

# Nutrition habits of patients operated because of coronary heart disease: income structure linkage

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## Abstract

**Purpose:** The purpose of the above work is description and assessment of nutritional habits of the patient group operated because of CHD in relation to their income sources.

**Material and methods:** Among 100 patients hospitalized in The Cardiosurgery Clinic of Pomeranian Medical University in Szczecin, (72 M and 28 F) there were collected data concerning nutritional habits and income sources. To estimate the way of nutrition there was used the method of a direct interview, led individually according to the questions of an anonymous questionnaire. Quantitative biomedical data connected with body mass index (BMI), systolic (RRs) and diastolic (RRd) blood pressure and total cholesterol (CHL) came from the hospital files.

**Results:** The diet of all investigated people was not consistent with the requirements of rational nutrition in respect of quality (sort of meat, brown bread, fruit and vegetables) and daily quantity of meals. This incorrectness was particularly showed in not working group of people (pensioners, people on unemployment benefits). Almost all measured parameters (BMI, CHL, RRs), except RRd, are higher than commonly admitted referenced values.

**Conclusions:** Our investigated category of patients proves how important is adapting to the requirements of rational nutrition, especially in lower socio-economic status societies.

**Key words:** nutrition, socio-economic status, coronary heart disease.

## Introduction

The social-economic situation of the Polish society has changed remarkably since the beginning of the 1990's. Similarly to other European countries, also in Poland appeared social classes with utterly different incomes and increasing disproportions among them cause probably deepening of so-called "health inequalities" [1,2]. Despite extensive knowledge concerning atherogenic factors, not many investigations evaluating patient's nutritional habits in relation to their social-economic status were carried out in our country. Therefore it appeared necessary to show the differences in nutritional habits, linked to health and disease among the people with coronary heart disease (CHD), who differ as regards incomes. Moreover, the results of reports from other countries show that unhealthy diet of people with lower social-economic status is one of the factors causing increase of the mortality due to CHD [3].

The purpose of our work is description and evaluation of nutritional habits of the patient group operated because of CHD in relation to their incomes sources.

## Material and methods

In a group of 100 patients admitted to The Cardiosurgery Clinic of PMU in Szczecin, 72 male (M) at the age of 57+8.9 and female (F) at the age of 63.2+7.8 data concerning nutritional habits and income sources were obtained. To estimate the way of nutrition the method of a direct anonymous questionnaire interview was used. Quantitative biomedical data connected with body mass index (BMI), systolic (RRs) and diastolic (RRd) blood pressure and total cholesterol (CHL) were obtained from direct measurements performed while admitting patients to hospital and recorded in the hospital files.

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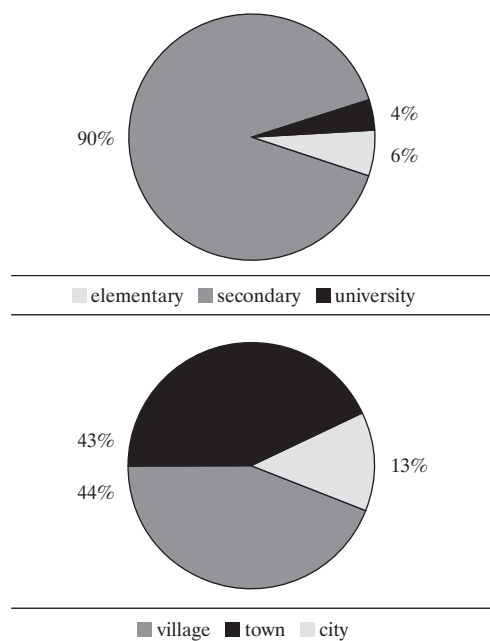
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Table 1. Arithmetic means ( $x \pm SD$ ) BMI, CHL, RRs, RRd in relation to income source of the investigated people

Parameter	Income sources				
	Permanent job (n=24)	Pension (n=51)	Disability pension (n=5)	Unemployment benefit (n=20)	Pension + Benefit (n=76)
BMI [kg/m <sup>2</sup> ]	28.6 $\pm$ 4.9	30.3 $\pm$ 4.6	26.9 $\pm$ 2.7	29.5 $\pm$ 5.5	29.8 $\pm$ 4.8
CHL [mg/dl]	216.4 $\pm$ 63.9	234.2 $\pm$ 65.0	245.0 $\pm$ 107.2	245.8 $\pm$ 64.7	238.0 $\pm$ 67.2
RRs [mm Hg]	150.3 $\pm$ 17.4	144.8 $\pm$ 16.8	145.6 $\pm$ 11.5	141.6 $\pm$ 16.3	144.0 $\pm$ 16.3
RRd [mm Hg]	85.7 $\pm$ 11.8	83.4 $\pm$ 13.7	85.6 $\pm$ 8.9	78.8 $\pm$ 9.5	82.3 $\pm$ 12.6

Figure 1. A structure of the investigated people according to the place of living and their education level



## Results

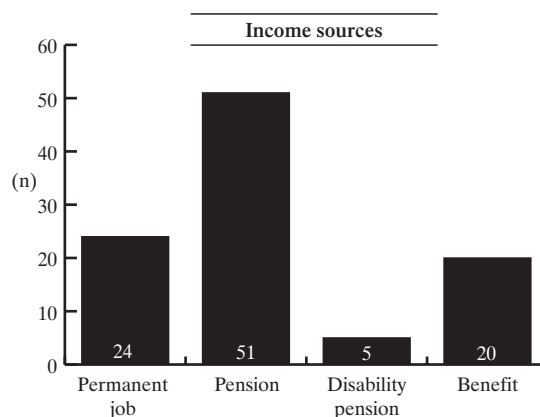
The investigated group consisted of 100 people operated in The Cardiosurgical Clinic of Pomeranian Medical University in Szczecin because of advanced form of CHD. All patients were treated with the use of coronary artery bypass grafting (CABG).

Data introduced in Fig. 1 show that the citizens coming from big cities (over 40 000 population) constituted only 13% of the investigated group. Majority of them had secondary education (90%), 6% elementary education, and only 4% university education.

Among hospitalized patients (Fig. 2) the most numerous group constituted not working people, i.e. pensioners and people who make the living by unemployment benefit – 76 people together, 51 M and 25 F. In examined group was only 24 percent people who had permanent incomes from work.

Average values of BMI, RRs, RRd and CHL in blood serum were presented in Tab. 1. Presented outcomes confirmed the diagnosis of CHD of the patients of Cardiosurgery Clinic – almost all measured parameters, except RRd, are higher than commonly admitted referenced values.

Figure 2. A structure of the investigated people according to their income sources



As it results from the meal consumption schedule, only the working group had 4-5 meals a day, i.e. in compliance with the rational nourishment principles (Tab. 2). The most numerous group consisted of retired people (56%), who consumed only 3 meals per day. The least numerous group, 20% of the investigated, were patients on unemployment benefit, who ate only 2 meals daily. In the daily menu of the not working group, especially among people on unemployment benefit, daily meals were not admitted: breakfast (31.5%), lunch (86.8%) and also afternoon snack (85.5%).

Data included in Tab. 3 show that the material status did not have considerable influence on the sort of consumed meat. Moreover, predominance of those who prefer eating pork and beef was clear regardless of the source of income.

On the grounds of data presented in Tab. 4 it can be easily concluded that fresh fruit and vegetables are eaten once a day by only 19% of the investigated, and 17% (pensioners and people on unemployment benefit) did not consume them at all. Brown bread was not eaten by 86% of the patients, among whom there were 72% of not working ones. Above 3/4 (74%) of the patients are reported not to eat fish and they never eat.

## Discussion

The review of the literature concerning socio-economic factors and their relations with CHD, made by Kaplan and Keil [4] showed that socio-economic status is the essential factor which modifies the progress of the disease. Because of difficulties

**Table 2.** The quantities of the investigated people according to categories of frequency of meal intaking habits and income sources

Frequency categories of consumed meals	Income source of the investigated people			
	Permanent job	Pension	Unemployment benefit	Together
<b>Breakfast</b>				
Never	-	9	15	24
Usually	3	19	2	24
Always	21	28	3	52
<b>Lunch</b>				
Never	1	48	18	67
Usually	5	5	1	11
Always	18	3	1	22
<b>Diner</b>				
Never	-	-	-	0
Usually	-	22	1	23
Always	24	34	19	77
<b>Afternoon snack</b>				
Never	-	45	20	65
Usually	4	9	-	13
Always	20	2	-	22
<b>Supper</b>				
Never	-	-	-	0
Usually	2	-	-	3
Always	22	55	20	97

**Table 3.** The quantities of people according to preferred sort of meat and incomes source

Preferred sort of meat	Number of people according to income source				Together
	Permanent job	Pension	Disability Pension	Unemployment benefits	
Pork	8	22	2	7	39
Beef	9	17	1	9	36
Poultry	5	11	1	3	20
Fishes	2	1	1	1	5
Together	24	51	5	20	100

in obtaining detailed information about the value of incomes of the investigated people, we used indirect data in our work; assuming that working people have higher incomes than pensioners and people on unemployment benefit. Nutrition habits of the investigated group of patients suffering from CHD are an example of the diet leading straight to the operation in the Cardiosurgery Clinic. As it appears from *Tab. 2* in the diet of the investigated were too few products containing: mono- and polyunsaturated acids, fibre, mineral elements and vitamins. Obtained results confirmed the preference of so-called red meat with low fish and white meat consumption and insufficient consumption of fruit and vegetables by the patients from the Cardiosurgery Clinic irrespective of their income sources, similarly

**Table 4.** The quantities of people according to weekly frequency of intaking of selected food products and income sources

Product: frequency of intaking	Income source				Together
	Permanent job	Pension	Disability pension	Unemployment benefit	
<b>Fresh fruit and vegetables</b>					
1. more than once a day	-	-	-	-	0
2. once a day	4	15	-	-	19
3. at least once a day	20	31	5	8	64
4. never	-	5	-	12	17
<b>Brown bread</b>					
1. more than once a day	-	-	-	-	0
2. once a day	-	-	-	-	0
3. at least once a day	-	10	2	2	14
4. never	24	41	3	18	86
<b>Milk and its products</b>					
1. more than once a day	-	48	5	8	61
2. once a day	20	3	-	12	35
3. at least a day	4	-	-	-	4
4. never	-	-	-	-	0
<b>Fishes</b>					
1. more than once a day	-	-	-	-	0
2. once a day	-	-	-	-	0
3. at least once a day	10	2	-	2	14
4. never	12	39	5	18	74

to the majority of Polish population. Population investigations indicate explicitly, that regular eating of fish is connected with decreasing of CHD and stroke [5] similarly to the diet rich with fibre (vegetables, fruit, brown bread) [6,7]. In the Polish literature available for us cohort studies similar to our profile of our investigations were not found. However, Finnish investigation showed that people with higher socio-economic status consume more cheese, vegetables and fruit with a lower amount of bread, butter and milk [8]. Other studies indicate higher consumption of saturated acids and low consumption of fruit and vegetables in the male group with low socio-economic status when in the female group these differences were not statistically significant [9]. In Polish studies, where the changes in daily diet of the Warsaw population in the years 1984-1993 were analyzed, it was assumed that the income influenced on the structure of diet of the investigated people and the people having better financial abilities adapted to a higher level their nutrition to the recommended ones in prevention of atherosclerosis [10].

Proper nutrition means not only satisfying the organism's needs concerning energy and feeding components, but also such daily meal arrangement which enables providing all necessary nutrition's components in every basic meal [11,12]. In our study the explicit majority of working people from the investigated group ate 4-5 meals a day, while the patients on unemployment benefits consumed usually only 2 meals. In the second group

one can easily observe a shift of the meals to the afternoon and evening hours, resulting probably from poverty or bad feeding habits.

## Conclusions

Our investigated category of patients proves the importance of adoption to the requirements of rational nutrition, especially in lower socio-economic status societies. The basis of all recommendations, not only for this group of patients, who are in danger of the loss of life, should be quite old but still actual thesis that no therapy or supplementation can replace rational nutrition and a healthy lifestyle.

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