

RESEARCH ARTICLE

THE FOOD'S QUALITY ANALYSIS OF CANTEEN IN SYARIF HIDAYATULLAH STATE ISLAMIC UNIVERSITY JAKARTA

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ABSTRACT

Background: Food is an important requirement supporting the human activities, including academic activities on campus. The composition and quality of nutrients, both macro, and micronutrients in a diet, plays an important role in ensuring the availability of energy sources for daily activities and long-term health. This study is a preliminary study to evaluate the nutritional value of food provided in the canteen of campus.

Method: This research will use a cross-sectional design on food samples sold in the canteen of Syarif Hidayatullah State Islamic University Jakarta. The macronutrient composition analysis was calculated using a list of foodstuffs compositions.

Results: Most of the packaged food menu do not meet the macronutrient composition in a manner of balanced nutrition. The dominant side dish is chicken, the fat composition is higher than the recommendation due to fried processing. The portion of rice is not standard on various packages, with an average of 1.6 servings of standard rice. The content of vegetables is minimal. A snack menu is predominantly carbohydrate foods with a moderate to high sugar content, with minimal fiber content, and processed by frying.

Conclusion: The nutritional quality of the food menu in the canteen has largely not yet fulfilled the recommended macronutrient composition.

Keywords: Canteen, nutrient composition, nutritional quality

INTRODUCTION

Food is a basic of human needs. In a campus environment, food is also a crucial requirement in supporting the sustainability of academic activities. Food can be either a snack or main food that is sold and supplied by a canteen or cafeteria. According to the Regulation of the Director of National Agency of Drug and Food Control (BPOM) number HK.00.06.1.52.4011 in 2009, the community needs to be protected from microbial contaminated foods and chemical substances that will be harmful to health. The campus which is fulfilled by students, lecturers, staff, and learning activities is an integrated environment that requires not only the delicious food but also the healthy, nutritious and free microbial contaminated food. On the other hand, the data of Basic Health Research (Riskesmas) in 2010 showed the fact that the low consumption of vegetables, fruits, and protein quality as well as high consumption of foods and beverages containing high sugar, salt, and fat by the Indonesian people in both urban and rural areas.

The composition and quality of nutrients, both macro and micronutrients in a food menu, play an important role in ensuring the availability of sources of energy for daily activities and long-term health. Academicians who have complex and dynamic activities require good, healthy and nutritious intake. Food providers supposed to understand the management of healthy, nutritious and hygienic food appropriately. This is a preliminary study to evaluate the nutritional value & hygiene meals were provided on campus. The results of this study are crucial in order to carry out monitoring and evaluation, as well as maintaining the quality of canteen services (quality control). This study will also be the base of the mentoring process in presenting a healthy and high nutritional value diet in the campus environment. The aim of this study is to get characteristics of the food and drink menu is available in the cafeteria of Syarif Hidayatullah State Islamic University Jakarta and evaluating the nutritional value of the diet through assessment macronutrient composition according to the standard diet balanced nutrition.

METHOD

This study was conducted in several canteens of Syarif Hidayatullah State Islamic University Jakarta. This is a descriptive observational study with a cross-sectional design, performed in September to November 2017. This research analyzes the composition of the energy/calories, macronutrients (carbohydrates, fats, proteins) and fiber, simple sugars, and sodium in food samples provided in the cafeteria of Syarif Hidayatullah State Islamic University Jakarta.

Population and Sample

Foods were analyzed from several canteens of Syarif Hidayatullah State Islamic University Jakarta, namely Café Cangkir, Canteen of Faculty of Economics and Business, Canteen of Faculty of Social and Politics, Canteen of Faculty of Psychology, Canteen of Graduate School and Canteen of Faculty of Medicine and Health Sciences. This study analyzes macronutrient composition and fiber, simple sugars, and sodium in food samples provided in the cafeteria of Syarif Hidayatullah State Islamic University Jakarta.

Data collection technique

The nutrient's component analyzing were conducted in several steps, as described (1) The purchased food was analyzed for one serving portion in each menu/sample. (2) The food sorted out based on the components, for example chicken rice in coconut soup menu will be disaggregated into rice, shredded chicken, cabbage, vermicelli, potato cakes, chilli and coconut milk. (3) Each component was weighed foodstuffs using food scales with a precision of up to 1 gram. (4) Weighing results were enlisted in tabel to be analyzed.

Data analysis

The survey data was analyzed descriptively and presented in tabular or graphical form. Analysis on the nutrient composition of the diet had conducted using software Nutrisurvey 2007, which already equipped with the Indonesian food material database. When the foodstuffs not included in the software yet, the data seen on the food composition of Substance Nutrient Composition List will be inputted into the software. Nutrient composition data is presented based on the proportions of macronutrients in the diet and the calculation of fiber content, sugar, and salt in one serving of the food menu offerings. The results will be compared with the macronutrient composition of the macronutrient composition of healthy food according to the standard of balanced nutrition.

RESULTS AND DISCUSSION

This study is a preliminary study into the optimization phase of the canteens of Syarif Hidayatullah State Islamic University Jakarta. In this study, several cafetaria that were

used to be sampling place were (1) Café Cangkir 1st floor, (2) Café Cangkir 2nd floor, (3)Café Cangkir 3rd floor, (4) Canteen of Faculty of Economics and Business, (5) Canteen of Faculty of Social and Politics, (6) Canteen of Faculty of Psychology, (7)Canteen of Graduate School, (8)Canteen of Faculty of Medicine and Health Sciences

Nutritional Quality Menu

In this research, the menu was presented in the cafeteria categorized as heavy meals, drinks, dry snacks and wet snacks.

Servings of rice in the Menu

In general, in every cafeteria, rice as a staple food taken by a waiter / food handlers and not taken by the customer. Each canteen has a different dose for each portion of rice. Here is a table of the average weight of white rice in a variety of menu packages available in the cafeteria of Syarif Hidayatullah State Islamic University Jakarta.

Table 1. The mean weight of rice in One Portion Packs Menu

No	Rice's menu	Sampling place*	Amount (gram)
1	<i>Nasi rames teriyaki</i>	8	143
2	<i>Nasi ayam penyet</i>	8	190
3	<i>Nasi rames telur ceplok</i>	8	186
4	<i>Nasi soto ayam santan</i>	8	139
5	<i>Nasi soto Betawi</i>	8	158
6	<i>Nasi soto mie</i>	8	166
7	<i>Nasi soto ayam bening</i>	8	130
8	<i>Nasi pecel elel</i>	1	165
9	<i>Nasi ayam bakar</i>	1	161
10	<i>Nasi pecel ayam</i>	1	161
11	<i>Nasi ayam rica</i>	1	176
12	<i>Nasi ayam goreng</i>	4	159
13	<i>Nasi ayam krispi</i>	5	137
14	<i>Nasi ayam Katsu</i>	5	131
15	<i>Nasi gule sapi</i>	6	191
16	<i>Nasi madura</i>	6	210
17	<i>Nasi rawon</i>	6	197
19	<i>Nasi rames</i>	7	207
Mean			167

*sampling place: (1) Café Cangkir 1st floor, (2) Café Cangkir 2nd floor, (3)Café Cangkir 3rd floor, (4) Canteen of Faculty of Economics and Business, (5) Canteen of Faculty of Social and Politics, (6) Canteen of Faculty of Psychology, (7)Canteen of Graduate School, (8)Canteen of Faculty of Medicine and Health Sciences

From the table above, it can be seen that the weight of white rice on a variety of food menu is very varied, ranging from 130 grams to 210 grams for the first portion of the menu. The mean weight of white rice on the various menus is 167 grams. Based on the list of food ingredients exchanger, the size of one portion of rice is 100 grams. Macronutrient composition on one portion of rice (100 grams) as contained in the database Nutrisurvey 2007 is as follows:

Table 2 Macronutrient composition and fiber in One Portion Packs Menu

Nutrients	1 serving (100 grams)	1 serving (mean of white rice in the cafeteria)
Energy (kcal)	130	217.1
Carbohydrates (g)	28.6	47.762
Protein (g)	2.4	4.008
Fat (g)	0.2	0.334
Fiber (g)	0.3	0.501

The majority of side dishes available in the cafeteria from animals, and is dominated by chicken meat. A detailed description of the types of side dishes based on the source and type, are listed in the following table:

Table 3 Protein source in the side dishes menu

Category	Food material	Amount	Percentage (%)
Meat and Fish	Chicken meat	39	52.7
	Beef	18	24.3
	Fish	9	12.2
	Egg	4	5.4
	Lamb	1	1.4
Vegetables	Tofu	1	1.4
	Tempe	2	2.7

Only a few menu of side dishes that use fish as raw material. This is consistent with studies that intake of fish in Indonesian society, especially urban communities, is very low. Though some epidemiological studies find inverse association between fish consumption and the risk of coronary heart disease. In the Zutphen study, men who ate fish at least 30 g per day had a mortality rate of Coronary Heart Disease (CHD) and a half times compared with individuals who did not eat fish at all. For 30 years of observations conducted on the study of the Chicago Western Electric Study, men who consumed at least 35 g of fish per day had a 40% lower risk of fatal CHD (RR 0.62, 95% CI 0.4 to 0.94) compared with people who do not eat fish at all. (Daviglus et al, 1997) Observation for 20 years at the Seven Countries Study also showed a decrease in CHD mortality rate by 50% in men who eat fish 30 g / day compared with men who rarely ate fish (Lee & Lip, 2003). Research the Cardiovascular Health Study to get a correlation between the consumption of boiled or baked fish with high levels of long chain AL ω 3 in plasma phospholipids. After observation for more than 9 years, found that mortality from ischemic heart disease is lower in people who eat fish at least three times a week compared to those who consumed fish less than 1 time a month. However, high intake of fried fish or fish sandwiches did not lower the risk of ischemic heart disease (Mozaffarian et.al, 2003). This led to speculation that the

cardioprotective effect of fish intake is influenced by the type of fish consumed and processing. Meta analysis conducted by Marckmann and Gronbaek (1999) of the cohort studies on fish consumption and mortality from CHD, get that consumption of fish as much as 40-60 g / day associated with a decreased risk as much as 40-60%. This inverse association only found in high-risk populations. While the meta-analysis by He et.al (2004) to 13 cohort studies, showing the consistency of the inverse association between fish consumption and mortality from CHD, especially in studies that have time monitoring for 12 years or more. He et al concluded that eating fish once a week may reduce mortality from CHD by 15%.

Whereas the description of side dishes based on the food processing, are listed in the following table:

Table 4. Food Processing Methods at Canteen of Syarif Hidayatullah State Islamic University Jakarta

No	Food Processing	Amount	Percentage (%)
1	Fried	39	52.70
2	Fatty stew	13	17.57
3	Curry	10	13.51
4	Grilled	7	9.46
5	Boiled	3	4.05
6	Stir-fried	2	2.70

The food processing by frying is the easiest and the most popular manner. In theory, the addition of oil or fat will make the food taste much better and tasteful. In addition, the texture of the food will be more crispy and it looks more attractive, furthermore will raise the appetite of people who will eat it. However, excessive consumption of fried foods would be bad for health.

Menu Package / One-dish Meal

The overviews of the package in the form of a full meal diet (one-dish meal) are available in the cafeteria which can be described as follows:

Table 5 Characteristics of Package Menu at Canteen of Syarif Hidayatullah State Islamic University Jakarta

Menu	Category	Amount	Percentage (%)
Staple food	Rice	65	73.9
	Noodle/Pasta	15	17.0
	Flour	8	9.1
Vegetables content	None	17	19.3
	1-5 %	55	62.5
	6-25	9	10.2
	26-50	3	3.4
	More than 50%	4	4.5
Side dishes	Meat/fish only	70	79.5
	Vegetables only	10	11.4
	Complete	8	9.1
Coconut milk content	None	71	80.7
	Yes	17	19.3

From the table it appears that the menu is dominated by a package of rice as a staple food. This is consistent with the fact that the rice is the staple food of most Indonesian people. The rice is sold in the cafeteria all in the form of rice originating from white rice. The fiber content in lower than white rice with brown rice and white rice glycemic index is higher than the glycemic index brown rice.

From the content of vegetables as a source of fiber, more than 80% of the menu package sold in the canteen containing vegetables is very little, even nonexistent. Commonly used vegetable is some slices of raw cucumber, tomato and lettuce. Obviously this is very not support the recommendation to increase fruit and vegetable consumption. In accordance with the message of balanced nutrition, to achieve adequate intake of fiber a day (25-35 grams), it is recommended to consume 5 servings of vegetables and fruit. In other words, the diet should contain one serving of vegetables in every meal great, as many as 100 mg vegetable that has been drained.

In terms of side dishes as a protein source in the menu package, dominated by one type of side dish that comes from animals, only a few that contain animal and vegetable side dishes. The content of amino acids in animal and vegetable dishes have a different composition. To obtain an optimal intake of amino acids, preferably in each meal, animal and vegetable side dishes contained in balanced proportions.

Food processing with the addition of coconut milk is a way of processing that can not be separated from the recipes of West Sumatra / Minangkabau. How to cook with coconut milk processing and cooked for a long time, making the food taste better and marinade to infuse. Most menu packages that use coconut milk in canteens is Minang food menu, besides soto Betawi. The addition of coconut milk in the diet causes the macronutrient composition of foodstuffs initial change, which increases the fat content. Vegetables such as cassava leaves which initially contains no fat, when processed by digulai / coconut milk, makronutriennya composition changed dramatically.

Wet Snacks

Overviews of the wet food snacks available at the cafeteria can be described as follows:

Table 6 The Wet Snacks Characteristics in Canteen of Syarif Hidayatullah State Islamic University Jakarta

Characteristic	Category	Amount	Percentage (%)
Macronutrient	Carbohydrate	53	80.3
	Protein	13	19.7
Glucose content	Low	14	21.2
	Moderate	31	47.0
	High	21	31.8
Vegetable content	A little	21	31.8
	None	37	56.1
	Moderate	8	12.1
Food processing	Fried	52	78.8
	Roasted	7	10.6
	Boiled	7	10.6

It appears that most of the materials in the cafeteria snack foods containing carbohydrates as its main component. When observed more carbohydrates contained in food cravings in the form of simple carbohydrates (sugars) that high glycemic indexed so as to raise blood sugar levels quickly. When consumed in reasonable snack foods, is expected there will be no adverse health effects in the long term. Consumption of snack foods is very helpful to meet the glucose intake which is a source of energy for the body, especially the brain, which is very needed by academicians mainly students. Consumption of these snacks can provide additional glucose quickly, before lunch or dinner the next to arrive. However, Excessive consumption of snacks that can potentially harm the body in the long run. Based on the observations, mostly academicians consume at least 2 servings of snacks when snacking. In fact, when the shaped fried snacks, the number could reach 5 servings of snacks as well. When this happens, snacks initially only as a distraction to eat, actually have replaced portions of heavy food. Moreover, when the main component is a carbohydrate.

CONCLUSION

The menu is dominated by food packages of rice as a staple food, with a side dish of chicken, fried processing methods, and contains very little vegetables. Very little menu with fish dishes. The wet snacks mostly made of carbohydrates, simple sugars contain moderate to high levels, lacking in vegetables, fried processing methods. Macronutrient composition most of the food menu in the cafeteria does not comply with a balanced nutritional composition.

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