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The Influence of Values and Attitude toward Healthy Food Selection at Student of Bogor Agricultural University

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Abstract. The food selection is a process that consumers do every day before consuming any food. The food which is selected for consumption will have an effect for our health. This study aimed to analyze the influence of values and attitudes toward healthy food choices. Design research was using cross sectional study with a survey method using a self-report questionnaire and involving 288 students of PPKU IPB selected by cluster random sampling technique. Data were analyzed using SPSS for descriptive, different test of an independent t-test, correlation analysis and multiple regression analysis. The results showed that there are significant differences in values and attitudes between men and women and meanwhile there was no significant difference in the selection of healthy foods between men and women. Values and attitudes of students have a positive relationship to the choice of healthy foods. The results also showed that the attitude had a positive and significant effect on the choice of healthy foods, otherwise values had no significant effect on the choice of healthy foods.

Keywords: attitude, food selection, healthy food, value

Abstrak. Pemilihan makanan merupakan proses yang dilakukan konsumen setiap hari sebelum terjadi pengonsumsian makanan. Makanan yang dipilih untuk dikonsumsi akan memiliki efek bagi kesehatan. Penelitian ini bertujuan untuk menganalisis pengaruh *values* dan sikap terhadap pemilihan makanan sehat. Desain penelitian menggunakan *cross sectional study* dengan metode survei secara *self report* menggunakan kuesioner dan melibatkan 288 mahasiswa PPKU IPB yang dipilih dengan teknik *cluster random sampling*. Data dianalisis menggunakan SPSS untuk deskriptif, uji beda *independent t-test*, analisis korelasi dan analisis regresi berganda. Hasil penelitian menunjukkan bahwa terdapat perbedaan yang signifikan pada *values* dan sikap antara laki-laki dan perempuan, sementara itu tidak ada perbedaan yang signifikan pada pemilihan makanan sehat antara laki-laki dan perempuan. *Values* dan sikap mahasiswa memiliki hubungan yang positif terhadap pemilihan makanan sehat. Hasil penelitian juga menunjukkan bahwa sikap berpengaruh positif secara signifikan pada pemilihan makanan sehat, sebaliknya *values* tidak berpengaruh signifikan pada pemilihan makanan sehat.

Kata kunci: makanan sehat, pemilihan makanan, sikap, *values*

Introduction

Food is one of the most important needs that has to fulfilled every day. Various types of food that offered today make consumers should be more selective, because not all of foods have good benefits for the body. Modern consumers have anxieties and contradictions in food and health (Mennell et al. 1992; Rozin et al. 1999; Arganini 2012). Healthy food is one of the supporting health. Healthy foods are foods that contain the nutrients that needed by the body such as carbohydrates, proteins, fats, vitamins and minerals (Hardani 2002). According to the Ministry of Health, which includes healthy foods are fruits, vegetables, milk, fish and eggs. Several choices of healthy foods, there is the fact that the level of vegetable consumption in Indonesia is among the lowest in the world (Muthmainnah et al 2015). This is in line with a survey that conducted by the Health Research and Development Agency (HRDA) of the Ministry of Health 2015, that vegetable consumption in Indonesia is only 91 grams (g) per day per person. This amount is twice lower than the consumption of vegetables of Thai and Filipino society (Maharani 2015). Meanwhile, the World Health Organization (WHO) generally recommends to consume vegetables of 250 grams (g) per day per person (Achmad et al 2014). In other words, the provision of healthy foods, especially vegetables in Indonesia is still very far from the recommended suggestion. In fact, the nutrients contained in vegetables are very good for health, such as vitamin A, vitamin C, folic acid, magnesium, potassium, and fiber (Almatsier 2002; Farisa 2012).

Before the process of eating food, everyone will definitely go through the process of selecting food. Research on the selection of food is a basic study of eating habits, so when associated with food intake then the selection of food indirectly measures one's consumption (Azrimaidaliza & Purnakarya 2011). Food selection is the way of people to considers and chooses food in order to obtain and prepare it (Furst et al. 1996; Missagia et al., 2012). Food selection can also be considered as a decision-making process for determining selection criteria, as well as an evaluation of the suitability of food under consideration to choose (Furst et al. 1996; Paasovaara 2011). Based on the food selection process according to Sobal and Bisogni (2009), one of the factors influencing the selection of food is values. Vermeir and Verbeke (2006) suggest that values can address one's goals or needs, and the right way to achieve a particular goal or need. Values have an important role for consumers in the decision-making process, such as product selection and brand selection (Burgess 1992; Engel et al. 1995; Vermeir & Verbeke 2006). In addition, there are psychological factors affecting the selection of food, namely attitude (Babicz & Zielińska 2006), as well as an important component in the selection of food (Nestle et al., 1998; Vabo & Hansen 2014). Attitude is a tendency to respond positively or negatively to an object, person, institution or state (Ajzen 1988, Roininen 2001), and involves affective, conative, and cognitive components (Solomon et al., 2010).

The objectives of this research are: 1) to analyze differences in individual characteristics, values, attitudes, and selection of healthy foods based on sex; 2) analyze the relationship of individual characteristics, values, and attitudes towards healthy food selection; 3) analyze the influence of individual characteristics, values, and attitudes towards healthy food selection.

Method

The design that used in this research is cross sectional study with self report survey method using questionnaire. The study was conducted at the Bogor Agricultural University. The population of the study are undergraduate students who are still active in the Bogor Agricultural Institute and are at the level of General Competency Education Program (GCEP) of 2015/2016 with number of 3595 students and choose by cluster random sampling technique. Cluster type that taken in this research is cluster of GCEP class, where total of all class of there are 33 class. Thus, the sampling randomly selected three classes are considered to represent the entire population. After the banner, the selected classes are P09, Q03, and R02. All the students in the three classes are used as sampling in this research.

The variable values in this study were measured using a Multi-item List of Value (MILOV) instrument with 44 question items adopted from Bearden and Netemeyer (1999) and refers to Herche's (1994) theory. The instrument have tested the validity and reliability with cronbachs's alpha of 0.835 and 27 items valid. Attitude is measured using modified instruments from Salaun and Pontet (2013) which refers to Solomon et al. (2006) which consists of 12 question items. The cronbachs's alpha value of attitude reliability is 0.720 with 8 valid items. Then, food selection was measured using a modified instrument from the Food Choice Questionnare (FCQ) by Steptoe et al. (1995) with 35 question items. The value of cronbachs's alpha reliability of food selection is 0.938 with all valid items. Assessment on instrument items using Likert scale with five ratings (strongly disagree, disagree, neutral, agree, strongly agree).

The variables under study both independent and dependent variables are scored according to the scale used of each variable and then the total score of each variable is indexed to a scale of 0-100. Based on the index obtained, then categorized by using cutting method Khomsan (2002) is low (score <60), medium (score 60-80), and high (score> 80).

Result

The number of respondents in this study is 288 students consisting of 58 percent of female respondents and 42 percent of male respondents. This illustrates that the number of female respondents is more than male respondents. More than half (57%) of male and female students are in the advanced adolescence category by the age of 16-18 years. The largest percentage of male and female pocket money is in the range of 600 001 IDR to 1 000 000 IDR with a percentage of 49.3 percent with an average female allowance greater than men.

Values

Values consist of nine dimensions. Achievement is an important dimension for male, whereas security is an important dimension for female. Different test results of nine dimensions values between males and females have significant differences ($p < 0.05$) on security dimensions, self-esteem, someone who wants to be respected, and self-fulfillment. Overall, there were significant differences ($p = 0.004$) of male and female values. If calculated based on the total score average values, male score of 64.3 while the female score of 67.3. This illustrates that male and female values are in the medium category (score 60-80).

Table 1 Average student score score

Dimension of values	Male (n=121)	Female (n=167)	Differential test *(p)*
Security	71.2	**75.2**	**0.032**
Pride	66.5	69.5	**0.047**
Someone who want to be appreciated	52.7	57.3	**0.003**
Self fulfillment	62.2	65.8	**0.012**
A sense of belonging	70.7	73.5	0.116
Excitement	53.3	52.7	0.652
Happiness and Enjoyment	63.2	64.5	0.476
Warm relationship with other people	68.1	70.1	0.239
Achievement	**88.2**	74.5	0.107
Total Values	64.3	67.3	**0.004**

Attitudes

The attitude dimension consists of affective, behavior, and cognitive. Male and female are concerned with the cognitive dimension when choosing healthy foods. Different three dimensions of attitudes between male and female, there are significant differences ($p < 0.05$) behavior and cognitive dimensions. Overall, there were significant differences ($p = 0.002$) of male and female attitudes. Meanwhile, based on the total average score of male attitudes is 57.3 while the average score of female attitudes is 60.8. This illustrates that male attitudes toward healthy food are in the low category (score <60), while women's attitudes toward healthy food are in the medium category (score 60-80).

Table 2 Average student attitude scores

Dimension of Attitude	Male (n=121)	Female (n=167)	Differential test *(p)*
Affective	48.9	49.3	0.782
Behaviour	54.9	60.2	**0.000**
Cognitive	**66.7**	**70.3**	**0.021**
Total attitude	57.3	60.8	**0.002**

Healthy Food Selection

The selection of food consists of nine dimensions. Health dimensions are a major reason for male and female students when choosing healthy foods. The results of different test nine dimensions of food selection between men and women, most dimensions there is no difference. Only one dimension has significant differences ($p < 0.05$) between men and women ie price. Overall, there were no significant differences ($p = 0.713$) in the selection of healthy food for men and women. If calculated based on the total score average healthy food selection, male score of 63.8 while the female score of 63.3. This illustrates that healthy food selection between men and women is in the medium category (score 60-80).

Table 3 Average healthy student selection scores

Dimension of Food Selection	Male (n=121)	Female (n=167)	Differential test *(p)*
Health	**74.5**	**75.5**	0.651
Mood	66.5	66.3	0.992
Comfort	56.6	55.1	0.412
Sensory attraction	59.6	58.4	0.609
Natural ingredient	57.6	56.1	0.573
Price	62.1	56.7	**0.029**
Weight control	63.9	67.1	0.167
Familiarity	64.3	64.6	0.896
Ethical interests	61.6	59.0	0.203
Total Food Selection	63.8	63.3	**0.713**

Interrelated Relationships Research

The correlation test shows that the allowance is positively correlated with values ($r = 0.118$; $\alpha = 0.046$). That is, the higher the allowance the values will be higher. Values are positively associated with attitudes ($r = 0.390$; $\alpha = 0.000$). That is, the higher the higher the values of the attitude. In addition, values ($r = 0.253$; $\alpha = 0.000$) and attitudes ($r = 0.501$; $\alpha = 0.000$) were positively related to food selection. That is, the higher values and attitudes of students then the selection of healthy food will also be higher.

Influence of Individual Characteristics, Values, and Attitudes toward the Election of Healthy Foods

Regression test was conducted to see the factors that influence the healthy food selection in the students presented in table 4.

Table 4 Factors that influence the selection of healthy foods

Independent Variables	Unstandardized β	Standardized β	*Sig (p)*
Constant	45.776		
Characteristics			
Age (years)	-1.477	-0.069	0.177
Sex (0=male; 1=female)	-3.217	-1.21	0.022*
Pocket Money (IDR/month)	-1.148	-0.035	0.504
Values	0.134	0.085	0.116
Attitude	0.661	0.488	0.000**
F hit		21.412	
Adjusted R²		0.262	
Sig		0.000	
Durbin-Watson		1.720	

Description: * Significant at $p < 0.05$; ** Significant at $p < 0.01$

The results of multiple regression analysis showed that there was a significant negative influence of gender ($\beta = -3.217$; $p < 0.05$) on the selection of food healthy. Attitude ($\beta = 0.661$; $p < 0.01$) also had a significant positive effect on the selection of healthy foods. The adjusted R2 value of the regression model

generated is 0.262, which means that 26.2 percent of the independent variables studied have an effect on healthy food selection, and 73.8 percent are influenced by other factors not examined. Multiple linear equations are used, namely:

$$Y= \ 45.776 - 1.477X_1 - 3.217X_2 - 1.148X_3 + 0.134X_4 + 0.661X_5 + \mathcal{E}$$

That is, every increase of one score of age, gender, and allowance will decrease the score of healthy food selection with each of 1,477 points, 3,217 points, and 1,148 points. In addition, any increase in a score of values, and attitudes will raise the score of healthy food selection for each of 0134 points and 0.661 points.

Discussion

This study aims to analyze differences in individual characteristics, values, attitudes and selection of healthy foods based on sex, and analyze the relationship and influence of individual characteristics, values and attitudes towards healthy food pemiihan students. Based on individual characteristics, there were no significant differences in age of men and women. This is because the age of men and women are in the same relative range. Meanwhile, there is a significant difference in allowance per month between men and women, where the average female allowance is greater than that of men.

The results showed that there were significant differences between male and female values. The difference lies in the dimensions of security values, self-esteem, someone who wants to be respected, and self-fulfillment. Men are more concerned with the dimensions of achievement achievement values, while women are more concerned with the dimensions of security values. This is in accordance with Rokeach (1973) in Paasovaara (2011) which states that values will differ by sex. The findings are also in line with the research results of Buyukbayraktar et al. (2015), that gender plays a major role in determining important values. In addition, the values of male and female students are in the medium category.

Another variable in this research is attitude. Attitude is a long-standing general evaluation of a person, object or event (Solomon et al. 2010; Salaun & Pontet 2013), and illustrates the tendency to respond positively or negatively to an object, person, institution or circumstance (Ajzen 1988; Roininen 2001). According to Solomon et al. (2010) attitude is divided into three components namely affective (feeling), konatif (intention to do something), and cognitive (belief). The results of this study indicate that cognitive is a major component of attitudes in men and women. That is, students are more likely to respond and evaluate healthy foods using their beliefs or beliefs. Overall, different test results indicate that there is a significant difference between male and female attitudes. This is in line with Wilcock et al. (2014) which states that attitudes generally differ according to demographic factors such as gender. Male students 'attitudes are in the low category, while female students' attitudes are in the medium category.

Furthermore, the results of different tests on the selection of healthy foods consisting of nine dimensions indicate that there is a significant difference only in the price dimensions between men and women. That is, men are more considering the price than women. However, overall there was no significant difference in the

selection of healthy foods between men and women. This illustrates, that both men and women have a habit in choosing healthy foods are relatively the same. The results of this study are not in line with the opinion of Arganini et al. (2012) which states that women generally show a tendency to make healthy food choices and are much more concerned about the importance of healthy food choices. Other results in this study indicate that the health dimension is the main reason for men and women when choosing healthy foods. This finding is in line with the results of research conducted by Lindeman and Stark (1999) in Roininen (2001), that health is the most important thing in the selection of food.

The relationship test results show that values and attitudes are positively related positively to healthy food selection. That is, the higher values and attitudes of students then the selection of healthy food will also be higher. Multiple regression analysis was conducted to see the factors that influence the healthy food selection. The results showed that student gender significantly negatively influenced the selection of healthy food. This is in line with Ares and Gamboro (2007) in Missagia et al. (2012), that sex shows a major influence on food selection. However, the results of this study indicate that values have no effect on healthy food selection. This finding is not in line with Vinson et al. (1977) in Paasovaara (2011) which states that values are important factors that can influence food selection. Values are the standard for guiding one's actions in everyday situations (Rokeach 1973; Paasovaara 2011), as well as a concept or belief related to the intended state of affairs and more referring to what is considered important (Paasovaara 2011). However, in many cases food selection, the influence of other personal factors can force a person to act against the values that are considered important so that the values have a relatively small role, because several other factors also affect the selection of food (Paasovaara 2011). This is reinforced through the results of Paasovaara (2011) study which found that the selection of food guided by values actually only reached the marginal level only.

In addition, the results of this study found that attitudes have a significant positive effect on healthy food selection. This finding goes along with Babicz and Zielińska (2006) stating that another important psychological factor affecting food selection is attitude. Attitude is an important component of influencing food selection (Nestle et al., 1998; Vabo & Hansen 2014). Overall, this research model influenced healthy food selection by 26.2 percent. The remaining 73.8 percent is influenced by other variables that are not examined in this study.

This study has some limitations, among which individual characteristics are likely to be homogeneous, making it not seem the diversity of the results of this study. In addition, the lack of control during the self-report process because the monitoring can not be done directly when filling the questionnaire. And the limited time respondents in filling out the questionnaire also became a limitation in this study.

Conclusion and Suggestion

Conclusion

Overall, there is no age difference between men and women. However, there is a difference in allowance between men and women, where the average female allowance is greater than that of men. Male and female values are in the

moderate category. Male students are more concerned with the dimensions of achievement achievement values, while women are more concerned with the dimensions of security values. Male students' attitudes are in the low category, while women's attitudes are in the medium category. In addition, male and female students prefer to use the cognitive dimension when performing an attitude toward healthy food. The health dimension is the main reason for male and female students when choosing healthy foods. Different test results by sex, there are significant differences in values and attitudes between men and women. While in the selection of healthy food, there is no significant difference between men and women. Values and attitudes are positively related positively to healthy food choices. This means that the higher values and attitudes of students, the higher the wholesale food wholesome. The factors that influence the selection of healthy foods are gender and attitude. Gender negatively affects significantly toward healthy food selection. While the attitude has a significant positive effect on the selection of healthy food. This means that the better the score of student attitudes will be the better the selection of healthy food.

Suggestion

This study shows that the selection of healthy food for students is still relatively moderate. Whereas choosing a healthy diet is highly recommended because it is very good for health. Therefore, advice to consumers to pay more attention to the selection of food every day in order to lead to the selection of healthy food. Suggestions for governments such as the Ministry of Health and related parties can be more vigorous in educating the importance of healthy food selection and being conducted in an interesting way such as advertising in various media. Then, suggestions for the Bogor Agricultural Institute as the place of this research is expected to be able to multiply the places to eat around the campus that provides healthy food and can be controlled regularly. In addition, the results in this study indicate that there is no effect of values on the selection of healthy foods. This is thought to be due to individual characteristics that tend to be homogeneous. Therefore, it is suggested for further research to conduct a similar study with respondents whose characteristics vary. Further research is also recommended to conduct self-report at the same time and the control of the researcher so that the data obtained more accurate.

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