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NUTRITIONAL HABITS AND LIFESTYLE PRACTICE OF ELDERLY PEOPLE IN HUNGARY

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The aim of this study was to investigate the nutritional habits and lifestyle practice of elderly people living in their own home. Altogether 213 subjects (men over 65 years, women over 60 years), were recruited randomly from a primary care office in Budapest.

Nearly 60% of people had three meals per day, but the number of meals increased during ageing. The most substantial meal was the lunch.

Meals were prepared at home by 90% of the elderly. Lard for cooking was used by 44% of subjects. Additional use of salt was never mentioned by 18% of seniors only.

Milk, dairy products, fish, fruits, fresh vegetables and vegetable dish were consumed far below the recommendations. All types of meat were radically decreased, especially beef compared to former Hungarian surveys and the data of the Hungarian Central Statistical Office.

Almost one-third of the elderly took some kind of vitamins and/or mineral supplements.

The average time spent with outdoor activity was only 12 h per week.

In relation to non-infectious diseases connected with nutrition, the irregular consumption of food has to be underlined. The insufficient consumption of milk and dairy products may have an unfavourable effect on the bone status. Deficient consumption of fruits, vegetables and cereals may play a role in the development of cardiovascular diseases and certain types of tumours. The exaggerated salt intake has to be taken into account mainly in hypertension. The inadequate physical activity may be also responsible for decreased longevity of our population.

Keywords: elderly people, nutritional habits, meal frequency, food frequency, lifestyle

Since the existence of medicine the importance of good nutrition has always been emphasized. A great number of epidemiological studies has been published to analyse dietary patterns, the incidence and prevalence of illnesses possibly affected by nutritional abuses or malnutrition.

The elderly represent a growing proportion of the population partly because of an extension in adult life-span. Therefore, the average life expectancy is continuously increasing both in developing and developed countries. Recently the average life expectancy at birth in Hungary is 67.1 years for men and 75.6 years for women, respectively (HUNGARIAN CENTRAL STATISTICAL OFFICE, 2001). These figures are far below the European data, which are higher in every country for both sexes (SOLOMONS,

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2000). Cardiovascular diseases and malignancies are characteristic to ageing people, and almost 30–40 percent of chronic non-infectious diseases may be related to nutritional or lifestyle origin (THIERNEY et al., 2000).

The aim of this study was to explore the nutritional habits and lifestyle practices of elderly people living at their own home.

1. Materials and methods

The subjects of the survey were recruited from elderly people attending routine medical checkup at the family practice in the South-Budapest region of Pesterzsébet.

The evaluation was performed between October 2000 and August 2001.

Altogether 213 elderly people (men over 65 years and women over 60 years) were involved in this study. The average age of participants was 71 years for men and 72 years for women.

Characteristics of elderly as gender, age, education and marital status are indicated in Tables 1, 2 and 3, respectively.

Table 1. Distribution of study population according to gender and age

Age	Men		Women		Total	
years	N	%	N	%	N	%
60–69	43	*52*	55	*42*	98	*46*
70–79	28	*34*	48	*37*	76	*36*
80–89	11	*13*	24	*18*	35	*16*
90+	1	*1*	3	*3*	4	*2*
Total	83	*100*	130	*100*	213	*100*

Table 2. The ratio of elderly people according to education

Gender	Primary school		Secondary school		University, college	
	N	%	N	%	N	%
Men	29	*35*	37	*45*	17	*20*
Women	69	*53*	50	*38*	11	*8*
Total	98	*46*	87	*41*	28	*13*

Table 3. Distribution of elderly participants according to marital status

Gender	Married		Widowed		Unmarried		Divorced	
	N	%	N	%	N	%	N	%
Men	55	*66*	14	*17*	7	*8*	7	*8*
Women	47	36	55	*42*	12	*9*	16	*12*
Total	102	*48*	69	*32*	19	*9*	23	*11*

Elderly patients visiting the primary care office were randomly asked to fill a 7-page-long questionnaire with 75 questions, and to give some multiple choice answers. The questionnaire was based partly on the NUTRITION SCREENING MANUAL FOR PROFESSIONALS CARING FOR OLDER AMERICANS (1992) and on the food frequency questionnaire used by the participants of the Euronut-Seneca Study (NES et al., 1991) and THOMPSON and BYRS (1994), which were modified by BIRÓ and co-workers (1996).

The questionnaire had a pre-printed form. The primary care doctor or the qualified nurse helping elderly discussed the questionnaire with them before filling. After that the questionnaire was self-administered by the subject at his/her home. Getting back it was talked over again question by question with the health care professionals. Moreover, the interviewer set cross-over questions to prove that the answers were correct.

The completed and corrected questionnaires got an identifying number from the coordinator, and only this number, the age and the gender were known by the technical assistant during data processing.

Questions and data concerning nutritional habits and lifestyle practices are presented in this paper. Questions related to nutrition were dealing with the habits of food consumption, the frequency of daily meal and food consumption and the dental status. These factors are crucial in determining risk factors connected with nutrition related disorders. The extent of self-care, the activity of the individuals in shopping, cooking and physical activity were judged through particular questions.

The main groups of questions involved in this paper were:

Nutritional habits including: daily meal frequency and meal pattern; the most and least substantial meal; the use of lard and oil for cooking and frying; the use of added salt before eating, the use of food supplements; food frequency questionnaire with 41 typical groups of food and beverages; the consumption of alcoholic beverages; the place of purchasing meal (supermarket or small shop); the place of cooking meals or preparing foods.

Smoking habits.

The subjects' opinion were asked whether their nutritional habits were healthy or not, and if they were not satisfied, did they intend to change; whether their food consumption was influenced by their income.

The oral health status of seniors, the number of teeth and problems caused by toothlessness were also questioned about.

The time spent for sport or physical activity.

The self-judgements of the elderly were also elicited.

Seniors with relatively low degree of intellectual level, dementia, loss of acoustic or visual capacities or unwillingness to waste time on answering were excluded. Simple refusal in participation was not common, only 3 subjects did not take part, because they were afraid of giving personal data and information.

Before starting this process, the written permission of the Regional Medical-Ethic Committee was obtained.

Statistical analysis: the complete database was stored on MS-Access and MS-Excel program. Software was developed for analysing data and for statistical evaluation some elements of SPSS package were used.

2. Results

The greatest part of elderly ate three times a day. With ageing this proportion increased (Tables 4, 5).

Table 4. Daily meal frequency of elderly people in percent

Meals/day	Men	Women	Total
2	15	8	10
3	64	55	58
4	10	22	17
5	11	12	12
other	1	4	3

Table 5. Daily meal frequency during ageing in percent

Number of	60–69 year		70–79 year		80, 90 year	
meals/day	men	women	men	women	men	women
2	21	12	14	8	0	12
3	55	45	68	58	91	71
4	12	24	7	23	9	8
5	12	14	11	10	0	8
other	1	5		1		1

The distribution of daily meal pattern is shown in Table 6. The majority of elderly had breakfast, lunch and dinner regularly. About one-fifth of them had also elevenses and afternoon snacks every day.

Table 6. Distribution of daily meal pattern of elderly people in percent

	Breakfast		Elevenses		Lunch		Snack		Dinner	
	M	W	M	W	M	W	M	W	M	W
Never	4	1	66	59	1	2	58	58	1	3
Seldom	4	6	11	16	5	1	18	11	2	5
Some times per week	5	5	8	6	2	7	4	5	8	6
Daily	87	88	15	19	92	90	20	26	89	86

M: men; W: women

The most substantial meal was usually the lunch (65% of men and 79% of women) followed by the dinner (15% men and 6% of women) and breakfast (10% of men and 8% of women), respectively.

The use of lard or oil for cooking and frying was nearly the same. Lard was used by 44% of elderly, vegetable oil by 49% of subjects and margarine by 5% of people involved in the study. However, people who used vegetable oil for cooking consumed animal fat as well with meet and meat products.

Additional use of salt to meals was never mentioned by 18% and seldom by 24% of elderly, respectively; 42% of answering people used it only if needed and salt was always used by 9%.

Some of the elderly regularly used food supplements: 26% took vitamins, 3% of them used minerals and both were used by 4%. Altogether, 33% of elderly took some kind of vitamin and/ or mineral supplements. The most popular vitamins were ascorbic acid, calciferol and retinol. Calcium was taken for additional treatment of osteoporosis.

The food frequency questionnaire and the answers in percent of subjects are presented in Table 7. Milk was consumed at least once a day by 37% of men and 41% of women, 38% of men and 24% of women never or 1–3 times a month drank milk. Only 17% of men and 37% of women consumed daily some kind of dairy products. Butter was never used by around two-thirds of the subjects. Instead of butter margarine was mostly preferred. Fresh fruit was consumed daily once or more by 35% of men and 45% of women. Thirty-four – twenty-six percent of men and women consumed fresh vegetables and 10–23% of them partook of vegetable-dish at least 4–6 times a week, respectively. Fresh fruits were one to three occasions per month or never consumed by 23% of men and 17% of women, fresh vegetables by 24% of men and 30% of women and vegetable dish by 37% of men and 28% of women, respectively. The greatest part of families cooked legumes several times a week. Among breads the white type was preferred. Drinking refreshments like cola or juice was not characteristic. Half of the elderly drank coffee at least once a day, 18% of women drank more coffee within a day.

Comparing the food frequencies between females and males it seems that women preferred yoghurt, they ate fewer leguminous plants but more women consumed fresh fruits, bread and coffee. Men preferred meat, fishes, cold cuts, sausages and egg.

Alcoholic beverages were consumed several times a week by 26% of men and 2% of women, 7% and 2% of them drank only once a week, respectively.

The greatest part of elderly (65%) preferred supermarket for purchasing food, only 27% of them bought food items regularly in small shops. The others did not care any attention for the type of stores.

Most of the subjects (89%) prepared and made meal at home, 8% of them were helped by social support and delivery. Only 3%, who were employed, ate at working places, which only meant lunch.

Smoking habits are shown in Table 8, ten percent of this group smoked more than 10 cigarettes a day. There was no great difference in the ratio of smokers between genders. With ageing the percentage of smokers decreased gradually (Table 9).

Table 7. Frequency of food consumption of elderly people in percent

Food group	Altogether						Men						Women					
	Never	1–3/m	1–3/w	4–6/w	Daily	More	Never	1–3/m	1–3/w	4–6/w	Daily	More	Never	1–3/m	1–3/w	4–6/w	Daily	More
Milk	23	6	17	8	39	7	28	10	21	4	37	1	20	4	15	11	41	10
Cheese	23	21	33	13	10	-	25	24	30	15	6	-	21	19	35	12	12	1
Curd	34	40	19	5	2	-	33	41	22	5	-	-	35	39	20	5	3	-
Yogurt	45	12	24	5	14	-	55	8	24	5	7	-	38	14	25	5	19	-
Egg	26	24	36	11	3	-	18	24	42	12	4	-	32	25	32	10	2	-
Pork	32	28	32	6	1	-	23	28	40	8	1	-	39	29	28	4	2	-
Beef	76	17	7	-	-	-	68	27	6	-	-	-	82	12	7	-	-	-
Poultry	7	22	54	13	5	-	7	21	59	8	5	-	6	22	51	15	5	1
Fish/sardine	52	34	11	2	1	-	43	41	13	1	1	-	58	29	10	3		-
Cold cut	35	22	25	8	10	-	22	24	33	8	13	-	44	20	21	8	8	-
Sausage/salami	38	27	26	7	3	-	21	35	31	10	4	-	49	22	22	5	2	-
Hot dog, hamburger	97	1	1	-	-	-	98	1	1	-	-	-	97	2	1	-	-	-
Butter	67	9	10	6	9	-	62	12	13	6	7	-	70	6	8	5	11	-
Margarine	24	10	21	12	31	2	29	15	25	8	23	-	22	7	18	14	36	4
Lard	59	13	15	5	7	1	45	15	21	4	7	-	62	12	12	6	6	2
Grease	84	8	5	1	1	1	83	8	6	1	1	-	85	8	4	2	2	1
Vegetable-dish	14	18	51	14	3	1	15	22	53	10	-	-	13	15	49	17	5	1
Fresh vegetables	14	14	43	15	13	1	7	17	42	17	17	-	18	12	44	14	11	1
Fresh fruit	10	9	23	17	33	9	8	15	24	18	28	7	12	5	22	17	36	9
Dried, frozen fruit	83	11	3	2	1	-	81	12	6	1	-	-	85	10	2	3	1	-
Bottled, canned fruit	46	25	22	4	4	1	47	23	24	1	5	-	45	26	20	5	3	1
Jam	40	26	25	4	3	1	41	28	27	2	2	-	40	25	25	5	4	2
Cake/cream/pastry	39	36	19	4	2	-	40	40	15	4	2	-	39	33	22	4	2	-
Biscuites/chocolate	42	27	17	6	8	-	41	30	19	4	6	-	43	25	16	7	9	-
Sweetener	64	3	2	1	25	5	65	5	5	2	24	1	64	2	1	1	25	7

Noodles	13	32	49	6	1	-	10	25	60	4	1	-	15	36	42	7	-	-
Rice	24	39	35	2	-	-	21	39	41	-	-	-	27	39	31	3	-	-
Potato	6	9	64	16	5	-	5	7	70	15	4	-	6	10	61	18	5	-
Leguminous plants	24	38	32	5	1	-	17	40	39	2	2	-	28	37	29	6	1	-
Bred	6	1	6	6	58	24	4	1	7	5	38	27	7	1	5	6	59	22
Brown bred	61	8	8	3	14	6	61	7	11	1	16	5	61	8	6	5	13	7
Soup	8	4	24	11	49	5	4	4	29	6	53	5	10	4	22	14	46	5
Salted grains	83	10	4	1	2	-	82	12	5	1	-	-	83	9	3	2	3	-
Chips/sticks	90	7	1	1	1	-	90	8	1	1	-	-	90	6	2	1	2	-
Refreshment	72	7	10	2	6	3	69	7	11	1	10	2	74	7	10	2	4	3
Cola	89	4	4	1	2	1	88	6	2	2	1	1	90	3	5	1	2	-
Syrup	77	9	5	1	6	2	76	12	5	1	6	-	77	8	5	2	6	3
Juice	70	15	10	2	3	1	68	18	11	2	1	-	71	13	9	3	3	1
Tap water	27	4	3	2	25	38	25	4	5	4	27	36	31	4	2	1	24	39
Mineral water	44	7	10	3	20	16	46	13	15	4	15	8	42	3	8	3	23	21
Coffee/cappuccino	24	2	8	6	47	14	28	2	10	7	46	7	21	2	6	5	49	18

Frequency of consumption:
never; 1–3/month; 1–3/week; 4–6/week; daily; more/day

Table 8. Smoking habit of elderly in percent

	Men	Women	Total
Smoking habit			
Never	27	77	57
Ceased	55	9	27
Recently	18	14	16
Under 10 cig/day	6	5	5
10–20 cig/day	12	9	10
Over 20 cig/day	0	1	1

Table 9. Percentage of smokers during ageing

Gender	60–69 year	70–79 year	80–89 year
Men	20	13	5
Women	26	23	11

Most of the answering seniors (73%) thought their nutritional habits were healthy, only 24% of them were unsatisfied with their practices. Most of the seniors (67%) would like to buy healthier and more expensive food, if they could afford it.

The dental status effects some nutritional and/or digestive disorders. In 22% of people questioned the dental status meant chewing and digestive difficulties. The average number of own teeth was 7 and 14 false teeth were placed into the dental plate.

The average time spent with outdoor activity was 12 h/week, including gardening, walking and cycling. Other type of physical activity or exercise was not mentioned.

At last but not at least, the patients were asked to make a self-judgement of their own health. According to their feeling they signed as bad (19%) acceptable (33%), medium (39%) and good (9%).

Good nutritional status is essential for a high quality of life during ageing according to the experts of Surgeon General's Workshop on Health Promotion and Ageing (DEPARTMENT OF HEALTH AND HUMAN SERVICES, 1988). The goal of our study was to identify the main nutritional risk factors and those lifestyle habits which are responsible for the deterioration of health of the ageing population. In this examination the first steps were performed towards this direction.

Due to several reasons the gastrointestinal activity declines during ageing. To avoid malnutrition four or five light meals are recommended in this age (SHUMAN, 1996). However, 68% of our elderly ate twice or three times a day, although they judged this practice to be sufficient, and only 13% of them indicated that their eating frequency was irregular.

Lunch was the most valuable meal instead of dinner, which is very common in younger age, before retirement. Dinner mentioned as a most valuable meal was more frequent by men than by women. A meal in the late evening sometimes causes digestive problems.

Food frequency questionnaire (FFQ) is related to the frequency of consumption of food groups, so it is helpful to focus on the diet in general. FFQ may require relatively little time to complete and code. The response burden is relatively low and response rates are therefore high (BIRÓ, 2001). The weaknesses of this method include, among others, that memory of food use in the past is required. This was the reason why a three-stage method was used for filling in the questionnaire as mentioned in the section of Material and methods.

A specific nutritional directive was issued by the US Public Health Services, entitled HEALTHY PEOPLE 2000 (1990). According to this guideline 2 or more servings daily of milk plus dairy products, 5 or more servings daily of fruits or vegetables, 6 or more servings of grain products were suggested.

Only half of the women and even less of the men drank milk daily. In connection with cheese and curd the situation was even worse. The inadequate intake of milk and dairy products and thus calcium promote the loss of bone and so hip and vertebral fractures which are the most frequent cause of morbidity in elderly. So the education of elderly to improve the consumption of milk and milk products is an important task of medical staff. However, at this age calcium supplementation is recommended, too (EUROPEAN COMMISSION, 1998). Around 20–30% of our population practically did not consume fruits and vegetables. There is a large consensus on the health-protective effect of having a diet rich in fruit and vegetables. In other words it means that there is a negative relationship between fruit and vegetable consumption and the development of obesity, cardiovascular diseases and some kinds of cancer. Since public health benefits from the consumption of plants through the prevention of cardiovascular diseases and cancer an increased fruit and vegetable intake (>400 g/day) is recommended (KOK, 2001).

A high consumption of fiber rich foods such as whole grain cereals and legumes are linked to the prevention and management of weight gain and obesity, to limiting the development and severity of diabetes, coronary heart disease, stroke and certain kind of cancer. One of the most frequent geriatric complaints is constipation or irregularity. Low fiber diets aggravate this condition and several other factors, including inadequate fluid intake and loss of muscle tone with age, exacerbate this problem. Regular use of laxative was mentioned by 21% of our study population. As dietary fiber improves health, choosing fiber rich foods are suggested to the elderly (GALLAHER & SCHNEEMAN, 2001).

More than 50% of seniors used extra salt for meal. Added salt could be responsible for some kind of disorders. One of these disorders is hypertension, which is a very common disease in our civilization. A reduction in salt intake has been shown to reduce significantly the blood pressure of hypertensive and some of the normotensive people (STAMLER et al., 2000). High salt intake also plays a part in the development of the negative calcium balance of postmenopausal and senile osteoporosis.

Meals were prepared at home in the traditional Hungarian manner using lard by 44% and vegetable oils by 49% of subjects. In spite of this finding, the animal fat

consumption is probably higher, because the consumption of cheaper meat products with unvisible fat was increased.

Vitamins and/or mineral supplements were used by 33% of seniors, which is probably relatively high, though judging is impossible without knowing the real vitamin and mineral intake with foods.

It may come as no surprise that this generation almost does not drink cola and does not eat hamburgers or hot dogs. It is partly due to cultural and financial reasons and partly because of their age.

Our data were compared to those of former Hungarian investigations (BIRÓ, 1994). The consumption of milk has significantly decreased since 1994, although that of dairy and fermentated milk products, especially of yogurts, has increased. The consumption of eggs and pork has also decreased, but not so dramatically as that of beef. Comparing our data to the data of the HUNGARIAN CENTRAL STATISTICAL OFFICE (1996; 2001) the same result could be seen, namely that beef consumption has been decreasing gradually since 1980, from 9.6 kg beef/person/year to 4.2 kg/person/year, respectively. However, there was some increase in cheaper meat products.

Another evaluation performed in 1995 and 1997 by SIMON (1999) in Budapest detected that milk was consumed daily by 75% of elderly people. More than 60% of that study population consumed fresh fruits plus vegetables every day. Around 73% of the patients involved in this study used vitamins and mineral supplements. These data differ to some extent from ours. It was believed by the author that this dietary habit of the elderly might be the consequence of her efficient education program.

One of the most important risk factors for lung cancer is smoking, however, it is also recorded among risks of cardiovascular diseases. The pathomechanism involves that smoking is a common cause of lifestyle-related oxidative stress associated with accelerated onset of degenerative diseases. According to PETO's comment (1994), smoking represents a great failure in public health; more than 40 years after the hazards were first established, cigarettes are still responsible for 30% of deaths in the middle age in Britain and the US, and sales are increasing worldwide. Nowadays, 16% of our study population were smoking, less than the prevalence of smoking in younger generation. The high price of cigarettes and the medical advice could be responsible for 28% of the elderly to have ceased smoking.

A higher level of physical activity has been associated with increased survival as well as higher quality of life, due to delay in the progression of disability and loss of functional ability (FRIES, 1996; MCRAE et al., 1996; HO et al., 1997; MORGAN & CLARKE, 1997). Unfortunately our elderly did not give account of active exercise although considerable part of the study population live in the suburbs where they could have outdoor activity. So it is a very important task to educate them in this field. In spite of inactive life, seniors could take care of themselves. For example they bought foods mostly from big stores or supermarkets. They took into consideration where the prices were lower and where a greater variety of items was available. They mentioned that visiting a supermarket was an enjoyable program for them.

The consumption of food is mostly determined by cultural and educational backgrounds, personal taste and attitudes, but is influenced also by financial factors. For this population the main source of income was pension or social benefit. That is the reason why food consumption was influenced by income in 67% of people studied. Despite this financial situation, 64% of them felt that they spent enough money on food and only 30% were unsatisfied with their financial situation.

Recently KAPLAN and his co-workers (1996) pointed out a significant correlation between the proportion of total household income and all causes of mortality in the United States. Income inequality was also significantly associated with age specific mortalities. Our elderly people in pension have low income. Although it was not our task to examine these topics in detail, we can be sure that the small income of retired people gives less chance for healthy nutrition, increasing the risk of nutrition-related non-communicable diseases. Out of offer they will choose the cheaper, less valuable items, as is shown in the fequency of meat consumption. Its direct consequence will be a narrowing, monotonous food intake, a lacking intake of certain nutrients, i.e. quality starving. We have to stress that improving life expectancy, trying to avoid mortality and decreasing morbidity of the elderly is not only the role of medicine or public health, but the role of economic policy as well.

3. Conclusion

In relation to nutrition-related non-communicable diseases we have to underline

– the irregular food consumption, which promotes or further deteriorates gastrointestinal complaints of elderlies,

– the insufficient consumption of fruits, vegetables and cereals, which may play a role in the development of obesity, cardiovascular diseases and malignancies,

– the insufficient consumption of milk and dairy products may force the development of osteoporosis and its progression,

– the high salt intake has to be considered in the development of hypertension and

– the poor physical and/or outdoor activity, which may contribute to the development of the non-communicable diseases.

Here we make a note that the food consumption habits of the elderly are fixed through long years, therefore, it is difficult to change them, especially if they are badly influenced by psysical and economical factors. Nevertheless, one may not give up the education in any of the age groups, as it has been proved in the EUROPEAN COMMISSION (1998), in relation to osteoporosis. In this field family physicians have a distinguished role.

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