PREVALENCE OF MALNUTRITION/MALNUTRITION RISK AND RELEVANT FACTORS AMONG OLDER ADULTS

Yaşlı bireylerde malnütrisyon/malnütrisyon riski sıklığı ve etkileyen faktörler

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Abstract

This study aimed to assess the prevalence of malnutrition and malnutrition risk of older adults, and identify socio-demographic and medical characteristics that affect the nutritional status of older adults in Konya city centrum. This cross-sectional study was conducted between April and July. Sociodemographic characteristics and medical history questionnaire prepared by researcher, Mini Nutritional Assessment (MNA) and Geriatric Depression Scale (GDS) and Mini-Mental State Examination (MMSE) in order to answer objectively depression and cognitive disorder questions in MNA were applied with face-to-face interview method. A total of 276 individuals were included in the study. According to the MNA, malnutrition/malnutrition risk was found 39.5%, and 60.5% of the participants were found to have good nutritional status. In those who have at least one chronic disease, use at least one drug regularly, have 'depression' according to GDS, and have cognitive impairment according to MMSE, malnutrition and the risk of malnutrition were significantly higher. In conclusion, A significant proportion of the elderly was found to have malnutrition and malnutrition risk, and those with cognitive impairment and depression had a higher ratio of malnutrition and risk of malnutrition.

Keywords: Elderly, malnutrition, cognitive impairment, depression.

Özet

Bu çalışmada, Konya il merkezinde yaşlı erişkinlerde malnütrisyon prevalansı ve malnütrisyon riskinin değerlendirilmesi, yaşlıların beslenme durumunu etkileyen sosyo-demografik ve tıbbi özelliklerin belirlenmesi amaçlanmıştır. Bu kesitsel çalışma Nisan ve Temmuz ayları arasında yapılmıştır. Araştırmacı tarafından hazırlanan sosyodemografik özellikler ve tıbbi öykü anketi, MNA'daki depresyon ve bilişsel bozukluk sorularını objektif olarak yanıtlamak amacıyla Mini Beslenme Değerlendirmesi (MNA), Geriatrik Depresyon Ölçeği (GDS) ve Mini Mental Durum Muayenesi (MMSE) yüz yüze görüşme yöntemi ile uygulanmıştır. Çalışmaya toplam 276 kişi dahil edilmiştir. MNA'ya göre yetersiz beslenme/yetersiz beslenme riskinin %39,5 olduğu ve katılımcıların %60,5'inin beslenme durumunun iyi olduğu belirlendi. En az bir kronik hastalığı olanlarda, düzenli olarak en az bir ilaç kullananlarda, GDS'ye göre 'depresyon'u olanlarda ve MMSE'ye göre kognitif bozukluğu olanlarda malnütrisyon ve malnütrisyon riski anlamlı olarak daha yüksekti. Sonuçta, yaşlıların önemli bir kısmında malnütrisyon ve malnütrisyon riski, bilişsel bozukluğu ve depresyonu olanlarda malnütrisyon ve malnütrisyon riski daha yüksek bulunmuştur.

Anahtar kelimeler: Yaşlı, yetersiz beslenme, bilişsel bozukluk, depresyon.

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Introduction

One of the important demographical changes in the past century is population ageing, which brings an increasing ratio of elderly individuals in the population (1). The European Society for Clinical Nutrition and Metabolism (ESPEN) describes malnutrition as follows: 'Energy, proteins and proteins that cause measurable side effects on tissues / body structure (body shape, body and composition), function and clinical status; the nutritional status of other nutritional elements with low or excessive (2). Malnutrition is also a commonly seen clinical condition in the geriatric age group. Age is the most important risk factor for malnutrition, and elders are regarded as a risk group for malnutrition (3).

Older adults are more vulnerable, sensitive and crumple in terms of protein-energy malnutrition than younger adults. The reason for this is the physiological changes that occur with age and make the elderly prone to malnutrition, (chronic) systemic diseases in the elderly and multidrug use, limitation of movement and disability, social factors and psychiatric disorders (4). With increasing age, a decrease in the natural appetite occurs, resulting in geriatric anorexia (5). This situation is partly related to diminished taste and smell due to ageing (6). A decline in food intake compensates for the decreased use of energy resulting from ageing (7). These changes that are age-dependent are considered an adaptation to a natural drop in needed energy; however, at the same time they may increase the risk of malnutrition by excessive decreases in food intake. Prevalence studies carried out around the world showed that approximately one fourth of geriatric population (20-30%), 5-15% of the elderly who are in polyclinics or in society and 20-65% of the in-patient elderly have malnutrition. Malnutrition prevalence studies conducted in Turkey showed that 13-28% of the elderly who are in polyclinics or in society, 25-45% of the elderly who applied to hospitals suffer from malnutrition or are at the risk of malnutrition (8).

Malnutrition may not be recognized by the clinician. To raise awareness regarding malnutrition and to plan the measures that can be taken against it, determining first the prevalence of malnutrition would be useful. In this study, we aimed to determine the malnutrition and malnutrition risk prevalence and sociodemographic and medical characteristics that may be related to nutritional status in the elderly people aged 65 years and older.

Material-Method

This cross-sectional study investigated the prevalence of malnutrition in older adults living in District of Meram, Konya. The study was conducted in five Family Health Centres (FHCs) in Meram, Konya between April – June 2016. A total of 26,249 individuals who were above the age of 65 and registered with a Meram FHC comprised the target population of the study. In the study utilizing cluster-sampling technique. Each of 27 FHCs in Meram was considered as a cluster, and five of them were chosen. Sample for the study was calculated as 138 by taking malnutrition prevalence as 10%, which varies between 5% and 15% in polyclinics and society, with 95% confidence level (α=0.05), 5% deviation and setting power of the test to 80% (9). Since a cluster sampling method was used in the study and the design effect was taken to be 2, the final sample size was 276. The number of individuals to be included in the study from the chosen FHCs was determined by weighting the number of individuals over the age of 65 registered in each FHC. Individuals at FHCs were randomly chosen from those older than 65, and they were invited to FHCs by phone call. Individuals were invited to FHC by phone until the number of samples was reached. A questionnaire about socio-demographical information and medical history was sent to

the participants. Questions were prepared by the researcher to include those formulated from a literature search, and questions from the Mini Nutritional Assessment (MNA), Geriatric Depression Scale (GDS) and the Mini Mental Test (MMT). The MNA included six screening questions (questions A-F), and these constituted the 14-point MNA-Short Form (MNA-SF). These questions were related to a patient's food intake, weight loss, mobility, psychological stress or acute disease, depression status or memory disorders (dementia). Questions in the second part were narrative responses about residence, drug use, pressure sores or presence of skin inflammation, eating habits, protein and fluid intake, nutrition and health status and some anthropometric measurements. The total score obtained from two sections was the final MNA score, with <17 regarded as malnutrition, 17–23.5 risk of malnutrition and >23.5 adequate nutrition (10). The GDS was proposed by Yesevage et al. (1983), and its validity and reliability in Turkish society (test-retest reliability, r=0.77, internal consistency a=0.92) were studied by Turan Ertan (11). GDS consisted of 30 questions with self-reported responses, easily marked by elders and usually answered with 'yes' or 'no'. To score, each response leaning toward depression counted as one point. Zero to 10 points was 'no depression', 11-13 points was 'possible depression' and 14 or more was 'depression'. With a threshold of 14 for the GDS scores, its specificity approaches 100% (12).

The MMT was first published by Folstein et al. (13). In 1997, a standardised application guideline by Molley and Standish eliminated discrepancies due to the examiner, and it has been applied in this manner since then (14). Its validity and reliability study in Turkish society for the diagnosis of mild dementia was done by Güngen et al.(15). The test was not a definitive diagnostic test, but an auxiliary test at diagnosis and treatment-monitoring stages. It was also used as a screening test in epidemiological studies (16). It consisted of 11 items grouped under five main sections: orientation, recording memory, attention and computation, recall and language. With a maximum of 30 points, a score between 24 and 30 was accepted as normal, and a score below 24 implied a cognitive disorder (15). The study was approved by Necmettin Erbakan University Meram Medical Faculty Ethical committee.

Statistical analysis: Student's t-test compared the means of normally distributed variables. The Mann-Whitney U Test was used for variables that were ordinal and not normally distributed. The chi-square test assessed the categorical variables. The variables that were significant after chi-square analysis to determine risk factors related to malnutrition and malnutrition risk were analysed with logistic regression. In examining the relationships between the MNA and GDS scores and between the MNA and MMT scores, Spearman's correlation was used. For all analysis $p<0.05$ was considered statistically significant.

Results

A total of 276 individuals were included in the study. 60.9% were male (n=168), and 39.1% were female (n=108). Mean age was 71.6±5.9 years, and 91.3% had at least one chronic disease. 41.7% of the participants having at least one chronic disease had malnutrition/malnutrition risk. Two participants were living in nursing home, and all the others (274) were living in their own homes. Of the participants who were living in their own homes, 2.1% (n = 6) of the males and 7.6% of the females (n=21) were living alone. For 2.1% (n=6) of the male and 5.4% (n=15) of the female participants who were living in their own homes, a special diet (fat-free, saltless) was prepared in response to a chronic disease. Table 1 depicts the socio-demographical information.

Tablo 1: Sociodemographic characteristics of participants of research; prevalence of malnutrition among older adults, Konya, 2016.

Parameters	Erkek		Kadın		Toplam	
	n	%	n	%	n	%
Age group						
65–74	113	67.3	87	80.6	200	72.4
75–84	50	29.7	20	18.5	70	25.4
85 and above	5	3.0	1	0.9	6	2.2
Marital status						
Married	156	92.8	65	60.2	221	80.1
Single	1	0.6	2	1.8	3	1.1
Divorced	3	1.8	0	0.0	3	1.1
Widowed	8	4.8	41	38.0	49	17.7
Education						
Illiterate	4	2.4	23	21.3	27	9.7
Literate-primary school	96	57.1	67	62.0	163	59.1
Middle school-high school	43	25.6	11	10.2	54	19.6
University	25	14.9	7	6.5	32	11.6
Family type						
With elementary family	146	91.3	64	73.6	210	85.0
With married child's family	13	8.1	16	18.4	29	11.7
Other	1	0.6	7	8.0	8	3.2
Person preparing meal at home*						
Himself/herself	9	5.4	87	80.6	96	35.0
Spouse	142	85.5	5	4.6	147	53.6
Child	3	1.8	5	4.6	8	2.9
Bride	10	6.0	10	9.3	20	7.3
Other	2	1.2	1	0.9	3	1.1
Having specially prepared meal at home*						
Yes	6	3.6	15	13.9	21	7.8
No	160	96.4	93	86.1	253	92.2

**= Participants living in nursing homes were not included*

It was determined that 38.4% (n=106) had risk of malnutrition, and malnutrition was observed in 1.1% (n=3). According to nutritional status of the participants obtained by MNA, 60.5% (n=167) had adequate nutrition. Table 2 shows the comparison of socio-demographical characteristics and malnutrition status of participants.

Tablo 2: Nutritional status of participants according to several sociodemographic characteristics of prevalence of malnutrition among older adults, Konya, 2016.

Parameters	GNS[1]		M[2], MR[3]		Total		χ^2	p
	n	%	n	%	n	%		
Gender								
Female	52	48.1	56	51.9*	108	100.0	11.34	**<0.001**
Male	115	68.5	53	31.5	168	100.0		
Age group								
65–74	123	61.5	77	38.5	200	100.0	0.30	0.584
75 and above	44	57.9	32	42.1	76	100.0		
Marital status								
Married	145	65.6	76	34.4	221	100.0	12.08	**<0.001**
Not married	22	40.0	33	60.0*	55	100.0		
Educational background								
Illiterate	14	51.9	13	48.1	27	100.0	10.32	**0.016**
Literate-primary school	89	54.6	74	45.4	163	100.0		
Middle school- high school	41	75.9	13	24.1*	54	100.0		
University	23	71.9	9	28.1	32	100.0		
Having specially prepared meal at home								
Yes	17	81.0	4	19.0*	21	100.0	3.9	**0.047**
No	149	59.1	104	40.9	253	100.0		
Presence of at least one chronic disease								
Yes	147	58.3	105	41.7*	252	100.0	5.7	**0.017**
No	20	83.3	4	16.7	24	100.0		
Presence of at least one regularly used drug								
Yes	140	57.9	102	42.1*	242	100.0	5.8	**0.016**
No	27	79.4	7	20.6	34	100.0		

*[1]= Good nutritional status [2]= Malnutrition [3]= Malnutrition risk * = The group causing the difference*

Table 3 gives MNA scores, comparison with GDS and MMT scores. Between the GDS and MNA scores, moderately significant negative correlation was identified (r=-0.462, p<0.001). Between the MMT and MNA scores, a weakly significant positive correlation was found (r=0.289, p<0.001). The rate of malnutrition/malnutrition risk was 21.1% (n=23) in those who responded 'I have nutrition disorders' on the MNA. This rate was 18.3% (n=20) in participants who responded 'I do not know' and 60.5% (n=66) in those who responded 'I do not have nutrition disorders'. When nutritional status of the participants were compared according to their statements regarding nutritional disorders, a significant difference between the three groups was found (p<0.001).

Tablo 3: Nutritional status of participants according to geriatric depression scale and mini mental test scores prevalence of malnutrition among older adults, Konya, 2016.

Parameters	GNS		M, MR		Total		χ^2	p
	n	%	n	%	n	%		
Geriatric Depression Scale								
No depression	138	75.0	46	25.0	184	100.0		
Possible depression	8	53.3	7	46.7	15	100.0	52.0	**<0.001**
Depression	21	27.3	56	72.7*	77	100.0		
Presence of cognitive disorder according to Mini Mental Test								
Yes	17	31.5	37	68.5*	54	100.0	23.6	**<0.001**
No	150	67.6	72	32.4	222	100.0		

**= The group causing the difference*

The variables that influenced nutritional status by chi-square analysis were analyzed with logistic regression (Table 4).

Tablo 4: Risk factors affecting the nutritional status of participants prevalence of malnutrition among older adults, Konya, 2016.

Factors	β	p	Exp(β)	95%CI*
Gender (being female)	0.73	**0.017**	2.1	1.1–3.8
Having chronic disease	1.75	**0.007**	5.7	1.6–20.2
Possible depression	0.8	**0.206**	2.2	0.6–7.3
Depression**	2.1	**<0.001**	7.9	3.9–15.8
Cognitive disorder***	1.2	**0.002**	3.2	1.5–6.7
Having dpecially prepared meal	1.9	**0.005**	6.4	1.7–23.8
Constant	–4.9			

**= Confidence Interval*
***= Reference group having depression*
** **= Reference group having cognitive disorder*

It was found that being female increased malnutrition/malnutrition risk by a factor of 2.1 (p=0.017, 95% CI: 1.14-3.8), having at least one chronic disease by 5.75 (p=0.007, %95CI: 1.6-20.3), having depression by 7.9 (p<0.001, 95% CI: 3.9-15.8), having cognitive disorder by 3.2 (p=0.002, 95% CI: 1.5-6.7) and not having specially prepared diet at home by 6.4 (p=0.005, 95% CI: 1.7-23.8). It was determined that this model predicted malnutrition and malnutrition risk with 74.8% accuracy.

Discussion

In this study of older adults living independently in society in Meram, Konya, the rate of malnutrition is found to be 1.1% and malnutrition risk is 38.4%.Malnutrition prevalence found in this study was lower than the ones found in other studies done in Turkey and in the world. The reason for that might be that majority of the elderly in this study live with their family. In a study conducted on the elderly living in nursing

homes in Turkey in 2019, malnutrition rate was found to be 8.4% and malnutrition risk to be 37.0% (17). In another study, malnutrition risk rate was found as 50.2% (18).

In studies conducted in the past, in elders living independently in society, the rate of malnutrition was 1.3-7.8% and malnutrition risk was 26.5-76.0% as assessed by the MNA-Short Form (19, 20, 21). In our study, the full MNA form is used. In many studies conducted on elders who live independently in the community, stay in hospital and live in nursing homes, malnutrition has been seen more frequently in women than men (19, 22, 23). Conversely, there are studies showing no significant difference in frequency of malnutrition according to gender (24-27). In this study, the rates of malnutrition and malnutrition risk are significantly higher in women than in men. Interestingly, having a higher education level positively affects nutritional status. Elders with a good educational background are thought to be more informed about their illnesses and diet (22, 28). In our study, the rates of malnutrition and malnutrition risk are significantly lower in participants who are secondary or high school graduates than in the other groups. Malnutrition is a commonly seen problem in individuals with chronic illnesses, and the main reason for malnutrition in developed countries is disease. Diseases cause malnutrition or intensify it (29). Alternatively, improving nutritional status may prevent or decrease most of the illnesses that affect elders (30). In our study, 91.3% of the participants have at least one chronic disease, and rates of malnutrition and malnutrition risk are significantly higher in participants having at least one chronic disease than in participants who do not have any chronic diseases. It is known that depression is an important cause of weight loss in ambulant (7) and institutionalized patients (31). In patients with depression, causes of malnutrition are most likely anorexia, self-care inadequacy, apathy and physical weakness. Balci et al. (32) assessed 101 elders living independently using the MNA and the GDS and found depression in 7.9% of the elders, possible depression in 45.5% and a moderate negative correlation between the MNA and GDS scores (r=-0,464) (p<0,001). In our study, when the participants were asked their present illnesses, 13 participants only (4.7%) stated that they have depression. Nonetheless, according to the GDS used in the study, possible depression is found in 5.4% of participants, and depression is found in 27.9%. In accordance with statements of participants and the GDS scores, the rates of malnutrition and malnutrition risk are found to be significantly higher in participants who have depression than in those who do not. Moreover, a moderately significant negative correlation is found between GDS and MNA scores. Ülger et al. (23) determined that rates of malnutrition and malnutrition risk according to MNA were significantly higher in individuals with a cognitive disorder (37.3%) according to MMT than in individuals without cognitive disorders (27.0%) (p<0,001). In our study 19.6% of the participants have a cognitive disorders according to MMT.The rate of malnutrition and malnutrition risk are significantly higher in participants with cognitive disorders than in those without cognitive disorders. In addition, between the MMT and MNA scores of participants, a weakly significant positive correlation is found. In our study, possible risk factors that affect nutritional status are analyzed with logistic regression. After the analysis, risk factors for malnutrition/malnutrition risk are found that; being female, having at least one chronic disease, having depression, having a cognitive disorder and not having specially prepared diet at home.

Conclusion and Recommendation

In two fifth of the participants, malnutrition and malnutrition risk are found. Screening programs should be devised to find out malnutrition in elderly population.

In elderly people, depression frequency according to GDS is found to be quite higher than the frequency calculated according to their own statements. The awareness of elderly people regarding depression should be increased. Mood of patients who apply to healthcare organizations for various reasons should be evaluated with a few questions.

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