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The Effect Of Respiratory Exercise In The Elderly On Quality Of Life And Anxiety

süreyya Yonca Sezer[1*], şadan Toğaçar[1], baha Engin Çelikel[2], mustafa Karadağ[2]
[1,2]Munzur University Faculty of Sports Sciences
***Corresponding author:** Süreyya Yonca Sezer, Munzur University Faculty of Sports Sciences

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ABSTRACT

As we age, various physiological issues occur in the respiratory system, as they do in many other systems throughout the body. Disruptions in the respiratory system have a significant physical, physiological, and psychological impact on humans. The purpose of this study is to see how breathing exercises affect the quality of life and anxiety levels of people living in nursing homes. A total of 50 participants (13 female and 37 male) volunteered to participate in the research group, which included 25 control and 25 experimental groups from the Elazig Gazi Nursing Home. In the study, the participants were given the "Personal Information Form" as a data collecting instrument, the "Quality of Life Scale (CASP-19)" to assess their quality of life, and the "Anxiety Disorder Test (YAB-7)" to establish their anxiety state. In addition, after the pre-tests were applied to the experimental and control groups, while the control group continued their routine life, breathing exercises were applied in the experimental group in the form of 2 sets of 15 minutes, 3 days a week for 8 weeks. The data were analyzed using the SPSS statistical package program. The $p<0.05$ significance level was used. According to the study's findings, there was a significant difference in the pre-post-test mean scores on the quality of life scale and generalized anxiety disorder test between the control and experimental groups, and this difference favored the experimental group. The average scores of the individuals from the overall and sub-dimensions of the scale revealed that their quality of life was modest. Based on their average scale score, it was determined that the people had mild anxiety. There was no statistically significant difference between age, education status, marital status, duration of stay in nursing home, quality of life, and anxiety pretest-posttest outcomes ($p>0.05$) in the research group. Finally, it was established that the research group's quality of life was moderate, their anxiety levels were modest, and the breathing exercises used on the participants had a favorable influence on their quality of life and anxiety. In light of this knowledge, we feel that frequent workouts done by specialists will contribute favorably to persons' healthy quality of life.

Keywords: *Agedness, Respiratory Exercises, Quality of Life, Anxiety*

INTRODUCTION

In the twentieth century, an expansion in general health care, along with scientific advances owing to technological growth, boosted average life expectancy and led to an increase in the share of the world's senior population. When census and study data are compared, it is clear that the number of old people has grown. In 1950, there were 200 million persons over the age of 60 in the globe; by 2000, this figure had risen to 400 million. According to projections, the world's population will reach 8.9 billion in 2050, with an additional 2 billion old people.

It is estimated that by 2050, the number of elderly people will constitute 22% of the number of people in the world. While one out of every 7 people is old in developed countries, it is thought that this number will be one out of every 4 people in 2030 (Ekşioğlu,2016).

There are differences in functional returns in more than one organ and organ system, temporary diseases are experienced much more severely and the recovery period is prolonged, the ability to continue life without needing anyone decreases, and the capacity to adapt to changes in the environment decreases in old age (Kırdı and Kocaman, 2019). Agedness and aging are two concepts with different meanings that are often used interchangeably. Aging is defined as the process of aging across a person's life span. Aging is a natural and inevitable condition that begins with birth and ends with death. The World Health Organization (WHO) has described aging as "the decrease in the ability to adapt to changing environmental conditions". WHO accepted the age of 60 as the lower limit age for old age in the 1970s. The United Nations (UN) also takes into account the age of 60 and over for the elderly, yet in many studies on aging, the age limit of WHO is 65 years old (Söylemez, 2020).

The elderly were esteemed in ancient cultures based on the society's way of life. If the society is nomadic, the old are not appreciated since they require care and slow down the nomadic civilization's pace. While the old who lead life and have religious and magical knowledge have a prestige in various communities, the elderly who do not have these qualities are not regarded (Yıldız, 2013). The most significant distinction in population structure in Turkey is the age-related shift in the population. In Turkey, where young people constitute the bulk of the population, the old population will progressively outnumber the youthful population (Şahin, 2014, Duman and Yurtseven 2021,Özdemir et al.2018). Quality of life and metabolic changes occur in the organism as people age. Changes in the respiratory system are one of these changes, as are changes in people's quality of life. Changes in the respiratory system as we age; this includes anatomical changes in the thorax and lung tissue, aberrant findings in lung function tests, worsening in lung aeration and gas exchange, decreased exercise capacity, and decreasing effective respiratory muscle strength. Because respiratory muscle strength declines with age in the elderly, respiratory effort increases and exhaustion occurs in the respiratory muscles, reducing the influence of the chest wall and diaphragm on breathing. Respiratory system infections also produce physiological alterations in the aged respiratory system. People over the age of 65 are more vulnerable to respiratory tract infections due to weakened immune systems against viruses such as influenza and streptococcus pneumoniae. As a result, immunization of the elderly against such infectious illnesses is critical for their quality of life (Agar, 2020).

Quality of life encompasses numerous aspects of life and a wide range of values that vary from person to person. Quality of life parameters include physical and material well-being, satisfaction in activities that lead to social participation, leisure time activities, psychological state, functional capacity, emotional and spiritual well-being, satisfaction in family and friend relationships, and adaptation to the future. As a result of all of these variables, assessment instruments that determine an individual's quality of life have lately acquired prominence. (Türkoğlu and Adıbelli, 2014; Erdoğan et al., 2021). In addition to the quality of life in individuals with advancing age, another important health indicator is the state of anxiety. A condition that occurs almost daily in individuals for at least 6 months, accompanied by symptoms such as excessive anxiety and feeling depressed during many situations or activities, difficulty controlling one's grief, restlessness, fatigue, difficulty concentrating, irritation, muscle tension, and sleep disorders. Generalized anxiety disorder (Konkan et al., 2011) is the term for this condition. Elimination of these difficulties that have a negative impact on the quality of life, while taking into consideration the physical and physiological features of the person, would aid in the resolution of these issues (Sarıkol and Erdogan, 2023). Breathing exercises, "Prunken Lip Breathing, Diaphragmatic, Respiratory, Deep Breathing," to strengthen the functions of people with chronic respiratory diseases, increase their quality of life, increase their participation in social and physical activities, minimize lung-related problems, and medical recovery (TTD, 2019; Ince and Sarpel, 2006). Studies on the influence of breathing exercises on quality of life in the elderly have received little attention. The purpose of this study was to see how breathing exercises affected the quality of life and anxiety in older people.

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METHOD

Ethics committee approval was assembled from the Munzur University Non-Interventional Ethics Committee (28.12.2021 dated and 37659 number).

Research Model

Experimental model was utilized in the research. Experimental model; It is the field of study where the data desired to be seen is created in order to determine the cause-effect relationships depending on the variables under the control of the person doing the study. There is always a comparison in every study with this model. This comparison can be in the form of changes within a situation or comparing the differences between situations. The effect of the experimental dependent variable from the independent variables comes up by the formation of systemic changes in the conditions kept under control and observing the results (Karasar, 2005).

Research Group

The population of the research is 85 elderly individuals living in Gazi Nursing Home Elderly Care and Rehabilitation Center in Elazig province, and the sample is 50 people (13 Female, 37 Male) voluntarily, including 25 control and 25 experimental groups. While determining the people who will take part in the research, attention was paid to ensure that the study to be carried out consists of people with high cooperation that will supply high benefits to the individual.

Control Group (n:25)

They continued their routine lives without any application.

Experiment Group (n:25)

Before beginning the research, the participants in this group were included in the programs in groups of 5, and the exercises they would do were transferred to the program and included in the research.

Exercise Program

Participants in the study's control group were given a breathing exercise routine consisting of two sets of 15 minutes each day, three days a week for eight weeks. Before beginning the exercises, 5-10 minutes of shoulder and neck relaxation were conducted, followed by pursed lip breathing, diaphragm breathing, and deep breathing in the main portion of the exercise, and stretching activities at the end of the exercise program. The workout regimen began with three repetitions and was gradually raised to ten repetitions over the next few weeks, with a two-minute rest interval between each exercise.

Data Collection Tools

The survey utilized in the research consists of two parts, and in the first part, the "Personal Information Form" to determine the demographic information of the participants, the "Quality of Life Scale (CASP-19)" developed by Hyde et al., (2003) to determine the quality of life of the participants, and the Spitzer The Anxiety Disorder Test (YAD-7) developed by Konkan et al., (2011) and adapted to Turkish by Konkan et al., (2006) was managed to the participants.

Personal Infırmation Form

Age, gender, educational status, marital status, chronic illness and length of stay in the nursing home are included.

Quality of Life Scale on Old Aged People (CASP-19)

The scale was improved by Hyde et al. in 2003 to evaluate the quality of life of the elderly, and it is a four-point Likert-type Scale consisting of 19 items and four sub-categories. Each item in the original scale is a 4-point Likert-type scale, ranging from “never” (0 points) to “always” (3 points). Items 1, 2, 4, 6, 8, 9 are reverse coded. The scores of the items in the scale are between 0-3 points. A high total score indicates a high quality of life. Cronbach's alpha values of each sub-dimension were found to be in the range of 0.59-0.77 by Hyde et al. (Türkoğlu & Adıbelli, 2014).

Control sub dimension

Consisting of 6 items, this sub-dimension consists of “1, 2, 3, 4, 5, 6” items.

Autonomy sub dimension
Consisting of 5 items, this sub-dimension consists of "7, 8, 9, 10 11" items.

Pleasure sub dimension
Consisting of 4 items, this sub-dimension consists of "12, 13, 14, 15" items.

Self realization sub dimension
Consisting of 4 items, this sub-dimension consists of "16, 17, 18, 19" items..

Generalized Anxiety Disorder Test (GAD-7)
The Generalized Anxiety Disorder test-7 (GAD-7) is a 7-item four-point Likert-type scale. It is a test developed by Spitzer et al., (2006) from DSM-IV-TR criteria, filled with brief self-report, and used to evaluate generalized anxiety disorder. It is a 4-point scale (0=never, 1=many days, 2=more than half of the days, 3=almost every day), which evaluates the responses of individuals to the scale items in the last 2 weeks, with 7 items. 5, 10, and 15 points from the scores obtained through the scale are the limit points in the mild, moderate and severe anxiety rating (Konkan et al., 2011).

Analysis of Data
The SPSS statistical package tool was used to examine the data. Demographic information, quality of life, and anxiety level of research participants were summarized using "percentage, frequency, arithmetic mean, and standard deviation techniques" as descriptive statistics. Following data normality analysis, the Independent "Samples t" test for binary variables was employed to assess three or more variables in in-group comparisons. The "One-Way ANOVA" test was employed. The level for significance was set at p 0.05.

FINDINGS

TABLE 1: Demographical Information of Research Group

Demographic Information (n=50)		Number	%
Gender	Kadın	13	26
	Erkek	37	74
	60-70 years old	12	24
	71-80 years old	25	50
Age	81-90 years old	11	22
	91-100 years old	2	4
	Illiterate	13	26
	Literate	4	8
Education Status	Primary-Secondary	20	40
	High School	9	18
	University	4	8
	Married	3	6
	Single	3	6
Marital Status	Divorced	13	26
	Seperation	5	10
	Widowed	26	52
	Yes	40	80
Chronic Illness Status	No	10	20
	Lesss than 6	9	18
Stayin Duration in Nursing House	6 months-1 year	7	14
	1-2 years	3	6
	2-5 years	14	28

	5-10 years	8	16
	10 years and over	9	18

When Table 1 is assessed, when the demographic characteristics of the participants in the research are examined, it is seen that 26% of the 50 participants are female and 74% are male. 24% of the elderly are 60-70 years old, 50% are 71-80 years old, 22% are 81-90 years old, and 4% are 91-100 years old. 26% of the participants were illiterate, 8% were literate, 40% were primary school-secondary school graduates, 18% were high school graduates and 8% were university graduates. In addition, 6% of the elderly are married, 6% are single, 26% are divorced, 10% are living separately, and 52% are widowed. While 80% have a chronic illness, 20% have a chronic illness. there is none. Moreover, 18% (less than 6 months), 14% (6 months-1 year), 6% (1-2 years), 28% (2-5 years), 16% (5 years) -10 years), 18% (10 years and above) were in nursing homes.

TABLE 2: Life Quality Scale (CASP-19) and Sub Dimensions Score Averages

Life Qualtiy Scal in Old People (CASP-19)		**CASP-19 Pretest**			**CASP-19 Posttest**		
	Scale and Sub-Dimensions	**Min.**	**Max.**	**Mean.± S.D.**	**Min.**	**Max.**	**Mean.± S.D.**
	Control	5.0	18.0	10.9±3.5	6.0	12.0	18.0±3.4
	Autonomy	3.0	15.0	9.4±2.7	3.0	15.0	10.2±2.9
	Pleasure	2.0	12.0	7.2±2.4	2.0	12.0	8.0±2.4
	Self Realization	2.0	26.0	7.2±4.0	2.0	12.0	7.6±2.8
	Total	16.0	52.0	34.9±9.9	16.0	53.0	38.0±9.8

When the pre-test and post-test mean scores of the individuals in the sub-dimensions of control, autonomy, pleasure and self-actualization are examined in Table 2; The highest scores in the CASP-19 pre-test and post-test were in the control sub-dimension (10.9±3.5) and (18.0±3.4); the lowest mean score was seen in the pleasure sub-dimension in the pre-test (7.2±2.4) and in the self-actualization sub-dimension with a score of (7.6±2.8) in the post-test.

TABLE 3: Research Group's Quality of Life Scale (CASP-19) Pretest-Posttest-Differential Score Independent Groups t-Test Averages

		Mean.±sd	t	P
Pre test Score Averages	Control Group	34.2±10.7	0.492	0.625
	Experiment Group	35.6±9.3		
Post Test Score Averages	Control Group	33.4±10.3	3.66	0.001*
	Experiment Group	42.5±10.8		
Difference Score Averages	Control Group	-0.72±4.2	6.65	0.000*
	Experiment Group	6.9±3.8		

*p<0,05

In accordance with Table 3, it was determined that the pre-test mean scores of the control and experimental groups according to CASP-19 were found to be 34.2±10.7 and 35.6±9.3, respectively, and there was no statistically significant difference between the control and experimental groups (t=0.492,p=0.625). >0.05). It was observed that the total post-test mean scores of the control and experimental groups according to CASP-19 were 33.4±10.3 and 42.5±10.8, respectively, and there was a statistically significant difference between the control and experimental groups (t=3.66,p=0.001<0.05).). It was observed that the mean pretest-posttest difference scores of the control and experimental groups were -0.72±4.2 and 6.9±3.8, and there was a statistical difference between the control and experimental groups (t=-3.300, p=0.000<0.05), and this difference was found in the experimental group appears to be in favor of the research.

TABLE 4: Research Group's Generalized Anxiety Disorder Test (GAD-7) Pretest-Posttest-Differential Score Independent Groups t-Test Averages

		Mean.±S.D.	t	P
Pre Test Score Averages	Control Group	3.8.±2.8	2.55	0.014*
	Experiment Group	6.1±3.3		
Post Test Score Averages	Control Group	3.4±2.6	-2.81	0.007*
	Experiment Group	1.7±1.7		
Difference Score Averages	Control Group	-0.4±0.7	-9.02	0.00*
	Experiment Group	-4.4±2.0		

*p<0,05

When Table 4 is monitored, it was found that the pretest mean scores of the control and experimental groups according to GAD-7 were 3.8.±2.8 and 6.1±3.3, respectively, and there was a statistically significant difference between the two groups (t=2.55,p=0.014<0.05). . It was found that the post-test mean scores of the control and experimental groups according to GAD-7 were 3.4±2.6 and 1.7±1.7, respectively, and there was a statistically significant difference between the two groups (t=-2.81, p=0.007<0.05). The pretest-posttest difference mean scores of the experimental groups were -0.4±0.7 and -4.4±2.0, and a statistically significant difference was found between the two groups (t=-9.02, p=0.000<0.05.)

TABLE 5: ANOVA Results of the Pre-test-Post-Test Mean Differences in the Quality of Life Scale for the Elderly (CASP-19) by Age, Educational Status, Marital Status and Length of Stay in the Nursing Home of the Research Group

Score	**Group**	N	$\bar{x}$	SD	**Var.C.**	KT	Sd	KO	F	p
	60-70 years old	12	3.66	4.31	**Intergroup**	17.837	3	5.946	.278	.841
	71-80 years	25	3.92	4.92	**In-Group**	984.643	46	21.405		
Age	81-90 years	11	2.81	4.40	**Total**	1002.480	49			
	91-100 years	2	1.50	2.12						
	Total	50	3.52	4.52						
	Illiterate	13	2.00	4.65	**Intergroup**	58.430	4	14.608	.696	.598
	Literate	4	4.75	6.23	**In-Group**	944.050	45	20.979		
Education Status	Primary-Secondary	20	4.15	4.53	**Total**	1002.480	49			

	HighSchool	9	3.00	3.67						
	University	4	5.25	4.78						
	Total	50	3.52	4.52						
	Married	3	5.33	3.21	**Intergroup**	64.821	4	16.205	.778	.546
	Single	3	3.00	3.00	**In-Group**	937.659	45	20.837		
Marital Status	Divorced	13	2.23	4.04	**Total**	1002.480	49			
	Seperation	5	1.80	4.02						
	Widowed	26	4.34	5.05						
	Total	50	3.52	4.52						
	Less than 6 months	9	4.44	4.97	**Intergroup**	31.329	5	6.266	.284	.919
	6months - 1year	7	4.00	5.32	**In-Group**	971.151	44	22.072		
Nursing House Staying Duration	1-2 years	3	2.00	5.29	**Total**	1002.480	49			
	2-5 years	14	2.57	4.34						
	5-10 years	8	3.75	3.77						
	10 years and over	9	4.00	5.02						
	Total	50	3.52	4.52						

*p<0,05

When Table 5 is controlled, the research group; It was found that there was no statistically significant difference between age, education status, marital status, and length of stay in a nursing home, and the pre-test-post-test results of the Quality of Life Scale (CASP-19) (p>0.05).

TABLE 6: Generalized Anxiety Disorder Test (YAD-7) pretest-posttest difference mean ANOVA Results of the Research Group by Age, Educational Status, Marital Status and Length of Stay in Nursing Home

Score	**Grup**	N	x̄	SD	**Var.C.**	KT	Sd	KO	F	p
	60-70 years old	12	-2,58	2.50	**Intergroup**	8.962	3	2.987	.445	.722
	71-80 years	25	-2.68	2.82	**In-Group**	309.038	46	6.718		
Age	81-90 years	11	-1.72	2.19	**Total**	318.000	49			
	91-100 years	2	-1.50	0.70						
	Total	50	-2.40	2.54						
	Illiterate	13	-1.23		**Intergroup**	37.853	4	9.463	1.520	.212
	Literate	4	-1.75		**In-Group**	280.147	45	6.225		
Education Status	Primary-Secondary	20	-3.30		**Total**	318.000	49			
	High School	9	-2.11							
	University	4	-3.00							
	Total	50	-2.40							
	Married	3	-2.66		**Intergroup**	27.582	4	6.896	1.068	.383
	Single	3	-2.33		**In-Group**	290.418	45	6.454		
Marital	Divorced	13	-1.92		**Total**	318.000	49			
Status	Seperation	5	-.60							
	Widowed	26	-2.96							

	Total	50	-2.40							
	6aydan az	9	-3.11		**Intergroup**	23.585	5	4.717	.705	.623
	6months-1years	7	-2.57		**In-Group**	294.415	44	6.691		
Nursing House Staying Duration	1-2 years	3	-1.33		**Total**	318.000	49			
	2-5 years	14	-2.14							
	5-10 years	8	-1.37							
	10 years over	9	-3.22							
	Total	50	-2.40							

*p<0,05

When Table 6 is assessed, the research group; It was observed that there was no statistically significant difference between age, education status, marital status and length of stay in nursing home, and the pre-post test results of the Generalized Anxiety Disorder Test (GAD-7) (p>0.05).

DISCUSSION AND RESULT

According to the study's findings, there was a significant difference in the pre-post-test mean scores on the quality of life scale and generalized anxiety disorder test between the control and experimental groups, and this difference favored the experimental group. The average scores of the individuals from the overall and sub-dimensions of the scale revealed that their quality of life was modest. It was established that the individuals exhibited mild anxiety based on their average scale score. The research team; There was no statistically significant difference in the pretest-posttest results for age, education status, marital status, length of stay in nursing home, quality of life, and anxiety (p>0.05). Costra et al. (2014) discovered that pulmonary rehabilitation procedures in persons with COPD induced substantial reductions in anxiety and depression levels when the studies were reviewed. According to Yurdalan et al. (2022), music therapy improved the participants' quality of life. Taşpnar (2007) demonstrated that pulmonary rehabilitation activities lessen the degree of sadness and anxiety in people with Chronic Obstructive Pulmonary Disease (COPD). In a study conducted by Klç and Ünal (2020), 12-week yoga exercises reduced participants' depression, anxiety and fatigue, nervousness and depressive thoughts, pain, appetite and bloating, and sleep levels, physical role, physical pain, general health, vitality, and social functionality. Hamasaki (2020) examined 10 systematic and 15 randomized controlled trials to assess the impact of diaphragmatic breathing on health. Despite the fact that numerous studies have been conducted to investigate the effectiveness of breathing exercises in the treatment of asthma, postoperative pulmonary function, and cardiorespiratory performance in chronic obstructive pulmonary disease (COPD), diaphragmatic breathing has been emphasized as having an impact on other disorders such as cancer, heart failure, and anxiety. According to Gökçek et al. (2019), persons with severe COPD are more depressed than those with moderate COPD, and the quality of life of individuals decreases as the amount of dyspnea increases. Sever et al. (2019) found that eight weeks of Pursed-Lip breathing exercises improved sleep and quality of life in healthy young people while decreasing anxiety and sadness. Magnon et al. (2021) found that deep and slow breathing reduces anxiety levels in both young and old adults, and may be beneficial and effective for acute anxiety management by having a greater effect on parasympathetic activity in the elderly, and beyond that, to prevent the harmful effects of long-term anxiety effects on health. They came to the conclusion that it may be a successful technique. According to Tizar et al., (2022), the participants' attitudes toward healthy eating were moderate, and male individuals had higher attitude scores toward healthy eating than female participants. Kalaycıoglu et al., (2022) discovered that four-week home-based fitness regimens had no influence on participants' anxiety, depression, social media limits, or quality of life. Yeniçeri and Budak (2020)

discovered that workouts done with a six-week cognitive task were helpful on the participants' cognitive state and quality of life.

In conclusion, respiratory workouts were found to have a considerable favorable influence on quality of life and anxiety in the elderly. The average scores of the individuals from the overall and sub-dimensions of the scale revealed that their quality of life was modest. It was established that the individuals exhibited mild anxiety based on their average scale score. In the research group, there was no statistically significant difference in age, education level, marital status, length of stay in nursing home, quality of life, or anxiety pretest-posttest results. Furthermore, the literature assessment revealed that there were insufficient investigations on the issue. In light of this knowledge, we feel that frequent workouts done by specialists will contribute favorably to persons' healthy quality of life.

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