respondents had good nutrition knowledge. In the body image perception, someone was said to pay attention to body shape if the score was >19 [16]. The result, most respondents ignored body shape (52.89%), had weak peer influence (56.20%), and had weak media influence (52.07%).

Table 1. Characteristics of the respondents (n=121)

Characteristics	n (%)
Gender	
Male	50 (41.32)
Female	71 (58.68)
School location	
Rural	60 (49.59)
Urban	61 (50.41)
Family income (Rp)	
<YSD provincial minimum wage (<Rp1,700,000)	62 (51.24)
≥YSD provincial minimum wage (≥Rp1,700,000)	59 (48.76)
Parental education	
Elementary school	11 (9.09)
Junior high school	35 (28.93)
Senior high school	45 (37.19)
Diploma	16 (13.22)
Bachelor degree	12 (9.92)
Master degree	2 (1.65)
Characteristics	**Mean (SD)**
Amount of pocket money/day (Rp)	10,921.49 (5,569.26)
Nutritional knowledge score	7.74 (1.94)
Perception of body image score	19.78 (8.71)
Peer influence score	4.07 (2.17)
Media influence score	9.35 (3.07)

Table 2. Distribution of food choice motives

Food choice motives	n	%
Natural content	29	23.97
Health	55	45.45
Ethical concern	7	5.79
Price	17	14.05
Mood	2	1.65
Sensory appeal	4	3.31
Convenience	5	4.13
Weight control	2	1.65
Familiarity	0	0
Total	121	100

Food choice motive

The results of the analysis based on the distribution of food choice motives (**Table 2**) showed that the main food choice motives of most respondents was health (45.45%), followed by natural content motives (23.97%), price (14.05%), and ethical concern (5.79%).

Factors related to food choice motives

Table 3 showed the regression model of the four food choice motives; natural content, ethical concern, price, and weight control. In the regression model of natural content motive, there was a nutritional knowledge variable maintained in the model. The p value = 0.013 indicates that the nutritional knowledge as an independent variable had a significant relationship with the dependent variable, that was the natural content motive. Then, the coefficient of determination (Adjusted R^2) showed a value of 0.042. This means that nutritional knowledge had a significant correlation of 4.2% with natural content motive, while the rest was related to other variables outside the independent variables analyzed in the study. Then, the relationship between nutritional knowledge and natural content motive was positive (t = 2.513). This means that the better the nutritional knowledge, the more adolescents will give more importance to natural content motive in choosing food. Based on this study, the equation of the multiple linear regression model for the dependent variable natural content motive is:

$$Y\_\text{Natural content motive} = 2.256 + 0.100 \times x2$$

There were variables of media influence, nutritional knowledge, and the amount of pocket money retained in the ethical concern motive regression model. The

Table 3. Multiple linear regression model of factors related to food choice motives

Variable	*b*	SE	β	*t*	*p*
Natural content motive					
Constant	2.256	0.316		7.132	0.000
Nutritional knowledge	0.100	0.040	0.224	2.513	0.013
*Adjusted R^2 = 0.042; F = 6.314; p = 0.013**					
Ethical concern motive					
Constant	1.928	0.407		4.738	0.000
Media influence	0.065	0.023	0.244	2.771	0.007
Nutritional knowledge	0.087	0.037	0.208	2.381	0.019
Amount of pocket money	-0.000029	0.000	-0.201	-2.304	0.023
*Adjusted R^2 = 0.101; F = 5.473; p = 0.001**					
Price motive					
Constant	1.935	0.350		5.524	0.000
Parental education	0.067	0.029	0.207	2.307	0.023
*Adjusted R^2 =0.035; F = 5.321; p = 0.023**					
Weight control motive					
Constant	1.041	0.459		2.268	0.025
Perception of body image	0.026	0.008	0.265	3.115	0.002
Media influence	0.065	0.024	0.232	2.694	0.008
Amount of pocket money	-0.000030	0.000	-0.197	-2.309	0.023
Nutritional knowledge	0.076	0.038	0.173	2.018	0.046
*Adjusted R^2 = 0.137; F = 5.781; p = 0.000**					

*significant (p<0.05) by multiple linear regression test

p value = 0.001 indicates that the three independent variables had a significant relationship with the dependent variable, ethical concern motive. Then, the coefficient of determination (adjusted R^2) showed a value of 0.101. This means that the effect of media, nutritional knowledge, and the amount of pocket money simultaneously had a significant correlation of 10.1% with ethical concern motive, while the rest was related to other variables outside the independent variables analyzed in the study. Then, the relationship between the influence of media and nutritional knowledge with ethical concern motive was positive (t = 2.771 and 2.381) while the amount of pocket money was negative (t = -2.304). This means that the stronger the media's influence and better nutrition knowledge, the more adolescents will be concerned with ethical concern motive. In contrast, the higher the amount of pocket money, the adolescents will be less concerned with ethical concern motive in food choice. Based on this study, the equation of the multiple linear regression model for the dependent variable ethical concern motive is:

$$Y\_\text{Ethical concern motive} = 1.928 + 0.065 \times x9 + 0.087 \times x2 - 0.000029 \times x6$$

In the price motive regression model, there was parental education variable that are maintained in the model. The p value (0.023) indicates that parental education as the independent variable had a significant relationship with the the price motive. Then, the coefficient of determination (adjusted R^2) showed a value of 0.035. That was, parental education had a significant correlation of 3.5% with price motive, while the rest was related to other variables outside the independent variables analyzed in the study. Then, the relationship between parental education and price motive was positive (t = 2.307). This means that the higher the level of education of parents, the more adolescents will be concerned with the price motive in choosing food. Based on this study, the equation of the multiple linear regression model for the dependent variable price motive is:

$$Y\_Price\ motive = 1.935 + 0.067 \times x8$$

There was variables of body image's perception, media influence, amount of pocket money, and nutritional knowledge retained in the regression model of weight control motive. The p value = 0.000 indicates that the four independent variables had a significant relationship with the dependent variable, that was weight control motive. Then, the coefficient of determination (adjusted R^2) showed a value of 0.137. This means that the perception of body image, the influence of the media, the amount of pocket money, and nutritional knowledge simultaneously had a significant relationship with 13.7% of weight control motive, while the rest was related to other variables outside the independent variables analyzed in the study. Then, the relationship between body image perception, media influence, and nutritional knowledge with weight control motives were positive (t = 3.115; 2.694; and 2.018). This means that the more adolescents pay attention to body shape, the stronger the media's influence, and the better the knowledge of nutrition, the more the adolescents will give more importance to weight control motive in food choice. However, the higher the owned pocket money, the adolescents will be less concerned with the motive for controlling weight in food choice. Based on this study, the equation of the multiple linear regression model for the dependent variable weight control motive is:

$$Y\_Weight\ control\ motive = 1.041 + 0.026 \times x3 + 0.065 \times x9 - 0.000030 \times x6 + 0.076 \times x2$$

Description of indepent variables: *x1*: gender; *x2*: nutritional knowledge; *x3*: perception of body image; *x4*: peer influence; *x5*: school location; *x6*: amount of pocket money; *x7*: family income; *x8*: parental education ; *x9*: media influence

DISCUSSION

Respondent characteristics

Most of the respondents had a low amount of pocket money and parents had an income < YSD provincial minimum wage. This is because family income is reflected in the pocket money that children receive. Generally, the higher the family income, the more pocket money the children get. Vice versa, the less family income, the less pocket money is obtained [19]. Most of the respondents's knowledge of nutrition was still low. This result is similar to a study conducted by Nurmasyita et al. (2015) which showed that adolescents nutritional knowledge tends to be low with the average scores of the two groups studied being 52.69 and 53.84 [20]. Insufficient nutritional knowledge can be caused by lack of information, indifference and disinterest in nutrition, time, culture, family, finance, and low nutrition education [21]. In the perception of body image variable, most respondents pay attention to body shape. This result is in line with a study conducted by Voelker et al. (2015) that 70% of adolescent girls pay attention to body shape, so they want to lose weight because they feel less slim [22].

Food choice motives

Based on Steptoe's Food Choice Questionnaire (FCQ), food choice motives are divided into nine motives or subscales; health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity, and ethical concern motives. Health motive are related to nutritional content such as fiber, vitamins, minerals, and protein. Mood motive are related to the effect of the food to restoring a good mood. The motive for convenience is related to the ease of obtaining the product and the preparation process. The motive for sensory appeal is related to taste, aroma, texture, and food appearance. The natural content motive is related to addictive substances, natural/non-manufactured ingredients, and hazardous materials. The price motive is related to affordability and purchase ability. Weight control motive is linked to low calorie and fat content. Familiar motive related to foods that are often eaten. Meanwhile, ethical concern motive is related to the effects on humans and the environment [18].

The results showed that most respondents had health motive as the most important motive when choosing food, followed by natural content, price, and ethical concern motive. Most research states that health and price motives are the most important motives in

food choice. For example in the research conducted by Maulida et al. (2016) at junior high schools in East Jakarta, which showed that the most important motives for adolescents in choosing food were health, comfort (mood and sensory appeal) and convenience and price (average = 2.92; 2.30; and 3.78) [13]. Setyaningsih's research (2016) also showed that health motive was the most important motive in choosing food for families and children (average = 3.56) [23]. Research by Roos et al. (2012) also showed that the price motive was the most important motive in choosing school children's meals, followed by sensory appeal and health [24].

However, natural content and ethical concern motives can also be important motives in food choice for certain consumer groups. For example, a study conducted by Pearcey & Zhan's (2018) showed that adolescent respondents with Asian culture had dominant natural content and ethical concern motives in food choice [25]. Ethical concern motive have evolved from focusing solely on environmental issues to encompassing issues of animal welfare, national origin, fair trade, health, etc [26]. Health-related ethical concern motive include consumer consideration of nutritional information labels and composition in a food product [27]. This development makes ethical concern motive related to natural content motive. These two motives are starting to be considered in food choice because of the many food safety incidents, for example, in over-the-counter herbal diet pills that claim to lose weight naturally. These products are mostly sold over the counter without meeting food safety regulations [28]. Price motive also have a major influence on food choice decisions by consumers in general. Most consumers, including adolescents, will look for products at affordable prices to save money, time, and effort [29].

Factors related to food choice motives

Based on the results of multiple linear regression tests on the nine dependent variables, there were four models with the dependent variables (natural content motive, ethical concern, price, and weight control) which had a significant relationship with the independent variables simultaneously. In the dependent variable, health, mood, convenience, sensory appeal, and familiarity motive, no proper regression model was found. This showed that there were no independent variables in the study that significantly predict the dependent variable. This can occur because the food choice motives are related to the biological and physiological responses of individuals to food, whereas most of the independent variables in this study are related to socioeconomic conditions [13].

Natural content motive. Based on the research results, the factor with a significant relationship with natural content motive was nutritional knowledge. The results of this study are in line with the research of Sun et al. (2008). Food choice motives influence attitudes regarding food choice. Meanwhile, food choice motives are influenced by nutritional knowledge and health care. In this study, nutritional knowledge and concern for the emergence of food-related diseases were the strongest food choice causes based on health motives, natural content, and ethical concern [30].

Natural content motive is related to food safety. There are food products that are harmful to health on the market. Incorrect information regarding these products can mislead consumers into choosing these products. However, consumers with exposure to the same product information do not necessarily have similar product choices. The role of nutritional knowledge is thought to help consumers evaluate these products's information and quality [28]. Good nutritional knowledge is related to choosing the right food (safe and nutritious) while a lack of nutritional knowledge is related to choosing the wrong food [12].

Ethical motive. Based on the research results, factors that had a significant relationship with ethical motives were nutritional knowledge, media influence, and the amount of pocket money. This result is in line with the research conducted by Sun et al. (2008) which showed that nutritional knowledge and concern for the emergence of food-related diseases were the strongest causes in choosing food based on health motive, natural content, and ethical concern ($p<0.001$) [30]. This result is also in line with Aulia and Yuliati (2018) research, which showed that exposure to information from the media had a significant effect on food choice [31]. Some of the information that adolescents get through the media is information about food, nutrition and health. Therefore,

adolescents with strong media exposure and influence are thought to have strong nutritional knowledge as well. Individuals with nutritional knowledge will pay more attention to ethical concern motive in food choice. In this case, the ethical motive in question is related to consumer consideration of information on nutritional value and natural content written on the product, whether it is in line with existing moral norms [27].

Adolescents who have a high pocket money will tend not to pay attention to ethical concern motive in food choice. Adolescents with high pocket money have high purchasing power as well. They can be freer in choosing the type and amount of food to be consumed [12]. Foods often purchased by adolescents with high pocket money are fast food and sweet foods [8,32]. In fact, both types of food are high-calorie foods that can have a negative effect on health. This indicates that adolescents with high pocket money do not pay attention to health-related ethical motives in food choice.

Price motive. Based on the research results, the factor with a significant relationship with price motive was parental education. The relationship was unidirectional or positive. This result is different from the research conducted by Fernandez-Alvira et al. (2013). The study showed that parental education was negatively related to price motives. In the study, low parental education levels were associated with children's high-sugar, high-fat intake of foods such as french fries, desserts, and sweetened drinks. Meanwhile, a high level of parental education is associated with children's food intake that is low in sugar and low in fat, such as vegetables, fruit, and whole grains [32]. Low sugar and low-fat diets are associated with high costs. Whereas diets high in sugar and high in fat are associated with lower costs [25].

The difference in this study results is that the parents of respondents with a higher education level still emphasize the price motive related to the feasibility of the product to be purchased. One of the price motive points is "good value for money" or having a price that is comparable to the quality of the food. Parents who teach economic and nutrition education to their children will instill their children's attitude to choose food based on price but still pay attention to the quality of the food. Individuals with high knowledge will tend to choose foods that are cheap but have high nutritional value and are easily found in the surrounding environment [33].

Weight control motive. Based on the research results, the factors that had a significant relationship with the motive for controlling weight were perception of body image, media influence, the amount of pocket money, and nutritional knowledge. This result is in line with the research conducted by Kusuma & Krianto (2018) which showed that body image had a significant influence on eating behavior ($\beta = 0.19$; $p < 0.01$) [34]. During puberty, feelings of attraction to the opposite sex begin to arise so that adolescents will try to look as attractive as possible. Adolescents will also try to adapt to their peer environment standards to get acceptance, one of which is related to body shape standards. This causes many adolescents to have a negative body image perception [35]. Body image perception is one of the factors that cause concern regarding weight among adolescents so that adolescents begin to pay attention to the motives of controlling weight in food choice [36].

Media influence also had a positive relationship with weight control motive. One of the media influences received by adolescents is related to the stigma of an ideal body in society. The media are one channel that forms the idea that physical attractiveness is important. Overweight individuals are underrepresented on television shows. They are often seen as less attractive and popular than the thinner characters. The effect that emerges is that adolescent girls' audience has a stigma that body shape satisfaction is obtained if they have an ideal body like the figures that appear in advertisements [37]. Boys also experience the same thing. Adolescents who view music video clips featuring muscular figures have lower body satisfaction [38]. This can lead to changes in eating behavior to get the desired body shape. One of the things that are done is choosing foods based on weight control motive.

Nutritional knowledge also had a positive relationship with weight control motives. Adolescents with sufficient nutritional knowledge will practice proper weight control. Weight control strategies for adolescents with good nutritional knowledge include healthy lifestyles such as increasing consumption of vegetables and fruit, reducing sweetened drinks, and

increasing physical activity. Meanwhile, adolescents with insufficient nutritional knowledge tend to practice incorrect weight control. For example, skipping meals and taking diet pills [39].

The relationship between the amount of pocket money and the motive for controlling weight was negative. This result is in line with Punitha et al. (2014) research, which showed that the amount of pocket money affects BMI status. Most adolescents with high pocket moneys have BMI status overweight and obesity [8]. Foods that are often consumed by adolescents with high pocket moneys are fast food and sugary foods that can cause weight gain. This shows that adolescents with high pocket moneys ignore weight control in food choice.

The results of this study can become a reference for stakeholders (schools, education offices, health offices, etc.) to make more segmented and targeted policies related to food choice in the school environment so that interventions resulting from these policies have a higher success rate. This study has a limitation, using the cross-sectional method, which can only observe the respondents's characteristics at one time so that the researcher cannot see the respondents's consistency in different time periods. Besides, this study uses multiple linear regression statistical tests so that it cannot describe the relationship between variables other than a linear relationship and can only find association and not causation.

CONCLUSIONS

Based on the research results, perception of body image, nutritional knowledge, media influence, amount of pocket money, and parental education were factors related to food choice motives of adolescents in Yogyakarta Special District. In the future, various stakeholders such as health practitioners, media, healthy food industry, and policy makers can design intervention strategies related to healthy eating behavior in adolescents based on these factors. Further research is also needed regarding other factors that may play a role in adolescents's food choices, especially biological, physiological, or psychological factors.

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Declaration of conflict interests

The author declare that there is no conflict of interest in this study.

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