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# Factors Related to Choosing Food and Beverage Snacks Containing Food Additives Among College Students

## Abstract

Food safety is an important aspect that must be attended because it is related to health. One way to control food safety to prevent health problems is to protect food from food Additives that exceed the standard or do not meet the requirements for health. College students often spend time outside the home, boarding house, and campus. So, that to meet food needs, college students always buy and consume food and beverage snacks installs, food stalls, campus canteens, and street vendors around the campus. This study aimed to determine the factors associated with food selection and beverage snacks containing food additives for boarding college students in Warungboto Village, Yogyakarta. The type of this research is quantitative with observational analytic methods. The time frame of this research was cross-sectional. The population in this study was 2958 boarding College students in the Warungboto Village, Yogyakarta City. The sample was calculated using the Slovin formula with totally 104 College students and used the proportional random sampling technique. The data were collected using the characteristics of the respondents, questionnaires on knowledge, attitudes, and actions in the choosing of food and beverage snacks. The data were analysed by using univariate and bivariate statistical tests. The results showed that there was no relationship between knowledge and the act of selecting snacks containing harmful food additives with a p-value of  $0.335 > 0.05$ . There is a relationship between attitude and the act of choosing snacks containing harmful Food Additives for boarding College students with a P-value of  $0.001 < 0.05$ . There is a relationship between the origin of the study program and the act of selecting snacks containing harmful Food Additives for boarding College students with a P-value of  $0.000 < 0.05$ . The conclusion in this study is that there is no relationship between knowledge and the act of selecting snacks containing harmful Food Additives. There is a relationship between the attitude and origin of the study program with the choosing of snacks containing harmful Food Additives for boarding College students in the Warungboto Village, Yogyakarta.

Keywords: Food additives, action, knowledge, study program, college student

## I. INTRODUCTION

Food is the basic need and energy sources for human that must be fulfilled for daily live. Food is different and also vary based on the characteristics and food processing, including heavy food and snack (Merryana Adriani, 2016). Safety food is the important aspects that must be intentioned, because it is related to the health. According to The Minister of Health Regulation number 033 in 2012, citizen is the group of people who need to be protected from any overuse food addictive or not fulfil the health requirement. There is any effort to prevent the contamination of chemical, biological, or any insufficient things to the food and drink that may have negative affect to the health (Peraturan Menteri Kesehatan RI Nomor 033, 2012).

The issues of vulnerability and safety food among undergraduate students is not receiving enough attention (Mukigi et al., 2018). Students do not have the consistent access to the cheap and nutritious food and they mostly have unhealthy behavior so there is a limited choice to healthy food. Vulnerability food may negatively influence to the academic achievement, health status, and mental health (such as depression, stress, and worry) (Patton-López et al., 2014). Students is also having higher risky to be obesity, unhealthy food choice, and less physical activity (Brunt & Rhee, 2008).

Safety food is one attribute of food product that considered of costumers before when evaluated the food choice (Chen, 2016). Most of students tend to consume instant food which less nutritious and unhealthy (Kim, 2015). Furthermore, students in age around twenty ignored the healthy food habit because they have the unstructured class, limited time, low knowledge, malnutrition, that may have a risk to be obese or malnutrition (Cho et al., 2021). To develop the safety food choice, there is important to have knowledge about the factors associated with food choice among student. Based on the Theory of Planned Behavior, behavior can be defined based on the intention. On the other side, attention is defined by the attitude (Ajzen, 1985). The level of knowledge about nutritional value and safety food is playing a role in develop the behavior during the food choice. The previous study revealed that the student's knowledge remains low that influence them to choose the oily instant food (Kabir et al., 2018). Students who come from health background, especially with the higher semester tend to have wider knowledge of safety food choice (Deliens et al., 2014).

In Warungboto Village, Yogyakarta, there are a lot of seller who provide many kinds of snacks such as bakso tusuk (skewered meatballs), sempol ayam, cilok, and many kinds of drinks. Many of students who lived in the Warungboto Village bought the snacks and drinks from them. They come from various universities, faculty, and study program. According to preliminary study among those students, there are a lot of student did not understand the negative effect of food addictive which has been banned. They just decided the food based on the taste and to fulfill the daily need. According to those issues, this current study aimed to understand the influencing factors related to snacks and drinks (added with food addictive) choice behavior among boarding house students in Warungboto Village, Yogyakarta.

## II. METHOD

This study is analytic-observational study with cross sectional time frame aimed to understand the relationship between variables causes-effect in one-time frame. The independent variables in this study consist of knowledge, attitude about food addictive and the study program, the dependent variable is the behaviour of choosing snacks for boarding students. The instrument of this study used the questionnaire consist of 10 questions for knowledge variables, 20 questions for attitude, and 11 questions for behavior. The study program variable in this study was categorized as health program study and non-health program study. The population of this study was 2,958 the boarding house students lived in Warungboto Village Yogyakarta. The sample in this study was 104 students which selected by using Proportional stratified random sampling.

The questionnaire has been tested for validity and reliability with *Cronbach's Alpha* value was 0.6464 for knowledge, 0.955 for attitude, and 0.724 for behavior. Those values were higher than 0.6 that had the meaning that the variables of knowledge, attitude, and behavior were reliable. Those three independent variables were categorized as good if the total score  $\geq$  mean and categorized as not good if the total score  $<$  mean. The overall data has been analyzed by using Chi Square Test.

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## III. RESULTS

The distribution frequency of respondents according to their age and sex is presented in Table 1 below.

TABLE 1. The distribution and frequency of age and sex among boarding house students in Warungboto Village

Variable	n (frequency)	Percentage
<b>Age</b>		
18-20	12	11,5%
21-23	92	88,5%
<b>Sex</b>		
Male	38	36,5%
Female	66	63,5%

Based on the information in Table 1, from 104 total sample in this study, the majority of them were in aged 21-23 years, which was 92 respondents (88.5%). More than a half of sample were female and just 36.5% of them were male. The distribution of knowledge, attitude, study program, and behavior to choose the food and drink are described in the Table 2.

TABLE 2. The distribution and frequency of knowledge, attitude, study program, and behavior to choose the food and drink among boarding house students in Warungboto Village

Variable	n (frequency)	Percentage
<b>Knowledge</b>		
Not good	45	43,3%
Good	59	56,7%
<b>Attitude</b>		
Not good	54	51,9%
Good	50	48,1%
<b>Study program</b>		
Health	49	47,1%
Non-health	55	52,9%
<b>Behavior</b>		
Not good	51	49,0%
Good	53	51,0%

Table 2 describes the information about knowledge, attitude, study program, and behavior. More than a half of respondents have a good knowledge about safety food from addictive which showed 56.7%. However, more than a half of attitude of respondents showed the not good which was 51.9%. According to study program, more than a half of respondents studied in non-health study program. In terms of behavior, more than a half of them did the good behavior.

TABLE 3. The Bivariate Results related to food choice behavior among boarding house students in Warungboto Village

Table 3 describes the bivariate analysis to understand the influencing factors of each independent variables to dependent variable. The standard error used in this study was 0.05 or 95% confidence interval. The p-value showed that knowledge is not statistically correlation between knowledge and food choice behavior (0.335

> 0.05). There is found the medium significance between attitude and food choice behavior ( $0.002 < 0.05$ ). The study program also showed the high correlation to the food choice behavior ( $0.000 < 0.05$ ).

Variables	Food choice behavior				p-value	CI 95%
	Not good		Good			
	n	%	n	%		
Knowledge						
Not good	25	24,0	20	19,2	0,335	0,855-1,859
Good	26	25,0	33	31,7		
Attitude						
Not good	35	33,7	19	18,3	0,002	1,292-3,174
Good	16	15,4	34	32,7		
Study program						
Health	14	13,5	35	33,7	0,000	0,263-0,686
Non-health	37	35,6	18	17,3		

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#### IV. DISCUSSION

This study found that there is no correlation between knowledge and food choice behavior contained food additives among boarding house students in Warungboto Village. It might be due to another factor that play the most role so whether the knowledge is good or not, it does not affect to the food choice behavior. This study is related to the theory that mentioned health behavior is influenced by 4 major factors such as intrapersonal, interpersonal, physical environment, and macro environment. The previous study revealed that knowledge about safety food is important to increase the health status. Food additives are influencing people to choose and consume appropriate food to prevent the diseases. The result showed the knowledge of people is defined into safe food and not safety food (Selaindoong et al., 2020).

The level of stress among students may also influence the food choice and healthy food behavior. The stress through the psychological may be caused by several factors, such as unstructured lifestyle, too many outside activities, too many academic tasks, and preparation for hearing the job (Park et al., 2002). The previous study also stated that students tend to consume cheap and instant food (Lee & Lee, 2016). Parenting pattern and guidance from parents are also reflecting the food choice, so the family is the first environment to influence the knowledge. Even though the students do not live together with their family, but the role of family is very important to influence the food selection, dietary habits, and other food related behavior (Aulia & Yulianti, 2018). Intrapersonal factors like cooking skill, taste preferences, eating habit with family, and the level of knowledge and perception about healthy food are also influenced the eating pattern. Beside of this individual factor, the social factor and environment including campus culture, lifestyle, peer effect, academic activities, price, and food availability are also found influencing the food habit (Kabir et al., 2018).

The effect of culture can shape the attitude to select the food. In this study, most of respondents come from outside Yogyakarta so they tend to select their own origin food. Based on the theory, the factors influencing the attitude are experience, others suggestion, and culture (Azwar, 2011). Students have several characteristic and come from many regions so they have different eating habit and food choice (Aulia & Yulianti, 2018).

The education related to health like the knowledge about food additives which might be given in the curriculum may also influence the food choice. In this study, the chance of knowledge that student got from non-health study program could not be applied to food choice. So, the food choice might be not good. This result is supported by the previous study that stated students especially from health-study program tend to have better knowledge about health and nutrition compared to students from non-health study program. Students from health-study program who have better knowledge about healthy food tend to have better understanding to select the health and safety food (Mulyani et al., 2018). Food availability around the boarding house and university are also the factors that may influence the food selection. Students need to reduce the social media exposure to minimize the negative effect of environment to the health. There is need to be study about the sociocultural factors that may influence student to select the food and educate them about healthy food.

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Commented [MOU8]: Is there any positive effect of social media to the health and environment? Explain here

#### V. CONCLUSION AND RECOMMENDATION

According to result of this study, there is a relationship between attitude and study program to food selection contains the unsafety food additives among the boarding house students in Warungboto Village, Yogyakarta. However, the knowledge is not found any association with food selection behavior contains food additive among boarding house students in Warungboto Village, Yogyakarta.

The recommendation to Department of Health Yogyakarta city is to educate the people especially student to select the health and safety food without any food additives that may have negative effect to the health. The next study can discuss the effect of food additives to food selection behavior with other socioeconomic factors and the amount of money pocket.

Commented [MOU9]: Could you please add the recommendation to the college students as well?

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