

The Relationship of Food Consumption and Nutritional Status on Employee of Health Polytechnic Directorate Health Ministry Medan

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Abstract— The increasing prevalence of overweight can be seen from the people who are overweight and obesity. North Sumatera is one of the provinces which has the higher prevalence of overweight and obesity than the national rate at 13% and 18.1%. One of the factors associated with overweight and obesity is food consumption. Poor dietary habit, which is low in fiber and high in fat, can lead to weight gain. The purpose of this study was to determine the relationship of dietary habit to nutritional status. The research used cross sectional design. The sample were 70 employee of Health Polytechnic Directorate, Health Ministry of Medan and taken by using total sampling technique. The measured factors were carbohydrate and fat intake, the type of food and nutritional status. The data were obtained based on the interviews using food recall, FFQ and questionnaires and measurement of IMT. Data were analyzed using chi square test. The results showed that there was a relationship between the adequate intake of carbohydrates ($p = <0.001$) and adequate intake of fat ($p = 0.022$) to nutritional status while the type of food consumed does not show relationship to nutritional status. It is recommended that The Management of Health Polytechnic Directorate, Health Ministry, Medan to do concealing, make policy and supervision to carry out continous sport, provide sports facilities which can be used by all employee to resolve the incident of overweight and obesity.

Keywords— carbohydrate intake; fat intake; type of food; nutritional status

I. INTRODUCTION

Nutritional status is an important factor in determining the health status because it can describe a balance between the needs of the body to the intake of nutrients. Normal nutritional status would be achieved if the nutrient intake needs are met optimally. If these needs are not met will cause problems such as malnutrition and over nutrition. Nutrition is regarded as a signal of the beginning of the emergence of degenerative diseases which are prevalent in developed and developing countries.

According to the World Health Organization (WHO) data, there are more than 1.9 billion adults aged ≥ 18 years suffer of overweight [1]. Based on data from Indonesia Health Research in 2013, the nutritional status of the Indonesian population aged > 18 years consisted of wasting (11.1%), normal (62.7%), overweight (11.5%) and obese (14.8%). While in North Sumatera, the nutritional status of the adult population is divided into wasting (6.5%), normal (62.5%), overweight (13.0%) and obese (18.1%). From the data above shows that the rate of overweight and obesity in North Sumatera beyond the national prevalence of overweight and

obesity. Meanwhile, Medan as the capital of North Sumatera had a prevalence of overweight higher than the national prevalence, the prevalence of overweight and obesity was 15% and 23.8% [2]. This indicates that the North Sumatera, particularly Medan is still dominated by over nutritional problems.

Nutritional status caused by several factors affecting directly or indirectly. Dietary habit is directly affect nutritional status. Dietary habit as one of the indicators of lifestyle, have influence on nutritional status in Indonesia. Poor dietary habit, which is low in fiber and high in fat consumption, can lead to weight gain. Some research also suggests that poor dietary habit influence over nutritional status [3],[4].

Based on Indonesia Health Research data 2013, residents who work as employees undergo over nutritional problems in the form of overweight 13,7% and 17.1% obese. Employee considered less implementing a healthy diet, it appears that the employee is a profession that eating more fatty foods (49.6%) than other professions. Based on the initial survey conducted in February 2015, of the 74

employees, 20% were obese, 34% were overweight and 46% had normal weight.

II. MATERIALS AND METHODS

The research was cross sectional study to determine the relationship of food consumption and nutritional status on employee of Health Polytechnic Directorate, Health Ministry Medan. Food consumption consist of carbohydrate and fat intake and type of food consumed. The sample in this study were all employees in Health Polytechnic Directorate, Health Ministry Medan as many as 74 people. Criteria of sample were not in a state of pregnancy, lactation, and sickness.

The primary data collected by interviews and BMI measurements. Carbohydrate and fat intake were collected by direct interviews using 24-hour food recall method, food frequency questionnaire (FFQ). 24-hour food recall was done two days not consecutively.

III. RESULTS AND DISCUSSION

Respondents in this study were all employees of Health Polytechnic Directorate, Health Ministry of Medan. During research there were 4 respondents who drop out, because the conditions of pregnant, sick and lactation, thus the total sample was 70 people.

Directorate employee characteristics by age most are in the age group 30-49 years as many as 42 people (60.0%) and less in the age group <30 years as many as 11 people (15.7%). In the group based on gender, the majority of employees are female as many as 49 people (70.0%) and the rest of are male.

The amount of food intake was calculated based on the amount of adequate intake of carbohydrates and fats consumed. Statistical test results can be seen in the table 1.

TABLE I
THE RELATIONSHIP OF ADEQUATE NUTRIENT INTAKE AND NUTRITIONAL STATUS ON EMPLOYEE OF HEALTH POLYTECHNIC DIRECTORATE, HEALTH MINISTRY MEDAN

No	Adequacy	Nutritional Status				Total		p
		Over Nutritional		Normal Nutritional		n	%	
		n	%	n	%			
1	Adequate Intake of Carbohydrate							0.001
	Over	18	25.7	3	4.3	21	30.0	
	Normal	17	24.3	32	45.7	49	70.0	
2	Adequate Intake of Fat							0.022
	Over	16	22.9	7	10.0	23	32.9	
	Normal	19	27.1	28	40.0	47	67.1	

Based on the table 1, the majority of employees who have sufficient carbohydrates are employees with over nutrition, as many as 18 people (25.7%) while the majority of employees who have sufficient levels of normal carbohydrates intake are employees of normal nutritional status, as many as 32 people (45.7%). Statistical analysis showed that the value of $p < 0.001 < 0.05$ means that there was a significant correlation between adequate intake of carbohydrates with nutritional status of employees.

Employees with adequate intake of excess fat was generally dominated by over nutritional status of employees as many as 16 people (22.9%), while employees have the normal adequate intake of fats was dominated by normal nutritional status as many as 28 people (40.0%). Statistical test results obtained p value = 0.022 < 0.05, so it can be interpreted that there was a significant relationship between the adequacy of fat intake with nutritional status of employees.

According to the research, all employees admitted often eat foods derived from carbohydrates and fats. Food sources of carbohydrates are most often consumed respondent is rice. Rice is the most commonly consumed foods with a frequency between 1-3 times / day.

The high intake of carbohydrates and fats could potentially result in imbalance between the intake and calories spent. Energy balance can be likened to the scales,

where the weight gain can occur when calorie intake is greater than calories used. Carbohydrate and fat due the excess of unused carbohydrate and fat will be stored in the body in the form of glicogen [5].

Results of research above were supported by some research. Research shows there was a relationship between the consumption of foods with nutritional status of students Post graduate of the Faculty of Public Health, University of Indonesia 2006 [3]. Research conducted among adults in District of Kuningan also said the same thing. A diet with excessive and unbalanced intake will affect the occurrence of overweight and obesity [4]. Research on employee of nutrition services unit in St. Carolus Hospital, Jakarta and the religious leaders in the city of Manado also said the same thing. There was a significant relationship between diet and the incidence of overweight and obesity [6],[7]

Research on the influence of diet on nutritional status were carried out abroad also showed similar results. Research shows that the intake of high fat foods affect weight gain in Australia [8]. The results of Bertone, *et al* in the United States also shows that poor diet associated with the occurrence of obesity [9][10].

Type of food seen in this study was the type of arrangement eaten in a menu/day categorized as complete and incomplete. Statistical test results to the type of food consumed by employees can be seen in Table 2.

TABLE II
RELATIONSHIP OF TYPE OF FOOD AND NUTRITIONAL STATUS ON EMPLOYEE OF HEALTH
POLYTECHNIC DIRECTORATE, HEALTH MINISTRY MEDAN

No	Type of Food	Nutritional Status				Total		p
		Over Nutritional		Normal Nutritional		n	%	
		n	%	n	%			
1	Incomplete	16	22.9	10	14.3	26	37.1	0.138
2	Complete	19	27.1	25	35.7	44	62.9	

Based on the table 2, employee with over nutritional status consume complete food. Employees with normal nutritional status consume more complete food as many as 25 people (35.7%), and incomplete food as many as 10 people (14.3%). Results of statistical tests on the data, the p value = 0.138 > 0.05 means that there was no significant relationship between the type of food with the nutritional status of employees.

Employees with over nutritional status who consume incomplete food claimed less like vegetables and fruit, so that consumption of fiber is low. The function of vegetables and fruits as regulators of body metabolism. The incomplete food only consisted of the staple food and side dishes without balanced with fruit and vegetable consumption, are likely to increase the incidence of over nutrition. Food consumed must contain the necessary nutrients such as carbohydrate, protein, fat, vitamin and mineral. These nutrients can be obtained from the complete menu.

Over nutrition can still occur even if the food consumed contains enough fiber. This can be seen from the employee who consume complete food get over nutritional status as many as 27.1%. If the lack of physical activity, excessive food intake, the fat-burning process was interrupted, and accumulate in the body will trigger weight gain becomes to over nutritional.

IV. CONCLUSIONS

There was a relationship between the adequate intake of carbohydrates and fats in the nutritional status of employees while for the type of food is not related to the nutritional status of employees. Implementing of education about the importance of a healthy lifestyle in preventing overweight, which is conducted through lectures, meetings and monthly

meetings. Leader create a policy and supervision to implement the joint exercise. Sports activities carried out in a sustainable manner and involving all employees. Leaders of the Directorate is also expected to provide sports facilities that can be used by employees in their spare time.

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