RESEARCH ARTICLE

DETERMINATION OF HEDONIC HUNGER IN THE ELDERLY: CASE OF TURKEY

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Abstract

Purpose*: This study aimed to determine hedonic hunger and affactin factors in Turkish elderly people. *Design and Methods:* A cross-sectional research data collected face-to-face from 65 year and older 669 elderlies live in Alanya with ≥ 25 SMMSE score. *Findings*: MNA showed that 60.9% of men and 50.1% of women had normal nutritional status. Nutritional habits, physical activities, existing chronic diseases and medications of the elderly may affect their hedonic which increase the consumption quantity and tendency to delicious food with high fat, sugar and energy, and excite chronic diseases. *Practice Implications*: Nurses who detect malnutrition in the elderly need to refer the elderly to the relevant physician and dietitian in order to investigate the risk factors and take the necessary precautions, and they must exhibit a multidisciplinary solution approach. *ASEAN Journal of Psychiatry, Vol. 22(9), November 2021: 1-11.

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Introduction

All irrevocable changes in the body occurring with increasing age are called aging [1]. Though there are many definitions of aging, people who have chronological age of 65 years and above are called as aged people [2]. The aged population has been increasing in Turkey as in the world [3]. According to the data of the Turkish Statistical Institute the number of individuals aged 65 and over was approximately 6 million in 2015 and this number increased to 7 million in 2018, and while the proportion of elderly individuals in the total population was 9.5% in 2020, this was expected to increase by 16.3% in 2040 [4]. Due to aging, physiological changes occur in many systems such as cardiovascular, gastrointestinal, respiratory, nervous, urinary and endocrine systems [5]. Besides, oral and dental health problems, chewing and swallowing difficulties trigger inadequate and unbalanced nutrition in the elderly. Decreased sight, hearing, taste and smell are also common among the elderly. With aging, salivation decreases and xerostomia increases and the loss of taste due to changes in taste buds can trigger malnutrition [6,7].

The quality of life decreases due to changes emerging in old age. One of the major factors affecting the quality of life of the elderly is nutrition [8]. With the increase of accessing delicious food today, eating habits for pleasure have emerged instead of meeting energy needs, which is explained by hedonic hunger [9].

A study suggests that the decrease in the sense of taste with increasing age will cause a decrease in hedonic hunger [10], while another study conducted with obese people has found that impairment of the sense of taste increases the desire for intense flavor stimuli [11].

Also, their food directs them to accessible, easy to prepare and consume, and delicious food. Thus, this study was designed and conducted to determine hedonic hunger of Turkish elderly aged 65 years and over and the factors affecting their hedonic hunger.

Inability of the elderly living in the community to do shopping and having difficulty in preparing.

This is a descriptive study which aimed to determine hedonic hunger of Turkish elderly aged 65 years and over and the factors affecting their hedonic hunger. The study was conducted in Alanya, where the aged population is dense. Alanya is a district of Antalya province of Turkey and is a region where both Turkish and foreign elderly people immigrate since they want to settle on a coastal region [12].

Thus, it is a coastal region Where elderly population is dense. This study used snowball sampling, one of purposeful sampling methods, and effort was made to reach as many elderly people as possible [13]. The study was conducted with 367 women and 302 men, 669 Turkish elderly in total, living in Alanya.

Turkish individuals aged 65 years and over who had adequate cognition (≥ 25 points) according to the Standardized Mini Mental State Examination (SMMSE) and voluntarily accepted to participate were included in the study.

The data were collected using a questionnaire form and face-to-face interview no shoes, and 0.5Kg was deducted from the value seen on the scales for each individual.

Measurements

Questionnaire form

To determine personal characteristics of the elderly, a questionnaire was used. The questionnaire included socio-demographic attributes such as age, gender, marital status and educational status; SMMSE; Mini Nutritional Assessment –Short Form (MNA-SF) and Power of Food Scale (T-PFS) to determine hedonic hunger.

Besides, the participants were questioned about their nutritional habits and physical activities like the number of main meals and snack, and their anthropometric measurements were made.

Anthropometric measurements

Body weights of the participants were measured digital scales sensitive to 0.5 kg. The participants measured their weight with light clothes and with the obtained values were recorded as whole number and in kg [14].

The height was measured using rigid tape measure. Their height was measured in cm by measuring the distance from the highest point of the head to the ground, standing upright, ready stance and feet together, without shoes, and the heels, back, shoulders and back of the head touching the wall. The obtained values were recorded as whole number and in cm. Their body mass index (BMI) was obtained by dividing body weight by their height in square meters (kg/m2). Their BMI results were evaluated according to the World Health Organization (WHO) classification [15]. BMI value in the elderly is expected to be around 22-27 kg/m2 [16].

Mini Nutritional Assessment – Short Form (MNA-SF)

MNA detects malnutrition status or risk in the elderly staying at hospital, home or in nursing. MNA detects malnutrition status or risk in the elderly staying at hospital, home or in nursing homes and the ESPEN-European Society of

Parenteral and Enteral Nutrition suggests it's the elderly [17]. There is a high correlation between the short and long forms of the MNA [18]. The short form of MNA was preferred in this study as it is used particularly in the evaluation of the elderly living in the community. It consists of 6 items having high correlation with nutritional assessment [19]. The classification is as follows; a score between 11 and 14 "normally fed", a score between 7 and 11 "at risk", and a score less than 7 "significant malnutrition" [20].

Power of Food Scale (PFS)

PFS, used to detect hedonic hunger status, evaluates individual differences in thoughts, feelings, and individual differences in motivation with regard to being controlled by food and appetite in the presence of delicious food, irrespective of daily food consumption.

In this study, the Turkish version of the scale was used [21]. The scale is five-point Likert type scale, consisting of 15 items and 3 sub-scales. The first sub-scale is food availability, the second is food presentation and the third is food tasting.

Items within factor one are 1, 2, 5, 10, 11 and 13; items within factor two are 3, 4, 6 and 7; items within factor three are 8, 9, 12, 14 and 15. The total score is divided by the number of items. As the PFS total score is at least 2.5 and more, hedonic hunger level increases.

Hedonic hunger score cut-off point is taken as 2.5; a score below 2.5 means no hedonic hunger, while a score of 2.5 and above means there is hedonic hunger.

A higher score shows that an individual is more sensitive to nutrient medium and is controlled by nutrients psychologically.

Standardized Mini Mental State Examination (SMMSE)

SMMSE was used to evaluate cognition of the elderly. The validity and reliability study of the tool developed by [22], in 1975 in the Turkish population was carried out by [23]. This test is divided into two types for educated and uneducated individuals and consists of orientation, memory, attention and calculation, recall and language sections. This study used the one for educated individuals (literate). Each question scores "1" point in the test. The lowest obtainable score is 0, while the highest is 30 points. Since a score of 25 and above is deemed "cognitive competence", those who obtained at least 25 points were included in the study.

Statistical Analysis

SPSS 22.0 software was used to create tables and do statistical analysis. The quantitative variables were given by mean and standard deviation, while qualitative variables were given by number and percentage. The normal distribution of the data was evaluated using the Kolmogorov-Smirnov test. The chi-square test was used to evaluate qualitative variables. Also, logistic and multiple linear regression analyses were made. The significance level was taken as $p<0.05$ for statistical analyses.

Results

The study was conducted with 669 elderly people aged 65 years and over (mean age 70.85 ± 6.01). Of the participants, 45.1% were male and 54.9% were female. Of them, 83.8% were married and 56.6% were uneducated but literate. Of the participants 58.3% stated they had an equal income and expense. Furthermore, 64.3% stated they had regular sleep and 60.2% did not do any regular physical activity. Table 1 shows anthropometric characteristics of individuals. Of male participants, 48.0% had normal BMI, while 49.3%.

Female participants had an obese BMI, with a higher number of underweight and obese among women compared to men (p=0.017). MNA results showed that 60.9% of men and 50.1% of women had normal nutrition and the correlation between the groups was statistically significant (p=0.009).

Table 1. Anthropometric characteristics of the elderly

	Male (n=302)		Female (n=367)		Total (n=669)		p
BMI classification (kg/m^2)	**Number**	**%**	**Number**	**%**	**Number**	**%**	
<22.0 (Underweight)	27	8.9	48	13.1	75	11.2	
22.0-27.0 (Normal)	145	48	138	37.6	283	42.3	0.017*
>27.0 (Obese)	130	43	181	49.3	311	46.5	
MNA classification							
<7 Malnourished	13	4.3	30	8.2	43	6.4	
7-11 At risk of malnutrition	105	34.8	153	41.7	258	38.6	0.009*
11-14 Normal nutritional status	184	60.9	184	50.1	368	55	

**p<0.005*

Table 2 shows the correlation between hedonic hunger and gender, age groups and BMI groups of the elderly. Of male participants 72.8% have hedonic hunger while this is 70.0% in females (p=0.440). Considering hedonic hunger by age groups and BMI groups, the difference was not significant (p>0.005). Considering hedonic hunger by physical activities of the elderly, hedonic hunger was higher in those who did not do any sports (62.9%) compared to those who did, and the correlation between them was significant (p=0.001).

Table 2. Hedonic hunger of the elderly

Hedonic hunger						
	Yes (n=477)		**No (n=192)**			
	Number	**%**	**Number**	**%**	**$\chi 2$**	**p**
Gender						
Male	220	72.8	82	27.2		
Female	257	70	110	30	0.644	0.44
Age groups (year)						
65-69	275	57.7	103	53.6		
70-74	89	18.7	39	20.3	0.895	0.639
75 years and above	113	23.6	50	26.1		
BMI groups						
<22 (Underweight)	50	10.5	25	13		
22-27 (Normal)	196	41.1	87	45.3	2.71	0.258
>27 (Obese)	231	48.4	80	41.7		
Physical activity						
I never do sports	300	62.9	103	53.6		
1-2 days a week	122	25.6	46	24	13.119	0.001*
3 or more days a week	55	11.5	43	22.4		

The logistic regression analysis was made in Table 3, which estimated the probability of having hedonic hunger (yes/no), which is a dependent variable. Before testing the effect of BMI and MNA independent variables, demographic characteristics of elderly individuals (gender, age), the demographic characteristics (gender, age), the number of main meals reflecting their eating habits, the number of snacks and eating speed variables, and physical activities that could have an effect on their hedonic hunger were checked. The first model examined demographic variables and the state of having hedonic hunger and showed no significant effect.

Table 3. Logistic regression analysis as a function of the hedonic hunger, demographic variables, nutritional habits and anthropometric measurements

		Model 1			**Model 2**			**Model 3**			**Model 4**	
	Estimate	**p**	**OR (%95 CI)**	**Estimate**	**p**	**OR (%95 CI)**	**Estimate**	**p**	**OR (%95 CI)**	**Estimate**	**p**	**OR (%95 CI)**
Gender												
Female-Male	-0.194	0.303	0.82 (0.57-1.19)	-0.154	0.48	0.86 (0.56-1.31)	-0.187	0.394	0.83 (0.54-1.28)	-0.2117	0.339	0.81 (0.52-12.5)
Age group												
Between 70 and 74 – between 65 and 69	-0.202	0.377	0.82 (0.52-1.28)	-0.2294	0.369	0.79 (0.48-1.31)	-0.2509	0.33	0.78 (0.47-1.29)	-0.3132	0.226	0.73 (0.44-1.21)
75 and above - between 65 and 69	-0.283	0.188	0.75 (0.49-1.15)	-0.197	0.443	0.82 (0.49-1.36)	-0.2153	0.407	0.81 (0.48-1.34)	-0.2559	0.329	0.77 (0.46-1.29)
Number of main meals												
2-1	-	-	-	0.3249	0.542	1.38 (0.49-3.94)	0.3957	0.467	1.49 (0.51-4.32)	0.3181	0.564	1.38 (0.47-4.05)
3-1	-	-	-	0.6849	0.19	1.98 (0.71-5.53)	0.742	0.164	2.10 (0.74-5.97)	0.6993	0.196	2.01 (0.69-5.81)
Number of snacks												
2-1	-	-	-	0.5135	0.023	1.67 (1.07-2.60)	0.5192	0.022	1.68 (1.08-2.63)	0.5214	0.022	1.68 (1.08-2.64)
3-1	-	-	-	0.7953	0.004	2.22 (1.28-3.82)	0.7798	0.005	2.18 (1.26-3.78)	0.787	0.004	2.19 (1.27-3.81)
Eating speed												
Medium-Slow	-	-	-	0.3987	0.083	1.49 (0.95-2.34)	0.4193	0.071	1.52 (0.97-2.40)	0.4781	0.042	1.61 (1.02-2.56)

Fast-Slow	-	-	-	0.7318	0.027	2.08 (1.09-3.97)	0.7216	0.032	2.06 (1.06-3.99)	0.7867	0.021	2.19 (1.13-4.29)
Physical activity												
1-2 days a week - I never do sports	-	-	-	-0.2105	0.393	0.81 (0.50-1.31)	-0.1648	0.507	0.85 (0.52-1.38)	-0.1512	0.54	0.86 (0.53-1.40)
3 or more days a week - I never do sports	-	-	-	-0.6762	0.018	0.51 (0.29-0.89)	-0.6401	0.028	0.53 (0.30-0.93)	-0.4771	0.106	0.62 (0.35-1.11)
MNA group												
7-11 – <7	-	-	-	-	-	-	-0.7517	0.132	0.47 (0.18-1.26)	-	-	-
11-14 – <7	-	-	-	-	-	-	-0.6964	0.171	0.50 (0.18-1.35)	-	-	-
MNA total	-	-	-	-	-	-	-	-	-	-0.145	0.007	0.87 (0.78-0.96)
BMI group												
22-27 – < 22	-	-	-	-	-	-	-0.2651	0.453	0.77 (0.38-1.53)	-	-	-
>27 – < 22	-	-	-	-	-	-	0.0463	0.897	1.05 (0.52-2.11)	-	-	-
BMI total	-	-	-	-	-	-	-	-	-	0.0515	0.035	1.05 (1.00-1.11)

In the second model, a logistic regression analysis was performed, in which the number of main meals and snacks, eating speed and physical activity were used as independent variables, and the probability of occurrence of hedonic hunger, a dependent variable, was estimated. Although demographic variables did not have a significant effect, they were added to this and other models and checked since they had an effect on the total variance (R^2) in hedonic hunger. When the model including the predictors was tested against the model containing only invariants in the second model, the result being significant (χ^2 (15, N=669)=47.1, p<.001) meant that the predictors of eating habits separated those with and without hedonic hunger at a significant level. Independent variables predicted hedonic hunger significantly. The number of snacks (χ^2 (2, N=669)=9.98,

p=0.007) significantly contribute to prediction model and eating speed (χ^2 (2, N=669)=5.56, p=0.062) and physical activity (χ^2 (2, N=669)=5.46, p=0.065) provide a significant contribution trend to the prediction model. Whether or not the coefficients related to the independent variables are important is observable in the model coefficients table showing the regression coefficients (estimate, coefficient) and odds ratio for each of these variables in the model. The predictors with p<0.05 significance level contributed to the prediction model. Compared to a single snack, consuming two snacks increased the probability of hedonic hunger 1.67 times (B=0.514, p=0.023) and compared to consuming a single snack, consuming three snacks increased it 2.22 times (B=0.795, p=.004). Fast eating increased the probability of hedonic hunger by 2.08 times compared to eating slowly (B=0.732, p=0.027). Also, doing sports 3 or more days a week increased hedonic hunger 0.51 times compared to those who did not do sports (B=0.676, p=0.018).

In the third model, the MNA group and BMI group categorical variables were added to the analysis in addition to these independent variables. When the model including the predictors was tested against the model containing only invariants, the result being significant (χ^2 (19, N=669)=51.9, p<0.001) meant that these predictors separated those with and without hedonic hunger at a significant level. However, the model coefficient table shows that the coefficients for these categorical independent variables and the differences between the group categories are not significant in distinguishing the probability of occurrence of the dependent variable. In the fourth model however, BMI and MNA constant variables were included in the model and were tested.

The results from this model show that the probability of occurrence of hedonic hunger is much more predictable. When the model including the predictors was tested against the model containing only invariants by controlling eating habits and demographic variables, the result being significant (χ^2 (17, N=669)=57.3, p<0.001) meant that these predictors separated those with and without hedonic hunger at a significant level. Independent variables predicted hedonic hunger significantly.

The MNA (χ^2 (1, N=669)=7.672, p=0.006); and BKI (χ^2 (1, N=669)=4.803, p=0.028) make a significant contribution to the prediction model. Also, the number of snacks (χ^2 (2, N=669)=9.74, p=0.008) and BMI (χ^2 (2, N=669)=6.44, p=0.040) make a significant contribution to the prediction model. When the BMI value increases by 1 point, the probability of having hedonic hunger increases 1.05 times (B=0.052, p=0.035); and when the MNA total score increases by 1 point, the probability of hedonic hunger decreases (B=-0.145, p=0.007). Compared to a single snack, consuming two snacks increased the probability of hedonic hunger 1.68 times (B=0.521, p=0.022) and compared to consuming a single snack, consuming three snacks increased it 2.19 times (B=0.787, p=0.004). Furthermore, fast and medium fast eating increased the probability of hedonic hunger by 2.19 and 1.61 times, respectively compared to eating slowly (B=0.787, p=0.021; B=0.478, p=0.042).

Table 4 shows that a multiple regression analysis, examining the correlation between the total score from the T-PFS and demographic variables such as age and gender as independent variables, the number of main meals and snacks, eating speed and anthropometric variables of BMI and MNA was made. Before testing the effect of BMI and MNA independent variables, demographic characteristics of elderly individuals (gender, age), the demographic characteristics (gender, age), the number of main meals reflecting their eating habits, the number of snacks and eating speed variables, and physical activities that could have an effect on the T-PFS total score were checked. The first multiple regression model that included age.

And gender was significantly different from zero, (F(7.661)=2.21, p=0.032), R^2=0.02. A total of 2 of variability in the PFS total score were explained by demographic variables. Those who were at the age of 75 years and over had an average of 2.47 points less score from hedonic hunger compared to those aged 65-69 years (β=-2.47, t = 2.426, p=0.016). In the second model, the effect of demographic variables, eating habits and physical activity on PFS was analyzed. The first multiple regression model was significantly different from zero, (F(15.547)=5.77, p<.001), R2=0.14. A total of 14% of variability in the PFS total score was explained by these variables. The analysis results showed that the number of meals and eating speed significantly predicted PFS variable. PFS total scores of those eating fast were 7.38 points more than those eating slowly (B=5.513, p<0.001); PFS total scores of those having three snacks compared to those having a single snack and the scores of those having two snacks compared to those having one snack were found to be higher (respectively, B=4.103, p<0.001; B=3.048, p=0.002).

Table 4. Linear regression analysis as a function of the T-PFS, demographic variables, nutrition and anthropometric measurements

		MODEL 1				MODEL 2				MODEL 3				MODEL 4		
	Estimate	LL %95 CI	UL %95 CI	P	Esti-mate	LL %95 CI	UL 95 %CI	p	Esti-mate	LL 95 % CI	UL 95 % CI	p	Esti-mate	LL 95% CI	UL 95 % CI	p
Gender																
Female-Male	-1.02	-2.74	0.7	0.245	-0.41	-2.22	1.39	0.652	-0.62	-24.3	1.19	0.501	-0.8	-2.58	0.98	0.376
Age group																
Between 70 and 74 – between 65 and 69	-1.19	-3.32	0.94	0.274	-0.45	-2.62	1.73	0.686	-0.41	-25.8	1.77	0.714	-0.77	-2.91	13.74	0.481
75 and above - between 65 and 69	-2.47	-4.47	-0.47	0.016	-1.46	-3.6	0.67	0.179	-1.42	-35.7	0.72	0.193	-1.63	-3.74	0.48	0.129
Number of main meals																
2-1	-	-	-	-	3.02	-2.07	8.12	0.244	3.22	-18.8	8.32	0.215	2.89	-2.11	78.89	0.257
3-1	-	-	-	-	4.84	-0.15	9.83	0.057	5.03	0.04	10.02	0.048	4.8	-0.1	96.92	0.055
Number of snacks																
2-1	-	-	-	-	3.05	1.11	4.99	0.002	3.09	11.66	5.03	0.002	3.02	1.11	49.2	0.002
3-1	-	-	-	-	4.1	1.85	6.35	< .001	4.09	18.42	6.33	< .001	4.11	1.9	63.24	< .001
Eating speed																
Medium-slow	-	-	-	-	1.52	-0.49	3.54	0.138	1.51	-0.5	3.52	0.142	1.65	-0.34	36.39	0.104

Fast-slow	-	-	-	-	7.38	4.75	10.01	< .001	6.98	43.15	9.64	< .001	6.97	4.34	95.88	< .001
Physical activity																
1-2 days a week/I never do sports	-	-	-	-	-1.53	-3.58	0.53	0.145	-1.29	-33.5	0.77	0.219	-1.16	-3.18	0.87	0.261
3 days a week/I never do sports	-	-	-	-	-1.66	-4.22	0.89	0.202	-1.51	-40.9	1.06	0.249	-0.75	-3.32	18.33	0.571
MNA group																
7-11–<7	-	-	-	-	-	-	-	-	-1.94	-56.2	1.74	0.3	-	-	-	-
11-14–<7	-	-	-	-	-	-	-	-	-1.5	-52.5	2.25	0.433	-	-	-	-
MNA total	-	-	-	-	-	-	-	-	-	-	-	-	-0.51	-0.92	-0.09	0.016
BMI group																
22-27 – < 22	-	-	-	-	-	-	-	-	-1.6	-45.7	1.37	0.29	-	-	-	-
>27– < 22	-	-	-	-	-	-	-	-	0.92	-20.6	3.89	0.545	-	-	-	-
BMI total	-	-	-	-	-	-	-	-	-	-	-	-	0.42	0.24	0.61	< .001

In the third model, the BMI group and MNA group categorical anthropometric variables were added to the model and their correlation with PFS was tested. The model was significant, ($F(19.543)=5.06$, $p<0.001$), $R^2=0.15$. A total of 14% of variability in the PFS total score was explained by these variables. Analysis results showed that the number of main meals and snacks, eating speed and BMI variables predicted PFS variable significantly.

PFS total scores of those eating fast were 6.98 points more than those eating slowly ($B=6.976$, $p<0.00$); PFS total scores of those having three snacks compared to those having a single snack and the scores of those having two snacks compared to those having one snack were found to be higher (respectively, $B=4.088$, $p<0.001$; $B=3.098$, $p=0.002$). In the fourth model however, BMI and MNA anthropometric variables were added to the model as constant variables and their correlation with PFS was tested. The model was significant, ($F(17.545)=6.61$, $p<0.001$), $R^2=0.15$. A total of 14% of variability in the PFS total score was explained by these variables. Considering the effect of demographic variables, eating habits and physical activity on PFS, the effect of BMI and MNA on PFS was significant. A change of 1 point in BMI led to an increase of 0.42 points in PFS ($p<0.001$). A change of 1 point in MNA led to a decrease of 0.51 points in PFS ($p=0.016$).

Discussion

Considering that aged population is increasing, the studies evaluating the factors that directly affect the nutrition and appetite of the elderly gain importance. Changes emerging with age directly affect nutrition of the elderly [24]. It is pointed that decrease in nervous system functions such as perception, remembering and learning may lead to a decrease in food intake [25]. Thus, this study included the elderly who were believed to have adequate cognitive function (≥ 25 points) according to SMMT. Furthermore, digestive tract movements slow down physiologically and gastric emptying delays in elderly people; so, feeling of

satiety lasts long and insufficient food intake may emerge [26]. MNA is a tool used to evaluate geriatric nutrition and low MNA values can be associated with decreased appetite, chewing and swallowing problems [27]. The study has shown that out of the 669 participants, 50.1% women and 60.9% men who live in the community have normal nutrition. In a study evaluated by MNA on 14.149 elderly people living in the community, the malnutrition rate was 2 ± 0.1% and malnutrition risk was 24 ± 0.4%. A study that included 138 elderly people living in nursing home found that 65.9% of the elderly did not have nutritional problems [28].

Low malnutrition in the elderly in our study and easy accessibility of food in Alanya on a regional basis is attributed to the high diversity of food. Anthropometric measurements are also very important in the evaluation of nutrition of the elderly and body weight, height, and midupper arm circumference are anthropometric measurements used frequently. Also, since the loss of body weight is an important parameter in MNA evaluation, it is closely related with MNA anthropometric parameters.

BMI is used in practice, besides, it helps to evaluate both the protein-energy malnutrition (PEM) and obesity. Decreased muscle mass and fat in the abdominal region increase with advancing age; so, the validity of BMI in the evaluation of nutritional status in the elderly decreases. For this reason, BMI value of less than 22 kg/m^2 in the elderly is considered as malnutrition. This study found that 49.3% of elderly women (>27 kg/m^2) are obese and 48.0% of men have normal BMI (22-27 kg/m^2). Another study conducted showed that the mean BMI of men was 26.3 ± 4.5 and that of women was 24.9 ± 3.1 kg/m^2. Another study discovered BMI of elderly women aged 65 years and over to be 27.58 ± 4.73 kg/m^2 BMI of men to be 26.38 ± 3.72 kg/m^2. In addition to observing a decrease in all functions with aging, sensory loss can also be observed. The decrease becomes evident around 60 years of age and with advancing age, sensory loss intensifies [29]. The decrease in taste sensitivity and olfactory function may affect the sense of the flavor and pleasurable features of food.

Studies have shown that elderly people experience less satisfaction with food, consume less food, and increase the activity of peripheral satiety signals in comparison to younger individuals, in whom hunger and appetite differ by age groups [30]. In the light of this information, hedonic hunger can diminish with the decrease in the sense of taste with advancing age; however, the decrease in the perception of sweet and salty tastes particularly may lead some elderly people to prefer sugary and salty foods more. Besides, the elderly who have chewing problems avoid consumption of fresh vegetables and fruits, wellcooked meat and bread, but they prefer foods with high content of sugar and fat on the grounds that they can be chewed easily [31]. In this study, hedonic hunger was found in 57.7% of the 65-69 age group, 18.7% of the 70-74 age group, and 23.6% of the 75 years and older group. Furthermore, hedonic hunger was found to be less in the elderly aged 75 years and over compared to those aged 65-69 years.

Therefore, our study results support the finding that hedonic hunger decreases with advancing age. One of the factors that can be associated with hedonic hunger is body weight, so the sensitivity to nutrition tips which affect hedonic hunger in individuals with high BMI [32]. This study found that 48.4% of the elderly with obese BMI had hedonic hunger. According to the logistic regression analysis, an increase of 1 point in BMI increased the probability of having hedonic hunger 1.05 times. The results from the studies conducted with adults confirm that people with high BMI have high hedonic hunger, yet there is no study on the elderly regarding hedonic hunger.

Due to changes in body functions of the elderly, there are also changes in their physical activities. This study, using the International Physical Activity Questionnaire, has found that the elderly have a moderate level of physical activity [33].

Physical activity is of importance for controlling appetite in the elderly as well as in young individuals and maintaining digestive system functions. The results show that 62.9% of the individuals participating in this study and having hedonic hunger do not do sports. Hedonic hunger was found to increase 0.51 times in those who did sports 3 or more days a week compared to those who did not do sports.

Since there is no study that can be associated with activity situation and hedonic hunger of the elderly, the results from the study conducted with university students were analyzed and the findings showed similarity. To keep healthy and balanced diet, three main meals and at least two snacks are recommended and the number of meals for the elderly is important [34]. According linear regression analysis results of this study, hedonic hunger total scores were higher in those having three snacks compared to those having a single snack and those having two snacks compared to those having a single snack.

Another study revealed that individuals with high hedonic hunger had high consumption of snack and this was related to high BMI. Furthermore, the PFS total score of those eating fast was 7.38 times higher than those eating slowly [35]. A study conducted with adults found that there was no significant correlation between eating speed and hedonic hunger. As the MNA total score increased 1 point in the elderly, the probability of having hedonic hunger decreased 0.51 times. Therefore, we can say that as nutrition of the elderly improves, tendency of individuals to foods with high flavor and energy content but low nutritional content may decrease; that is, hedonic hunger may decrease.

Conclusion

Many physiological changes in old age bring along the problems that can be faced in nutrition affecting directly health of the elderly. The increase in the elderly population both in the world and in Turkey underlines that the focus should be on the factors that affect nutrition and the quality of life of the elderly.

Nutritional habits, physical activities, existing chronic diseases and medications of the elderly may affect their hedonic hunger. High hedonic hunger in the elderly may increase the consumption quantity and tendency to delicious food with high fat, sugar and energy, and excite chronic diseases such as obesity, type 2 diabetes and cardiovascular disease. While anthropometric measurements of the elderly are followed at regular intervals in primary health care institutions and nutrition programs are created, it should be considered that the elderly may experience hedonic hunger due to their physiological and individual conditions, and they should be advised on the solution of health problems which may arise from hedonic hunger. There are few studies on nutrition of the elderly living in the community. This study is of importance as it is the first study to investigate into hedonic hunger in the elderly; it has some limitations, however. One is that chronic diseases and drug use of the elderly have not been discussed. Another is that food consumption of three days for determining food consumption of individuals was not recorded. Therefore, there is a need for further comprehensive studies on hedonic hunger in the elderly and that may affect hedonic hunger.

Implications for Psychiatric Nursing Practice

Nutrition is a very important and comprehensive field that develops very rapidly, has a multidisciplinary and interdisciplinary nature, forms the basis of human health, and has a complex structure with its psychological and behavioral dimensions. The most important preventable factors underlying many pathological conditions that cause the most common causes of death such as obesity, diabetes, cardiovascular diseases and cancers, which are diseases that are increasing in frequency in the 21st century, are related to nutrition. In all sources pointing to the protective functions of nursing in primary care; Nutritional habits are among the most important

lifestyle changes recommended for individuals, families and societies.

As in every field, new information and research in the field of nutrition is exciting and it is essential that these researches are carried out from a multidisciplinary perspective. Accurate knowledge of nutrition science is a very important issue especially for nurses working in the field of health, planning patient education, spending the most time with and observing patients or healthy individuals, and reporting on changing health conditions. Nutrition education is among the compulsory courses in nursing undergraduate education. The most important learning goals of nurses, especially for individuals and patients living in society in old age, are to define and evaluate nutrition in old age psychologically together with the physiological changes that occur in the bodies of the elderly. Of course, with aging, the amount of calories we need can change due to our body, diseases, and lifestyle. However, we should always protect the principle of adequate and balanced nutrition in the elderly. We know that malnutrition is a common problem in the elderly. It is estimated that 50-60% of the elderly in long-term care homes and 60% of the elderly hospitalized in the United States are affected by malnutrition.

For this reason, in the nutritional evaluation of the elderly, nurses working in elderly care homes, especially in primary care; the elderly should be able to take nutritional history, make anthropometric measurements, and use nutritional screening tools. In the nutritional evaluation of the elderly, it should be investigated whether there is a risk factor indicating malnutrition. Nurses who detect malnutrition in the elderly need to refer the elderly to the relevant physician and dietitian in order to investigate the risk factors and take the necessary precautions, and they must exhibit a multidisciplinary solution approach.

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