

Quality of Life in Geriatric Individuals with and without Swallowing Complaints

Yutma Şikâyeti Olan ve Olmayan Geriatrik Bireylerde Yaşam Kalitesi

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ABSTRACT Objective: The aim of this study was to evaluate quality of life (QOL) in elderly individuals with or without swallowing difficulties. **Material and Methods:** A total of 195 participants with (main group, n=112) and without (reference group, n=83) complaints of swallowing difficulties were included in the study. The Eating Assessment Tool (T-EAT-10) and The Quality of Life Scale in Older People (CASP-19) were administered to the participants. There are two sub-dimensions in CASP-19: Perception of Autonomy and Satisfaction (Factor 1) and Perception of Obstacles (Factor 2). **Results:** The average age of participants in the main group is 70.78±5.286, while in the reference group, it is 72.25±7.583. The main and reference groups had similar demographic and clinical characteristics (p>0.05). The mean T-EAT-10 score for the main group was 6.80±6.130, while it was 0.51±0.787 in the reference group (t=10.753, p<0.001). A statistically significant difference was found between the CASP-19 main group (20.51±8.282) and reference group (23.55±8.090) (t=2.564, p=0.011). A correlation analysis revealed a weak, negative statistical correlation between T-EAT-10 and the CASP-19 subscale, Factor 1 (r=-0.211, p=0.025), Factor 2 (r=-0.222, p=0.019), and the CASP-19Total (r=-0.237, p=0.012). **Conclusion:** In this study, it was determined that geriatric individuals with complaints of swallowing difficulty have a lower quality of life compared to those without such complaints. The overall quality of life decreased as the severity of dysphagia increased. It is recommended that dysphagia screening be increased in geriatric individuals and longitudinal follow-up studies be conducted in larger populations.

ÖZET Amaç: Yutma güçlüğü şikâyeti olan veya olmayan geriatrik bireylerin yaşam kalitesini değerlendirmektir. **Gereç ve Yöntemler:** Yutma güçlüğü şikâyeti olan (ana grup, n=112) ve olmayan (referans grup, n=83) toplam 195 katılımcı çalışmaya dâhil edilmiştir. Katılımcılara Yeme Değerlendirme Aracı [The Eating Assessment Tool (T-EAT-10)] ve Yaşlı Bireylerde Yaşam Kalitesi Ölçeği [The Quality of Life Scale in Older People (CASP-19)] uygulanmıştır. CASP-19'da Özerklik ve Doyum Algısı (Faktör 1) ve Engel Algısı (Faktör 2) olmak üzere 2 alt boyut vardır. **Bulgular:** Ana gruptaki katılımcıların ortalama yaşı 70,78±5,286 iken referans grubunda bu değer 72,25±7,583'tür. Ana ve referans grupları demografik ve klinik özelliklerde benzerlik göstermiştir (p>0,05). Ana grubun ortalama T-EAT-10 puanı 6,80±6,130 iken referans grubunda bu puan 0,51±0,787 olarak bulunmuştur (t=10,753, p<0,001). CASP-19 ana grup (20,51±8,282) ve referans grubu (23,55±8,090) arasında istatistiksel olarak anlamlı bir fark vardır (t=2,564, p=0,011). Korelasyon analizi sonucunda, T-EAT-10 ile CASP-19 alt boyutları Faktör 1 (r=-0,211, p=0,025), Faktör 2 (r=-0,222, p=0,019) ve CASP-19 toplam (r=-0,237, p=0,012) arasında zayıf ve negatif yönlü istatistiksel olarak anlamlı bir ilişki vardır. **Sonuç:** Bu çalışmada, yutma güçlüğü şikâyeti olan geriatrik bireylerin, yutma şikâyeti olmayanlara göre daha düşük yaşam kalitesine sahip olduğu belirlenmiştir. Disfaji şiddeti arttıkça yaşam kalitesinin düştüğü tespit edilmiştir. Geriatrik bireylerde disfaji taramalarının artırılması ve daha geniş popülasyonlarda uzunlamasına takip çalışmalarının yapılması önerilmektedir.

Keywords: Deglutition disorders; quality of life; geriatrics

Anahtar Kelimeler: Yutma bozuklukları; yaşam kalitesi; geriatri

People worldwide are living longer. Today, most people can expect to live into their sixties and beyond. By 2030, it is estimated that one in every

6 people worldwide will be aged 60 and over.¹ A similar situation is observed in Türkiye as well. The proportion of the population aged 65 years and over

TO CITE THIS ARTICLE:

Arslan Sarımeahmetoğlu E, Küçükdemirci Ö, Gonen Şentürk S. Quality of Life in Geriatric Individuals with and without Swallowing Complaints. Journal of Ear Nose Throat and Head Neck Surgery, 2025;33(2):55-62.

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Peer review under responsibility of Journal of Ear Nose Throat and Head Neck Surgery.

Received: 08 Nov 2024

Received in revised form: 03 Dec 2024

Accepted: 04 Dec 2024

Available online: 12 Dec 2024

1307-7384 / Journal of Ear Nose Throat and Head Neck Surgery is the official publication of the Ear Nose Throat and Head Neck Surgery Society. Production and hosting by Türkiye Klinikleri.

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increased from 8.8% in 2018 to 10.2% in 2023.² The increase in the elderly population indicates that individuals in this group will have a greater presence in the healthcare system, and their issues will take on greater prominence.¹ Aging induces numerous tissue and organ changes. One of these changes is swallowing difficulty, which is a concerning issue for the elderly population.³ Dysphagia, a common challenge encountered in the aging population, is influenced by subtle physiological alterations in swallow function associated with advancing age.^{4,5} During the aging process, several anatomical and physiological changes occur that affect eating and swallowing function, such as ossification of the hyoid bone, thyroid, and cricoid cartilages, atrophy of intrinsic laryngeal muscles, dehydration of the laryngeal mucosa, loss of elasticity in the laryngeal ligaments, reduced biting force and tongue muscle activity, decreased salivary flow rate, reduced number of teeth, and a decline in orosensory receptors.⁶⁻¹² Additionally, the literature reports that although swallowing difficulty is a common symptom in the elderly population, they rarely complain about it spontaneously.¹³⁻¹⁵ Dysphagia can be anatomically categorized into oropharyngeal or esophageal types.¹⁶ Oropharyngeal dysphagia refers to the start of the swallowing process, specifically the transit of a food bolus from the oral to the hypopharynx to the esophagus. On the other hand, esophageal dysphagia originates within the esophageal body, and it is associated with challenges in propelling food toward the stomach. The genesis of dysphagia may be attributed to either mechanical impediments or disruptions in motor function within the alimentary passage.^{3,17} Dysphagia is identified in approximately 2% to 4% of the entire population; however, its incidence increases with age, reaching up to 15%.¹⁸⁻²⁰ Among individuals receiving home care services, the prevalence of dysphagia rises substantially to 68%.²⁰⁻²² As a result, effective treatment may not be provided systematically and timely, leading to potential complications such as aspiration pneumonia, respiratory tract infections, etc. To provide better service to this patient group, healthcare professionals should question the exist-

tence of dysphagia and have sufficient knowledge about the processes and physiology of dysphagia.^{23,24} In recent years, clinical swallowing assessments have predominantly incorporated quality of life (QoL) evaluations and patient-centered questionnaires. Notably, among these assessments are the Eating Assessment Tool (T-EAT-10), the Sydney Swallow Questionnaire, and the Swallow Quality of Life Questionnaire, which are frequently employed tools in the context of swallowing evaluation.²⁵⁻²⁷ The T-EAT-10, in particular, exhibits distinct advantages relative to other questionnaires, characterized by its simplicity, ease of scoring, and broad applicability across a spectrum of swallowing disorders. Although the T-EAT-10 is a symptom questionnaire, it has demonstrated predictive capabilities for objective evidence of swallowing dysfunction in determining baseline dysphagia symptom severity and determining treatment efficacy. Furthermore, previous studies have identified the capacity of T-EAT-10 to predict aspiration risk, thereby substantiating its clinical efficacy.^{28,29} The T-EAT-10 demonstrated high internal consistency and criterion-related validity. A score of 3 or higher on the T-EAT-10 indicates an abnormal condition in the individual, warranting further clinical investigation.^{28,30} In 2016, Demir et al. confirmed the validity and reliability of the T-EAT-10 test in Turkey and adapted it specifically for the symptomatic assessment of dysphagia.³¹ QoL is defined as “a condition of holistic physical, mental, and social well-being, extending beyond the mere absence of disease or infirmity.” Speyer et al. proposed that in quantifying patients’ present health status, it is crucial to incorporate a rigorously validated QoL measure tailored to their specific health conditions.³² Several tests have been developed to assess QoL. Research involving elderly individuals has indicated that the concept of QoL extends beyond health, emphasizing the importance of assessing social conditions and functional constraints in any measurement. Among these tests, the Quality of Life Scale in Older People (CASP-19) stands out as a valid and reliable scale employed for measuring the QoL in individuals aged 65 and older.^{26,33-35} Difficulty in swallowing is an important health

problem that negatively affects the general health and well-being of individuals.^{36,37} It is known that individuals with dysphagia experience social and psychological problems related to having a swallowing disorder, and it has been emphasized that swallowing difficulty can have negative effects on QoL.³⁶ Individuals are also affected socially when swallowing disorders occur. Individual perceptions play an important role in determining how and to what extent swallowing disorders affect life.³⁸ QoL is important for individuals with swallowing difficulties. The aim of this study was to evaluate QoL levels in elderly individuals with or without swallowing difficulty complaints.

MATERIAL AND METHODS

This comparative cross-sectional research was approved by the Non-Interventional Research Ethics Committee of Çankırı Karatekin University Health Sciences (date: October 16, 2023, no: 9). The study was conducted in accordance with the principles outlined in the Declaration of Helsinki. Written permission was received from Çankırı State Hospital on November 06, 2023 (E-64943697-799-228455506). Written permission was obtained from the authors for the use of the scales. Written informed consent was obtained from all participants prior to their participation in this study.

PARTICIPANTS

The sample size was determined using G-Power software with the t-test method for two independent groups, with a significance level of 0.05 and an effect size of 0.5. The resulting sample power was 92%. There are two groups in this study. In this study, 112 elderly individuals with swallowing complaints were included in the main group, and 83 elderly individuals without swallowing difficulties were included in the reference group. Between November 15, 2023 and February 28, 2024, individuals over 65 years old admitted to the internal medicine outpatient clinics of Çankırı State Hospital, a secondary healthcare institution, were included in the study. The inclusion criteria were a lack of diagnoses, such as head and neck cancer, cerebrovascular disease, oropharyngeal or esophageal or neurological swallowing and feeding

difficulties. Randomly, individuals were asked whether they experienced difficulty swallowing. Those who answered “Yes” formed the main group, and participants without difficulty swallowing formed the reference group. The inclusion criteria for the main group are; a) having difficulty swallowing complaints, b) having received 3 points or more from the T-EAT-10, c) is being over 65 years of age. The inclusion criteria for the reference group were as follows: a) not having difficulty swallowing complaints, b) a score of less than 3 on the T-EAT-10 test, and c) age > 65 years. The exclusion criteria for both groups included diagnoses such as head and neck cancer, cerebrovascular disease, Parkinson’s disease, oropharyngeal or esophageal or neurological swallowing, psychogenic dysphagia, prolonged intubation, laryngopharyngeal reflux, and feeding difficulties. The responses of the included participants to the items on the CASP-19 scale were recorded. Participants were included on a voluntary basis.

Data Collection Tools: To gather information about the participants’ demographic characteristics, we employed survey questions developed by the researchers, along with the T-EAT-10 and the CASP-19.

T-EAT-10: The scale, which was developed by Belafsky et al. in 2008 with 10 questions and a 5-point Likert-type scale, was introduced into Turkish by Demir et al. in 2016.^{28,31} The total score derived from the scale varied between 0 and 40, with no reverse items. A score of 3 or more on the scale indicates abnormal swallowing, and as the score increases, the severity of the individual’s swallowing disorder also increases.³¹

CASP-19: This scale was developed by Hyde et al. to assess the QoL of elderly individuals. The validity and reliability of the study in the Turkish language was conducted by Türkoğlu and Adıbelli.^{34,35} The original scale comprises 19 items and 4 subscales (“Control”, “Autonomy”, “Pleasure”, “Self-realization”).³⁴ The version adapted for use in our country includes 13 items and two subscales: Perception of Autonomy and Satisfaction (Factor 1) and Perception of Obstacle (Factor 2).³⁵ This scale is a 4-point Likert scale. Certain items in the scale are reverse-coded, and the scores for scale items range from 0 to 3

points. An increase in the total score indicates an improvement in QoL.³⁵

DATA ANALYSES

The statistical evaluation was performed using the SPSS Statistics software package (Version 26.0, IBM, USA). Numerical variables were reported as mean±standard deviation, accompanied by minimum and maximum values, as well as frequencies and percentages. The distribution of variables was assessed using the Kolmogorov-Smirnov test, a statistical method. Parametric test analyses were performed for normally distributed data, with an independent Simple t-test used to compare two independent groups. Pearson's correlation analysis was chosen due to the normal distribution of the data. An overall p value of less than 0.05 was considered statistically significant.

RESULTS

A total of 195 participants with (main group, n=112) and without (reference group, n=83) complaints of swallowing difficulties were included in the study. The main and reference groups were similar in terms of demographic and clinical characteristics ($p>0.05$). The average T-EAT-10 score for the group with perceived dysphagia is 6.80 ± 6.130 , while the average score for the group without perceived dysphagia is 0.51 ± 0.787 ($t=10.753$, $p\leq 0.001$). For those with perceived dysphagia, the average age is 70.78 ± 5.286 (min=65, max=90), with 52.7% being female, 88.4% married, 58.9% having equal income, 51.8% being primary school graduates, and a body mass index (BMI) of 27.68 ± 4.46 . Additionally, 49.1% of the participants lived with their spouses, and 24.1% stated that their swallowing problem negatively affected

their QoL, leading to stress and anxiety. Comparatively, individuals without perceived dysphagia had an average age of 72.25 ± 7.583 (min=65, max=97), with 54.2% being female, 91.6% married, 72.3% having equal income, 47% being primary school graduates, and a BMI of 28.18 ± 4.67 . Moreover, 79.5% of the respondents lived with their spouses (Table 1).

TABLE 1: Demographic characteristics of the participants.

Variable			Group		p value
			Main Group	Reference Group	
Sex	Female	n	59	45	0.831
		%	52.7	54.2	
	Male	n	53	38	
		%	47.3	45.8	
Marital status	Single	n	13	7	0.629
		%	11.6	8.4	
	Married	n	99	76	
		%	88.4	91.6	
Income level	Low	n	8	5	0.525
		%	7.1	6	
	Equal	n	66	60	
		%	58.9	72.3	
	Excess	n	38	18	
		%	33.9	21.7	
Education level	Primary school	n	58	39	0.549
		%	51.8	47.0	
	Middle school	n	20	13	
		%	17.9	15.7	
	High school	n	17	18	
		%	13.4	21.7	
	Associate degree	n	2	2	
		%	1.8	2.4	
Bachelor	n	15	11		
	%	15.1	13.3		

TABLE 2: Comparison of CASP-19 results between groups.

Index	Group	n	$\bar{X}\pm SD$	Test value	p value
Factor 1	Main group	112	15.68±6.854	3.671 ^a	0.001 ^{**}
	Reference group	83	19.52±7.691		
Factor 2	Main group	112	4.83±2.332	-2.382 ^a	0.018 [*]
	Reference group	83	4.04±2.260		
CASP-19Total	Main group	112	20.51±8.282	2.564 ^a	0.011 [*]
	Reference group	83	23.55±8.090		

CASP-19: The Quality of Life Scale in Older People; SD: Standard deviation; ^aIndependent t-test; ^{*} $p\leq 0.05$; ^{**} $p\leq 0.005$.

TABLE 3: Correlation of EAT-10 and CASP-19 results of main group participants.

Variables	n	EAT-10	
		R	p value
Factor 1	112	r=-0.211	0.025*
Factor 2	112	r=-0.222	0.019*
CASP-19 _{Total}	112	r=-0.237	0.012*

EAT-10: The Eating Assessment Tool; CASP-19: The Quality of Life Scale in Older People; Pearson correlation test; *p≤0.05.

A statistically significant difference was found in the comparison of CAPS-19 score averages between the main and reference groups ($p \leq 0.05$). This difference was evident in the mean scores of both the Factor 1 ($p \leq 0.001$) and Factor 2 ($p = 0.018$) subscale and the overall CASP-19_{Total} score ($p = 0.011$) (Table 2).

There was a significant correlation between the mean T-EAT-10 scores of the main group and both the subscale and total scores of CASP-19 ($p \leq 0.05$). A statistically significant relationship was found between T-EAT-10 and Factor 1 ($r = -0.211$), Factor 2 ($r = -0.222$) and CASP-19_{Total} score ($r = -0.237$). These findings indicate that as the severity of dysphagia increases, there is a corresponding decrease in the overall QoL (Table 3).

DISCUSSION

Dysphagia is prevalent among the elderly, affecting approximately one-third of community-dwelling geriatric individuals, nearly half of geriatric patients, and over half of those residing in nursing homes.^{13,39,40} Anatomical and physiological changes associated with aging affect the biomechanics of movement and overall swallowing function.⁴¹ Some normal changes occurring during the aging process can lead to difficulty swallowing. The susceptibility of geriatric individuals to oropharyngeal dysphagia (OD) is influenced by various factors, including a decline in cortical plasticity, sensory capacity, olfactory and taste senses, dental status, muscle function, saliva and tissue elasticity, as well as skeletal changes.^{6,7,10-13,42-44} These changes in swallowing functions are particularly critical for elderly individuals who experience involuntary weight loss. In addition to changes in eating and swallowing functions, tooth loss and chewing fatigue lead elderly individuals to prefer soft foods.¹²

While limiting food options may reduce the risk of choking, it can negatively affect the QoL of elderly individuals. In addition to the nutritional issues caused by dysphagia, complications such as dehydration, aspiration pneumonia, weakness, and involuntary weight loss may occur.²⁰

In our study, we questioned the QoL of patients over 65 years of age who applied to the outpatient clinic for reasons other than dysphagia according to the complaint of difficulty swallowing. CASP-19 was applied to the participants who met the study inclusion criteria according to the T-EAT-10 scale and the cut-off score in the elderly with and without difficulty swallowing for the assessment of QoL. The current study showed that geriatric participants with dysphagia had poorer QoL outcomes than those without dysphagia. Furthermore, a significant association was observed between T-EAT-10 scores and the CASP-19 subscale and total outcomes in elderly patients with dysphagia. Participants with dysphagia were referred to a higher-level hospital facility.

The global average life expectancy was 73.4 years in 2019, which was 66.8 years in 2000. This expectancy has shown an upward trend over time. Projections indicate a further escalation in this figure by 2050, when approximately one-sixth of the global population will be 65 years or older.^{45,46} As in the world, the elderly population in our country is increasing daily. The proportion of the population aged 65 years and over in the total population increased from 8.8% in 2018 to 10.2% in 2023.² This means that problems specific to geriatric individuals are given more importance. The World Health Organization, in defining the concept of QoL, includes individuals' perceptions related to their goals, expectations, and interests within the context of their cultural and value systems. QoL is defined as a broad concept that encompasses an individual's physical and psychological health, social relationships, and level of independence.^{47,48} Some factors that reduce QoL in geriatric individuals include advanced age, poor subjective health status, insufficient monthly income, lack of leisure activities, and problems with access to the health system.⁴⁹ In particular, the presence of health problems negatively affects QoL in el-

derly individuals.⁵⁰ Studies have shown that difficulty swallowing is one of the factors affecting QoL.⁵¹

None of the patients presented to the outpatient clinic with symptoms of dysphagia. During routine consultations, physicians and researchers inquired about swallowing issues in patients who did not mention any symptoms related to swallowing difficulties. From one perspective, as previously discussed in the literature, many geriatric individuals perceive swallowing problems as a part of the normal aging process.^{20,52,53} In this study, individuals who applied to outpatient clinics and did not have specific symptoms were questioned about whether they had difficulty swallowing, and those who scored three or higher on the T-EAT-10 scale were found to have lower QoL levels. In a meta-analysis conducted by Jones et al. in 2017, which examined health-related QoL (HRQoL) in OD through the evaluation of 35 studies, a bidirectional inverse relationship was identified between decreased HRQoL and increased severity of OD. Following medical interventions for oropharyngeal strictures, subsequent changes were notably evident through improvements in HRQoL and a reduction in OD severity. The findings of this article underscored the importance of targeting HRQoL in patients with OD.⁵¹ In our study group, all subcategory assessment scores of the CAPS-19 index, evaluating the QoL in geriatric individuals with a T-EAT-10 score of 3 or higher, were significantly lower compared with the reference group. Difficulty swallowing in elderly individuals has negative consequences on QoL. In these individuals, an increase in the difficulty swallowing level was related to QoL level. This study has some limitations. First, it was not possible to perform advanced examinations and diagnostic swallowing instrumental evaluations due to the lack of sufficient facilities in the hospital environment, and the second limitation was that comprehensive follow-up examinations could not be performed. The selected patient group accessible for our study comprised individuals who could visit an outpatient clinic. This restriction resulted in the exclusion of geriatric populations receiving home health care, living in nursing homes, and hospitalized or bedridden at home, especially the debilitated groups; these patients are often overlooked in clinic-based

studies due to their lack of opportunities for hospitalization and their lack of noticeable illness. Although the frail elderly group was not included, the rate was quite high. This result shows that healthcare professionals should be more careful about swallowing difficulties in the geriatric group.

CONCLUSION

In conclusion, our study was designed to assess QoL changes in the group identified as needing further investigation for dysphagia, defined by scores of three or more on the T-EAT-10 scale. Although our study did not include definitively diagnosed dysphagia patients, the results were consistent with literature findings showing a decline in QoL among geriatric individuals diagnosed with OD. Complaints related to difficulty swallowing are reflected in the individual's QoL. It is believed that early intervention may affect increasing the severity of difficulty swallowing complaints and without increasing the negative effects on QoL. In geriatric patients with complaints of difficulty swallowing, screening for specific swallowing disorders should be performed through a combination of examination and potentially instrumental assessment. Future studies evaluating the results of patients who underwent the T-EAT-10 index will contribute significantly to the literature. Future studies are recommended to increase awareness and screening of swallowing difficulties in geriatric individuals and to conduct longitudinal follow-up studies in larger populations.

Acknowledgements

As the authors, we would like to thank all participants and supporting healthcare professionals.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise,

working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Emel Arslan Sarımeahmetođlu, Seher Gonen Őentürk; **Design:** Emel Arslan Sarımeahmetođlu, Seher Gonen Őentürk; **Control/Supervision:** Emel Arslan Sarımeahmetođlu, Seher

Gonen Őentürk; **Data Collection and/or Processing:** Emel Arslan Sarımeahmetođlu, Seher Gonen Őentürk; **Analysis and/or Interpretation:** Emel Arslan Sarımeahmetođlu; **Literature Review:** Emel Arslan Sarımeahmetođlu, Seher Gonen Őentürk, Ömer Küçükdemirci; **Writing the Article:** Emel Arslan Sarımeahmetođlu, Seher Gonen Őentürk, Ömer Küçükdemirci; **Critical Review:** Emel Arslan Sarımeahmetođlu, Seher Gonen Őentürk, Ömer Küçükdemirci.

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