ORIGINAL ARTICLE

The eating habits, consuming foods, and body mass index of elderly people registered in a family health center in Samsun

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Summary. *Aim:* This study aims to determine the eating habits of people 65 years of age and above. *Method:* This cross sectional study was done using survey forms in face-to-face interviews with 276 people 65 years of age and above at a family health center. The participants' Body Mass Index values were calculated on the basis of their weight and height. Descriptive statistics and chi-square test were used for data analysis. *Results:* The average age of the participants was 71.4±6.2 (minimum=65, maximum=96). Of them, 51.8% were primary school graduates, 46.7% were slightly overweight, 64.1% had health problems, 63.0% regularly used medicines, and 45.7% ate 3-4 meals a day. First-degree obesity was found in 58.3% of the elderly women, 50.0% of the primary school graduates, 75.0% of those who regularly used medicines and 73.3% of those with health problems. Of these elderly people, 28.6% said they were informed about nutrition. *Conclusions:* This study indicated that elderly people were not sufficiently informed about nutrition, that women were fatter than men according to their BMI, and that most of these elderly people were overweight and obese. Developing healthy eating habits and a well-balanced diet in old age will promote a better quality of life and healthier aging.

Key words: eating habits, elderliness, nutrition, obesity

Introduction

Elderliness refers to temporal anatomical and physical changes of function that emerge independently from diseases. It is a lifelong process that begins in womb. The World Health Organization defines people 65 years of age and above as old (1). According to the Turkish Statistical Institute, the nations with the oldest populations in 2012 were Japan (24.4%), Germany (21.1%) and Italy (20.8), respectively. Turkey ranked 91st on that list. The elderly percentage of its population (those 65 years of age and above) was 7.7% in 2013. It is estimated this percentage will rise to 10.2% by 2023, 20.8% by 2050 and 27.7% by 2075 (2).

Elderly people become ill more often and face chronic diseases or health problems. Due to physiological and metabolic disorders, chronic diseases emerge and become more prevalent in old age. The main chronic illnesses that occur in elderly people include cardiovascular diseases, diabetes, cancer, osteoporosis, dysmnesia, Alzheimer, and dementia. The factors that affect the development of diseases include age, gender, smoking, high blood pressure, fatness, immobility and eating habits (consumption of high levels of fats, cholesterol, antioxidants, etc.). It is possible to change and keep eating habits under control (3,4).

It is important to have a sufficient and well-balanced diet, to practice disease prevention, to improve health and thus quality of life in old age just as it is in other periods of life. Elderly people are an at risk of insufficient nourishment and eating problems, and their nourishment requires primary care (5).

In old age, a careful use of the basic nutritional elements (carbohydrates, protein, fats, vitamins) is highly important. Carbohydrates provide a large part of the energy needed by the body. In old age, 60% of the

daily energy needs to be provided by carbohydrates. However, when carbohydrates are consumed in excess, they become body fat and cause obesity. Therefore, consuming the proper amount of carbohydrates that are mostly found in plants (60-90% cereals, 10-20% fruits and approximately 20% vegetables) is highly important in old age (6). Protein consumption is also very important in old age. Since proteins support cell renewal and are the building blocks of body organs. They are absolutely necessary nutrients that strengthen the immune system, increase disease resistance, support fast recovery from falls, injuries and fractures and protect and strengthen muscular tissue. Therefore, it is highly important to consume meat products such as meat, chicken and fish, milk and dairy products and legumes in old age (7-9).

Older people are at an increased risk of inadequate diet and malnutrition, Especially some conditions cause of this situations. Inadequate diet and malnutrition are associated with a decline in functional status, impaired muscle function, decreased bone mass, immune dysfunction, anemia, reduced cognitive function, poor wound healing, delay in recovering from surgery, and higher hospital and readmission rates and mortality (10). The consumption of vitamins and minerals are also important in old age. Inadequate intake of vitamins and minerals can cause inadequate organ functions related to metabolism disorders. Organs that are already tired may wear out without adequate vitamin and mineral intake. Old age is characterized by a slow metabolism and an increased tendency toward immobility. Chronic and degenerative diseases also increase in this period. Therefore, in old age nutritional status needs to be analyzed to ensure disease prevention and overcome problems related to diseases. In particular, obesity needs to be analyzed in depth. Thus, elderly people's nutritional status is of special concern. Adequate and balanced nutrition for elderly people is highly important in health protection and improvement, and disease prevention.

Purpose

This study aims to determine healthy eating habits for people 65 years of age and older.

Materials and Method

Place and time of the research

This research was done with people 65 years of age at the a family health center in July through October 2014.

Research type

This research complies with the principles of descriptive study.

Research population and sample

This research was done with 276 people 65 years of age at a family health center in the province of Samsun. Sampling was not used. Instead 276 people who agreed to participate in the research, could be contacted and did not have disabilities related to sight and hearing were included in the research. In a power analysis of an elderly population of 1074, with 95% confidence interval and 5% error margin, the sample size was calculated to be 276 if the Body Mass Index is taken as 43% overweight. The Body Mass Index (BMI) is an important tool commonly used to analyze eating habits. Studies have shown that according to the body mass index, the highest common value for elderly people being overweight was between 38% and 48%. Since the research findings are analyzed according to BMI, calculations in power analysis were done using BMI percentages. This research was done in one region and based on elderly people's voluntary participation. Therefore, the research provides limited data for generalization.

Data collection tools

Data was collected using a survey form. A literature review was done to prepare the survey form. The survey questions concerned demographic characteristics, frequency of food consumption, chronic diseases and lifestyle. A mobile scale was used to measure weight, and rigid tape was used to measure height. The elderly people's BMIs were calculated to determine their obesity status. We want to evaluate social eating

habits and body mass index as similar literature (11). For this reason, we used BMI. In calculating BMI, the results obtained using the formula "weight/height" were evaluated on the basis of the classifications provided by the World Health Organization. This classification includes the categories "underweight" if BMI<18.50 , "normal" if BMI is 18.50 to 24.99, "overweight" if BMI is 25.00 to 29.99, "first degree of obesity" if BMI is 30.00 to 34.99 , "second degree of obesity" if BMI is 35.00 to 39.99 and "third degree of obesity" if BMI ≥40.00.

Data collection

The data was collected on dates specified by the researchers. The research participants' socio-cultural characteristics and eating habits were obtained using a survey form filled out in face-to-face interviews. Firstly, a survey form was given to older people, and they filled it by themselves after explanation about aim of this research. It took 8-10 minutes to fill out the form.

Data analysis

The data were analyzed using SPSS 20.0 software. Descriptive statistics and the χ² test were also used.

Ethics

Before beginning the research, the required permissions were obtained from the local Public Health Directorate. Verbal consent was obtained from the elderly people who participated in the research in compliance with the principle of voluntariness. Before beginning the research, Ethics Committee's consent was received (Consent No. B.30.2.ODM.0.20.08/1443).

Results

Of the research participants, 142 were females (51.4%) and 134 were males (48.6%). Their mean age was 71.4±6.2 (minimum=65, maximum=96). Of them, 35.2% did not go to school, 51.8% were primary school graduates, and 13.0% were high school graduates or had a higher educational level. According to

the elderly people's BMIs, 19.9% had normal weights, 46.7% were overweight, 21.8% were first degree obese and 11.6% were second degree obese. Of the elderly, 64.1% had health problems. Of them, 59.8% had chronic diseases, 63.0% regularly took medicines, 18.5% were smokers, and 97.1% did not consume alcohol. Of them, 7.2% were living alone, and 92.8% were living with their families, while 40.6% cooked for themselves and 59.4% said their spouses or relatives cooked for them.

Table 1 shows the eating habits of the elderly people. Of the participants, 13.4% had 1-2 meals and 45.7% had 3-4 meals a day, while 81.5% did not eat between dinner end bedtime. Of them, 44.9% thought they did not consume enough water daily; 57.6% used salt in their meals, 88.0% used oil in their salads, and 63.0% took sugar in their tea.

According to their BMIs, the elderly women were fatter than the elderly men (p<0.001). Their educational levels and BMI were related, men with lower educational levels were fatter than others (p<0.001). Those who regularly used medicines were fatter than others (p<0.001). The participants who were not on a diet were fatter than those who were, and those with health problems were fatter than those with none (p<0.001) (Table 2).

Table 3 shows the frequency of consuming certain foods. The percentage of those who consume milk and dairy products was 77.5%, while the percentage of those who consume meat and meat products was only 9.4%. The number of participants whose dairy consumption was mostly yogurt was 119, and of the number of those whose meat consumption was mostly chicken was 132. Bread was the grain product most commonly consumed. Of the elderly people, 77.6% ate vegetables and fruit every day, and 6.2% ate them once or twice a week.

Discussion

This research on the the eating habits of the elderly involved 276 participants visit a Family Health Center in the province of Samsun. Of the participants, 51.4% were female, 48.6% were male, 92.8% were living with their families, 7.2% were living alone, 35.1%

Table 1. The distribution of properties related to the eating habits of elderly people (n=276)

Features		Number	%
Number of meals	1-2 meal	37	13.4
	3-4 meal	126	45.7
	5-6 meal	100	36.2
	6 +	13	4.7
Not eat between dinner end bedtime	Yes	51	18.5
	No	225	81.5
Consume enough water daily	Yes	124	44.9
	No	152	55.1
Having information about the nutritional status	Yes	79	28.6
	No	197	71.4
Used salt in their meals	Yes	159	57.6
	No	117	42.4
Used oil in their salads	Yes	243	88.0
	No	33	12.0
Took sugar in their tea	Yes	174	63.0
	No	102	37.0

Table 2. Some characteristics of elderly people according to Body Mass Index

Features	Body Mass Index								statistics	p
	normal		overweight		first degree of obesity		second and third degree of obesity			
	n	%	n	%	n	%	n	%		
Sex										
Female	18	32.7	62	48.1	35	58.3	27	84.4	23.337	0.000
Male	37	67.3	67	51.9	25	41.7	5	15.6		
Educational status										
Did not go to school	17	30.9	35	27.1	24	40.0	21	65.6		
Primary school graduate	27	49.1	77	59.7	30	50.0	9	28.1	20.227	0.003
High school graduates	11	20.0	17	13.2	6	10.0	2	6.3		
Regularly used medicines										
Yes	28	50.9	75	58.1	45	75.0	26	81.3	13.042	0.005
No	27	49.1	54	41.9	15	25.0	6	18.7		
Status of using a diet programme										
Yes	14	25.5	34	26.4	21	35.0	18	56.3	11.934	0.008
No	41	74.5	95	73.6	39	65.0	14	43.7		
Status of having a health problem										
Yes	27	49.1	78	60.5	44	73.3	28	87.5	15.968	0.001
No	28	50.9	51	39.5	16	26.7	4	12.5		

Table 3. The frequency of consuming certain foods of elderly people(n=276)

Features		Number	%
Consume milk and dairy products	Every meal	19	6.9
	Every day	214	77.5
	Every other day	27	9.8
	1-2 times a week	14	5.1
	Rarely	2	0.7
The most consumed foods from dairy products	Cheese	82	29.7
	Milk	40	14.5
	Yoghurt	119	43.1
	Buttermilk	26	9.4
	All products	9	3.3
Status of consume cereal products	Every meal	164	59.4
	Every day	65	23.6
	Every other day	20	7.2
	1-2 times a week	23	8.3
	Rarely	4	1.4
The most consumed foods from cereals	Bread	218	79.0
	Rice	11	4.0
	Pasta	14	5.1
Consume meat and meat products	Every meal	26	9.4
	Every day	35	12.7
	Every other day	121	43.8
	1-2 times a week	61	22.1
	Rarely	33	12.0
The most consumed food from meat products	Meat	83	30.1
	Chicken	132	47.8
	Fish	50	18.1
	Offal	11	4.0
Status of consume fruits and vegetables	Every meal	11	4.0
	Every day	215	77.9
	Every other day	30	10.9
	1-2 times a week	17	6.2
	Rarely	3	1.1

had not attended school, and 51.8% were primary school graduate.

Of them, 13.4% had 1-2 meals a day, 45.7% had 3-4 meals and 36.2% had 5-6 meals. A well-balanced distribution of nutrients among meals is necessary for the body to use of energy, protein, vitamin and minerals effectively. This requires having 3-5 meals a day.

Uzundikme et al. did a study (2007) which indicated that 68.7% of elderly people had 3 meals a day, 17.7% had 4-5 meals, 13.3% had 2 meals and 0.3% had one meal (12).

According to this study, 30.1% of elderly people did not have lunch, 5.1% did not have breakfast and 5.4% did not have dinner. Ayar and Surucuoglu (2003)

conducted a study to determine the eating habits and health status of 376 elderly people, and indicated that most of the women (68.4%) and men (73.1%) ate three meals a day (13). Rakicioglu's study (2005) done in Ankara showed that 60.5% of elderly people did not eat lunch (14). Yaman et al. (2003) indicated that 38.2% of elderly people did not eat breakfast, 56.4% did not eat lunch, and 5.4% did not eat dinner (15).

According to this study, 45.9% of elderly people consumed sufficient water (1.5-2 liters). In old age dehydration is common, making water intake is highly important in this period. The elderly should drink at least 2 liters (approximately 10 glasses of water) a day (7).

This study showed that only 28.6% of elderly people were informed about nutrition. Yaman et al. indicated that only 57.3% of elderly people cared about adequate, well-balanced nutrition (15).

In this study, none of the elderly people were underweight according to the BMI values. More women were found to be overweight and obese than men, and there was a statistically significant relationship between gender and BMI classification (p<0.001). These research findings correspond to the literature. A common method used to determine nutritional status is BMI (19, 20). Hakli et al. did a study (2011) which showed that 60.8% of the men were overweight, and 45.1% of the women were first degree obese according to BMI average values (16). In old age, a lower basal metabolism rate increases body fat. Elderly people also have limited mobility. As a result, they are more likely to become overweight and obese. Other studies done with elderly people have indicated similar frequencies of being overweight (17).

According to this study; of those who did not go to school, 17.5% were normal weight, and 24.7% were first degree obese. Of the primary school graduates, 18.9% were normal weight, and 21.0% were first degree obese. Aksoydan's study of elderly people (2006) showed that of illiterate elderly people, 62.5% were at normal weights and 15.6% were overweight. Meanwhile, of primary school graduates, 48.4% were at normal weights, and 19.4% were overweight (18).

According to this study, elderly people who regularly took medicines were fatter than others, and this was a statistically significant relationship (Table 2, p<0.001). Regular use of medicine in old age is a sign of chronic diseases. Chronic diseases exacerbate the physical immobility characteristic of old age. Thus, the regular ingestion of medicine can indirectly cause weight gain.

This study showed that elderly people who were on a diet were weighed less than those who were not, and the difference was statistically significant (Table 2, p<0.001). Going on a diet can lower weights in old age.

According to this study, elderly people with health problems were fatter than others, and the difference was statistically significant (Table 2, p<0.001). It is well known that most health problems associated with old age are forms of chronic cardiac disease. Therefore, the reduced physical mobility in old age and accompanying health problems can cause weight gain. Bahat et al reported a significant association of lower BMI with better functional status in Turkish community-dwelling older females (19). This result was similar with our results. In this study, we found that there were conflict having a health problem and using a diet programme with BMI. Thsese parameters could be effected functional status.

This study determined that 77.5% of the elderly participants consumed dairy products daily, while 9.8% consumed them every two days. The most commonly consumed dairy products were yogurt (43.1%), cheese (29.7%), milk (14.5%) and buttermilk (9.4%). Tsai et al. (2006) conducted a survey in Taiwan to determine the food consumption patterns of women and men 53 years of age and above and the relationship between them. The survey was conducted using home interviews and included questions about physical activities, socio-demographic status and frequency of consuming basic food groups. They indicated that more than 50% of elderly people consumed milk less than twice a week (20). They also showed that fish was one of the most frequently consumed protein rich foods, followed by red meat and poultry, respectively (20). According to this study, 9.4% of elderly people consumed meat products daily, 12.7% consumed them every two days, 43.8% consumed them one or twice a week, and 12.0% consumed rarely meat. Of them, 47.8% consumed chicken, 30.1% consumed red meat, and 18.1% consumed fish products.

Conclusions

This study showed that the participant elderly people were not sufficiently informed about nutrition, women were fatter than men according to their BMI, and most of the elderly people were overweight and obese. The fattest elderly people had lower educational levels, regularly took medicines, were not on a diet and had health problems.

Developing healthy eating habits and a well-balanced diet in old age promotes a better quality of life and healthy aging. Elderly people should be taught about well-balanced nutrition to overcome their lack of knowledge about the issue. Eating plans for elderly people need to be designed to suit their personal characteristics such as BMI, chronic diseases, body structure and economic conditions. Elderly people should be informed that having meals between dinner and bedtime is a risk factor for heart disease. The present conditions of elderly people who have health problems and regularly take medicine need to be analyzed so that optimum diet plans can be designed for them.

Relevance to clinical practice

This article provides knowledge about elderly people's nutritional behaviours and habits. Especially, Nurses working at geriatric, home care, public health nursing areas, and nurses working with multicultural communities can use this article results.

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Contributions

Study design: IAA, PS; Data Collection and Analysis: IAA, AA; and manuscript preparation: IAA, AA; PS.

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