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# Analysis Between Fast Food Consumption With Total Cholesterol Levels Among Employees In A Medical Faculty

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Abstract – Fast food is a type of food that consist of high energy and fat but also practical, easy to pack and serve as well. Fast food generally has a low fiber content. Low fiber consumption causes a lot of fat in the digestive tract to be absorbed into the body then it will undergo a number of metabolism which will form cholesterol, resulting in increased cholesterol levels in the blood. Levels of fat in the blood are influenced by several factors, one of which is diet. Frequent consumption of fast food that contains high fat is one of the causes of increasing total cholesterol levels in the blood. Fast food can increase the risk of dyslipidemia because fast food contains high saturated fatty acids and transfatty acids but low in nutrients such as vitamins and minerals. This study aims to determine to analyze the relationship between fast food consumption and total cholesterol levels among employees in a medical faculty. This research is an analytic observational study with a cross sectional design. Data were collected through the Food Frequency Questionnaire (FFQ) and total cholesterol examination tool. The data were then analyzed using the chi square test. The sampling technique used is total sampling with 44 respondents. The results obtained p value of 0.001 (p <0.05) which means that there was a relationship between consumption of fast food and total cholesterol levels

Keywords – fast foods, cholesterol level

### I. INTRODUCTION

In the current era, people are familiar with fast food because of the impact of globalization and urbanization which greatly influences changes in people's eating patterns. The habit of consuming fast food is one example of changes in eating patterns in people around the world  $^{1-3}$ . In developing countries, the problem of shifting nutrition has led to an increase in the population's consumption of fast food and junk food  $^{4,5}$ 

The reason researchers are interested in conducting research among the employees in a medical faculty in Palembang is because there are many places to eat or restaurants for both adults and teenagers these day in town and that food is the fast food such as spaghetti, pizza, hamburgers, fried chicken, and others. Moreover, in adulthood, hypercholesterolemia tends to occur due to inappropriate food selection factors, especially fast food that contains high levels of fat and this habit are significant risk factor in resulting overweight or even obese. <sup>6-8</sup> Therefore, this study was made to find out the relationship between fast food consumption and cholesterol levels among employees in a medical faculty in Palembang.

#### **II. METHODS**

This research is an observational analytic study using a cross sectional research design. The population in this study were all employees in a medical faculty in Palembang. The sample size was taken using the total sampling method, namely 44 employees in a medical faculty in Palembang and met the criteria to be the research sample. The independent variable in this study was the consumption of fast food, while the dependent variable was cholesterol levels. The method of collecting data in this study was that primary data was taken directly during the study through respondent interviews using the Fast Food Questionnaire which previously carried out informed consent as a sign of its willingness to be a sample in the research to be conducted. Respondents were also told to do fasting for 12 hours before checking their total cholesterol levels using a rapid test. Univariate analysis was presented in the form of narrative and frequency distribution tables, while bivariate analysis used Chi Square test. This study had also obtained ethical clearance No. 033/EC/KBHKI/FK-UMP/XI/2021 from the Committee on Ethics, Biohumanities and Islamic Medicine, Faculty of Medicine, University of Muhammadiyah Palembang.

Table 1. Age and Gender						
Variabel	Frekuensi	Persentase				
Age (years)						
21-30	14	31,8%				
31-40	21	41,7%				
41-50	8	18,2%				
51-60	1	2,3%				
Gender						
Male	21	47,7%				
Female	23	52,3%				

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Table 2. Frequency distribution of Fast Food consumption

Consume Fast Food	Frequency	Percentage
Seldom	18	40,9%
Often	26	59.1%

Table 3. Frequency distribution of cholesterol examination result

Cholesterol level	Frequency	Persentage	
Hipercholesterolemia	27	61,4	
Normal	17	38,6	

		Cholesterol Level				
		Not Hipercholesterolemia (< 200 mg/dL)		Hipercholesterolemia (>200 mg/dL)		P value
		Ν	%	Ν	%	
Fast Food	Seldom	6	66,7	6	33.3	
Consumption	Often	21	19,2	21	80,8	0,004
Total		17	38,6	27	61,4	

Tabel 4. Analysis result between fast food and cholesterol level

#### **IV. DISCUSSION**

This research was conducted from October to December 2021. The research data was obtained by direct examination of the employees at the research location. In the study involving 44 people, the sample was taken from the population using the total sampling method. Based on the results of the study, the total cholesterol levels in the majority of respondents were worrying total cholesterol levels as many as 27 people (61.4%), follow followed by normal level namely 17 people (38.6%).

The same result was also found in a study by Waani, et al which showed that the total cholesterol level in the majority was worrying, followed by high total cholesterol levels.<sup>9</sup>

In addition to being determined by diet, several other factors also play a role in determining total cholesterol levels, such as lack of physical activity, high cholesterol diet, hereditary factors and so on.<sup>10</sup>

In this study, the results showed that there was a relationship between Fast Food Consumption and Total Cholesterol Levels (p = 0.004). These results are in line with the research of Frederick Lim<sup>9</sup>, concerning "The Relationship of Fast Food Consumption with Cholesterol Levels in Students at the USU Faculty of Medicine" with a cross sectional research design. Based on statistical tests obtained p value <0.05, so the conclusion of Frederick Lim's research that there was a relationship between the frequency of fast food consumption and total cholesterol levels.

In addition, these results are in line with Dina Venia Dewanty's research <sup>11</sup> on "The Relationship between Fast Food Consumption and Lipid Profile Levels in Adolescents aged 15-19 Years in Palembang City" with a cross sectional research design. Based on the statistical test, the p value <0.05 was obtained, so the conclusion of this study by Dina Venia Dewanty is that it shows a significant relationship with the frequency of fast food consumption. The population may be different, but there were same proportion since our population were under 40 (young and productive as well) and the research also in the same food culture in Palembang.

Cholesterol is an organic molecule from the fat group. In certain amounts, cholesterol has benefits for the body, namely for the synthesis of steroid hormones, bile, and carrier of vitamins A, D, E, K<sup>12</sup>. However, if the amount is excessive in the blood, cholesterol (especially Low Density Lipoprotein or LDL) will cause various diseases of the cardiovascular system, these various cardiovascular diseases have the same mechanism, namely atherosclerosis <sup>13</sup>. Women are the most common group suffering from fat metabolism disorders. A survey conducted in Germany from 2008 to 2011 stated that 65.7% of female respondents suffered from dyslipidemia <sup>14</sup>.

As a result, when doing moderate-severe activities that require more oxygen and food intake, the heart muscle experiences a lack of oxygen (called ischemia), causing the typical angina pain in the chest.<sup>13,15</sup> When the blockage becomes total, there is death of the heart muscle which causes a heart attack.

Complications that can occur in people with high cholesterol or dyslipidemia are fatty plaques. In medicine it is called atherosclerosis, which was originally formed due to high levels of LDL in the blood. This LDL will accumulate in the walls of blood vessels, which will gradually increase until it clogs blood vessels. If the blockage occurs in the brain, a blockage stroke can occur. Meanwhile, if it occurs in the leg veins, peripheral arterial disease can occur.

#### Analysis Between Fast Food Consumption With Total Cholesterol Levels Among Employees In A Medical Faculty

The above statement is reinforced that rarely exercising can also cause low levels of good cholesterol (HDL) and on the contrary, regular aerobic exercise were associated with higher HDL level <sup>16,17</sup>. An inactive lifestyle makes the body lose its ability to convert fat into energy. Finally, fat is stored and accumulates in the body. These fats cause bad cholesterol levels to increase. Therefore, exercise is good for heart health and to keep cholesterol levels within normal limits.

#### V. CONCLUSIONS

Based on the research that has been done, some conclusions can be drawn as follows:

1. There is a relationship between Fast Food Consumption and Total Cholesterol Levels in employees of the Faculty of Medicine, University of Muhammadiyah Palembang, South Sumatra with a P value of 0.004.

2. Fast food consumption habits among employees in the medical faculty is included in the category that often consumes fast food with the highest frequency of 26 respondents (59.1%) and there were 27 respondents (61.4%) who had high cholesterol levels (hypercholesterolemia).

Some of the suggestions given include:

1. For the community, consider maintaining a healthy lifestyle so that cholesterol levels can remain within the normal range because this study has proven that there is a relationship between consumption of fast food and cholesterol levels

2. For future research, consider using a cohort or case control research design so that causal relationships between variables can be truly determined.

3. For medical students, as potential health cadres, they can serve as role models so that people are motivated to adopt a healthy lifestyle.

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#### Analysis Between Fast Food Consumption With Total Cholesterol Levels Among Employees In A Medical Faculty

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