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## **The relationship between diet and cholesterol levels in the elderly in the work area of the UPTD Sukaraya in 2023**

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**Abstract**--The purpose of this study was to determine the relationship between diet and cholesterol levels in the elderly in the Sukaraya Health Center work area in 2023. This study was conducted at the Sukaraya Health Center in 2023 using a quantitative research method with an analytical method. The sample of this study was 30 respondents. This study used cross-sectional to assess the relationship between variables and this study used a questionnaire

instrument. From the results of the chi-square statistical test, it was found that diet and cholesterol incidence obtained a p value of .001 (<005). This means that there is a relationship between diet and cholesterol incidence in the elderly in the Sukaraya Health Center Uptd work area in 2023. From the conclusion of this study, there is a relationship between diet and cholesterol incidence in the elderly in the Sukaraya Health Center Uptd work area in 2023. Education in the form of socialization for the elderly or families regarding how to prevent cholesterol in the elderly needs to be improved.

**Keywords**--Diet, Cholesterol levels.

## **Introduction**

Every human being will definitely experience the aging process, but a healthy aging process is the goal of life for every living thing (Sepriani et al., 2024). The aging process is a process that occurs continuously and is interrelated, then it will cause several changes in the body so that it will affect the function and ability of the body as a whole (A Potter & Perry, A. G, 2013). The elderly are identical to various declines in health status, especially physical health status, including pathological changes in old age in the cardiovascular system (Poedjiadi, A, 2018). Cardiovascular diseases that often occur include hypertension which is influenced by increased cholesterol in the blood (Yuriah et al., 2024).

Balanced food sources are needed by the body to maintain a balanced metabolism in producing energy, the energy sources needed are energy sources that come from fat, carbohydrates, proteins, water, minerals, the body requires a number of calories according to a person's weight (Muthoharoh et al., 2022). That is why the liver and offal contain high cholesterol. Cholesterol is needed by the body to produce hormones and cell membranes (Awaliyah & Yuriah, 2024), excess cholesterol in the blood can cause narrowing of the arteries and can certainly cause a heart attack. Saturated fat is often the culprit of high cholesterol (B. Bambona et al., 2022).

Cholesterol is a group of solid fats (lipids) that are shaped like wax (Juniarti et al., 2024). Cholesterol is atherogenic (very easy to stick) which will then form plaque on the walls of blood vessels (Dida et al., 2023). Cholesterol produced by the body consists of 2 types, namely HDL cholesterol (High Density Lipoprotein) called good cholesterol and LDL cholesterol (Low Density Lipoprotein) called bad cholesterol. Bad cholesterol (LDL) if it accumulates on the walls of coronary artery blood vessels will cause blockage (Fiddaroini et al., 2024).

According to researchers (Cicik Suarsih, 2020) in the Tambaksari Health Center work area in 2020, it was stated that there was a relationship between diet and the incidence of hypercholesterolemia and according to (Lasanuddin Vonny, 2022) in Tenggela Village, Tilango District in 2022, it was stated that there was a relationship between diet and the incidence of cholesterol in the elderly.

World Health Organization (WHO) In 2020 the world's population aged 60 years and over (elderly) is more than 1 billion people, representing 13.5% of the world's population of 7.8 billion, a figure that is 2.5 times greater than in 1980 (392 million), and is projected to reach almost 2.1 billion by 2050. Increased cholesterol levels increase the risk of heart disease and stroke. Globally, one third of ischemic heart disease is caused by high cholesterol. Overall, high cholesterol is estimated to cause 2.6 million deaths (4.5% of the total) and 29.7 million DALYS, or 2% of the total DALYS.

According to the Central Statistics Agency (BPS) (2020), the number of elderly people in Indonesia is 26.82 million. Based on the March 2020 Susenas data, there are six provinces that have entered the elderly population structure phase, namely the percentage of the elderly population has been above 10%. The prevalence of hypercholesterolemia in Indonesia is 1.5% in men and 2.2 in women. The results of the 2013 Riskesdas, the proportion of the Indonesian population with above-normal cholesterol levels is higher in women, namely 39.6% when compared to men at 30% (Kementerian Kesehatan Republik Indonesia, 2017).

South Sumatra Province, especially the city of Palembang, is one of the regions in Indonesia that has a high prevalence of cholesterol compared to other regions. Based on data from the South Sumatra Provincial Health Office, the number of cholesterol sufferers in 2018 was 35,902 people and in 2019 it was 38,270 people. According to data from the Ogan Komering Ulu Regency Health Office (2019), it is known that high cholesterol patients are the third disease out of the ten most common diseases with a total of 1564 cases in 2019.

Data on visits by cholesterol patients at the Sukaraya Health Center UPTD in January-June 2023 was 141 people (Sukaraya Health Center Profile, 2023). Based on the data description above, the researcher is interested in researching the relationship between dietary patterns and cholesterol levels in the elderly in the Sukaraya Health Center work area in 2023.

## **Method**

The research used is cross-sectional research. This research is a type of research that emphasizes the time of measuring observations of independent and dependent variable data.

## Results and Discussion

### Results

#### *Univariate Analysis*

#### **Characteristics of Respondents Based on Age in the Sukaraya Health Center UPTD Work Area in 2023**

Table 1. Distribution Frequency of Respondents' Age in the Sukaraya Health Center UPTD Work Area in 2023

Criteria	Frequency	Percentage
50-55 years	11	36.7%
56-60 years	19	63.3%
Total	30	100%

From Table 1, there are 11 respondents (36.7%) who meet the age criteria of 50-55 years, and 19 respondents (63.3%) who meet the age criteria of 56-60 years.

#### **Respondent Characteristics Based on Eating Patterns in the Sukaraya Health Center UPTD Work Area in 2023**

Table 2. Frequency Distribution of Respondents' Eating Patterns in the Sukaraya Health Center UPTD Work Area in 2023

Dietary habit	Amount	Percentage
Regular	6	20.0%
Irregular	24	80.0%
Total	30	100.0%

From table 2, it shows that the eating patterns in the Sukaraya Health Center UPTD work area are mostly regular, with 6 respondents (20.0%) and irregular, with 24 respondents (80.0%).

#### **Characteristics of Respondents Based on Cholesterol Levels in the Sukaraya Health Center UPTD Work Area in 2023**

Table 3. Frequency Distribution of Cholesterol Levels in the Sukaraya Health Center UPTD Work Area in 2023

Cholesterol Levels	Frequency	Percentage
Tall	26	86.7%
Low	4	13.3%
Total	30	100%

Table 3. shows the incidence of cholesterol in the working area of the Sukaraya Health Center UPTD with the category of high cholesterol levels as many as 26 respondents (86.7%) and low cholesterol levels as many as 4 respondents (13.3%).

### ***Bivariate Analysis*** **Relationship of Diet to Cholesterol Levels**

Table 4. Relationship between Dietary Patterns and Cholesterol Levels in the Sukaraya Health Center UPTD Work Area in 2023

		Cholesterol Levels		Total	P- Value
		Tall	Low		
Dietary habit	Regular	2	4	6	0.001
	Irregular	24	0	24	
Total		26	4	30	

From the analysis results of Table 4, it is known that out of 30 respondents, a regular eating pattern was obtained with a high cholesterol level category of 2, a low cholesterol level of 4. And an irregular eating pattern with a high cholesterol level category of 24, a low cholesterol level of 0.

Based on the results of the analysis using the Chi Square statistical test, it was found that the p. value was 0.001, which means that there is a relationship between diet and cholesterol levels.

### **Discussion**

Fat is a nutrient that is very much needed by the body, both essential and non-essential, all of which are in organic solvents but are not easily soluble in water (Yuriah & Kartini, 2022). There are several main sources of dietary fat, namely invisible fat, which is fat that is naturally found in food. Invisible protein energy food sources are meat, eggs, grains and nuts, visible fat, which is fat that is visible to the eye, usually such as cooking oil, fat or offal, margarine, and added fat; commercial fat is added to food such as: pie, ice cream, cakes and fried foods (Irma Zuraini et al., 2024). In choosing food and eating times, humans are influenced by one of them, namely age. At the Sukarya Health Center, the age of the respondents was the most, namely 56-60 years old, as many as 19 respondents (63.3%), and 50-56 years old as many as 11 respondents (36.7%).

Nutrition is very useful for maintaining health and preventing disease (Amaliyah et al., 2021). The problem of malnutrition is not only a lack of nutrition but can also change to excess nutrition or eating less balanced foods. In fact, currently there are many cases of disease caused by the inconsistency of a balanced diet (Mawaddah & Wijayanto, 2020). Where most of the work area of the Sukaraya Health Center UPTD are unhealthy because lately many people prefer to consume instant food without paying attention to the nutritional balance of the food consumed (Oktora & Purnawan, 2018).

Cholesterol is a white waxy substance, naturally found in our bodies (Azizah, 2011). Cholesterol is a type of fat and is a nutrient needed by the body as a source of energy in addition to other nutrients, such as carbohydrates, proteins, vitamins, and minerals (Yuriah et al., 2023). Fat is one of the sources of energy needed by our bodies that provides the highest calories. In addition to being a

source of energy, fat also plays an important role in the formation of cell walls in the human body (Yuriah et al., 2022).

Cholesterol can be found in some types of food that we consume (Hamna Vonny Lasanuddin et al., 2022). Cholesterol is also made through intermediaries of all body cells (Puriastuti et al., 2025). But the most important is liver cells. Some types of cholesterol are basic needs for body health (Sulistyoningsih, 2016). Cholesterol not only acts as a material that forms cell walls, but also becomes a basic need for the secretion of certain hormones. In general, the human liver produces 70-75% of cholesterol in the blood. While the other 25-30% of needs are met by the nutrients we eat every day. Cholesterol that is consumed in a balanced manner according to body portions will provide good benefits for the body, but if consumed excessively it will cause various diseases (Ridayani et al., 2018).

Based on the results of the study conducted in the Sukaraya Health Center UPTD work area, it showed that 30 respondents with regular eating patterns were 6 people (20.0%), and irregular were 24 people (80.0%). While respondents with cholesterol levels in the low cholesterol category were 26 people (86.7%), and low cholesterol levels were 4 people (13.3%). Statistical tests using a computer with the SPSS program, namely the Chi-Square test, showed that there was a relationship between eating patterns and cholesterol levels, with a value of  $p = 0.001 < \alpha = 0.05$ . Based on the results of the statistical analysis, it is known that there is a relationship between eating patterns and cholesterol levels. The results of a study similar to this study state that there is a relationship between eating patterns and cholesterol levels with a p value of 0.000 which was conducted in the Tambaksari Health Center Work Area (Suarsih, C 2020).

## **Conclusion**

Based on the research data that has been conducted, the following conclusions can be drawn. Frequency distribution of age in the elderly, there are 11 respondents (36.7%) in the 50-55 years age criteria, and 19 respondents (63.3%) in the 56-60 years age criteria. The frequency distribution of respondents' eating pattern data was mostly irregular, namely 24 people (80.0%), and regular, namely 6 people (20.0%). In the elderly in the Sukaraya Health Center Work Area. Frequency distribution of cholesterol level data of respondents most included high cholesterol levels, namely 26 people (86.7%), and low cholesterol levels were only 4 people (13.3%). In the elderly in the Sukaraya Health Center Work Area. There is a relationship between diet and cholesterol levels in the elderly, with a p value of 0.001.

For Sukaraya Health Center, it is hoped that it can increase public awareness to be able to know about understanding cholesterol levels in the Sukaraya Health Center Work Area in 2023. For other researchers, it is expected to improve the quality and education that is different and more in-depth and clear and detailed to facilitate further research in the preparation of Scientific Papers.

### *Conflict of interest statement*

The authors declared that they have no competing interests.

### *Statement of authorship*

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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