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Evaluation of the impact level of coronavirus and occupational balance in geriatric individuals with and without a history of COVID-19

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Abstract

This study aims to compare the impact of coronavirus and occupational balance levels while exploring the relationship between these two factors in geriatric individuals, both with and without a history of Coronavirus disease (COVID-19). A total of 102 geriatric individuals (51 with a history of COVID-19, 51 without a history of COVID-19) between the ages of 65-75 with a mean age of 68.60±2.51 participated in the study. The levels of impact of geriatric individuals to coronavirus were evaluated with the Coronavirus Impact Scale and their occupational balance was evaluated with the Occupational Balance Questionnaire (OBQ). A statistically significant difference was found between the groups in terms of the Coronavirus Impact Scale and OBQ results ($p<0.05$). It was found that geriatric individuals with a history of COVID-19 were more negatively affected by the coronavirus outbreak and had worse occupational balance than geriatric individuals without a history of COVID-19. In the study, a statistically significant relationship was found between the coronavirus impact scale and occupational balance results in geriatric individuals in both groups ($p<0.05$). It was concluded that the occupational balance of geriatric individuals deteriorated with the increase in the level of being affected by the coronavirus outbreak in both groups. To reduce the effects of pandemics and diseases, plans should be made to ensure the continuity of activity routines to support the healthy aging process of geriatric individuals. In collaboration with healthcare professionals, central and local governments, associations, foundations, and non-governmental organizations, community-based rehabilitation programs aimed at enhancing activity spaces for geriatric individuals should be implemented.

Keywords: COVID-19, coronavirus, geriatric individual, occupational balance

Introduction

Coronavirus disease (COVID-19), first identified in Wuhan, China, in late 2019, quickly spread globally, becoming one of the most significant pandemics in human history [1]. The high rate of contagion and its lethal effects have negatively impacted not only health systems, but also economic, social and psychological structures [2-4]. While this pandemic, which was declared a pandemic by the World Health Organization, has affected the lives of people from all segments of society in many dimensions, it has had a profound impact on groups

such as the disabled, children, people with chronic diseases and geriatric individuals. Among these groups, geriatric individuals are the most affected population [5].

Geriatric individuals constitute the most vulnerable segment of the pandemic, with the most severe symptoms of COVID-19 and the highest risk of mortality. This situation has negatively affected the physical health and physical activity levels of geriatric individuals [6]. In addition, studies have revealed that these geriatric individuals experience various problems in their mental health and social lives due to the impact of the pandemic

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[7,8]. Social isolation and physical distancing rules imposed during the pandemic have increased geriatric individuals' loneliness, depression and anxiety levels, while difficulties in accessing health services and restrictions in daily activities have reduced their quality of life [9]. The environment of uncertainty and fear created by the pandemic has led to traumatic stress reactions in geriatric individuals and made their social adaptation processes difficult. COVID-19 has seriously threatened the lives of these individuals in terms of both physical and mental health, making them one of the groups most affected by the long-term effects of the pandemic [10].

The new conditions resulting from the COVID-19 pandemic have led to significant changes in the occupational diversity of geriatric individuals, the time they allocate to their activities and their participation in meaningful activities. The ability of individuals to continue to participate in occupation that are meaningful to them has positive effects on mental, physical, social health and general well-being [11]. Occupational balance refers to a healthy and harmonious balance between roles, responsibilities and activities in an individual's daily life. Over the life cycle, occupations and roles are dynamic, changing with personal and external factors [12]. Therefore, in daily life there is a constant transition between occupational imbalance and balance [13]. In the COVID-19 pandemic, the elderly had to spend more time at home due to reasons such as the implementation of the curfew for individuals over the age of 65. It has been revealed that these difficulties faced by geriatric individuals prevented them from performing their daily routines in the first period of the pandemic, and in the following periods, these routines were significantly restricted [14].

When the literature was examined, it was seen that there were studies revealing that the COVID-19 pandemic had negative effects on various areas such as physical fitness, psychosocial status, mental health and quality of life of geriatric individuals. These studies provided important data to understand the extent of physical and psychosocial challenges faced by geriatric individuals during the pandemic. In particular, mobility limitations, social isolation, increased rates of anxiety and depression, and a significant decrease in quality of life were among the frequently reported findings. In addition, it was emphasized that the severity of these effects varied according to individuals' current health status, social support mechanisms and pre-pandemic living habits [15-17]. However, a study comparing the general effect of the disease in geriatric individuals with and without a history of COVID-19, as well as the effects of the disease on occupational balance and examining the relationship between these parameters was not found in the literature within the scope of our research. Based on this, the aim of the study was to compare the level of impact of coronavirus and occupational balance and to examine the relationship between these parameters in both groups in geriatric individuals with and without a history of COVID-19.

Material and Methods

Study Design

The study received ethical approval from the Lokman Hekim University Scientific Research Ethics Committee (Registration Number: 2024-36/Approval Date: 30 January 2024). The study was conducted at Lokman Hekim University between February and November 2024, and participants were reached using the snowball method. Written informed consent was obtained from all geriatric participants involved in the study, which was conducted in strict compliance with the ethical principles outlined in the Declaration of Helsinki. Additionally, the preparation of this manuscript adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines [18].

Participants

COVID-19, during the pandemic period. The sample size of the planned study was calculated using the G power 3.1.2.6 program using the statistical test for comparing independent means between two groups under the T test family, selecting the one-tail test parameter and using a priori type power analysis. Taking the Coronavirus impact scale as reference, the minimum number required for the total sample size at 95% confidence interval, medium effect size and 80% power was determined as 100 geriatric individuals (50 with a history of COVID-19, 50 without a history of COVID-19).

Inclusion criteria for geriatric individuals with a history of COVID-19 were being between 65-75 years of age, being diagnosed with COVID-19 during the pandemic period, and being in good condition in terms of cognitive status and cooperation. Inclusion criteria for geriatric individuals without a history of COVID-19 were being between 65-75, not having a COVID-19 diagnosis, and being in good cognitive and cooperative condition. The exclusion criteria for all participants were advanced stage of any chronic disease (cancer, neurological, orthopedic, psychiatric, cardiovascular, etc.). Self-reports of the participants were taken into consideration if they had a history of COVID-19. One hundred and seven (54 with a history of COVID-19 and 53 without history of COVID-19) geriatric individuals who met the inclusion criteria participated in the study. Five geriatric individuals (3 with a history of COVID-19 and 2 without a history of COVID-19) were excluded from the study because they could not complete the assessments. The study was conducted with 102 geriatric individuals (51 with a history of COVID-19 and 51 without a history of COVID-19).

Data Collection Tools

Data on age (years), gender, height (centimeters), and weight (kilograms) were collected from the study participants. The level of coronavirus impact on geriatric individuals was evaluated using the Coronavirus Impact Scale, while their occupational balance was assessed through the Occupational Balance Questionnaire (OBQ).

Coronavirus Impact Scale

The Coronavirus impact scale, created by Stoddard et al. (2020), was designed to evaluate how COVID-19 has affected individuals [19]. The scale comprises 12 items. Items 1 through 9 are designed as 4-point Likert-type questions, with response options ranging from 0 (No change) to 3 (Severe). These items are scored on a scale from 0 to 3. Items 10 and 11 use a 5-point Likert scale, with scores ranging from 0 to 4, representing a spectrum from mild symptoms to death. The 12th item is an open-ended question aimed at identifying additional aspects of life impacted by the coronavirus pandemic; however, this item was not utilized in the study. The total possible score on the scale ranges from 0 to 35, with higher scores indicating greater levels of impact due to the coronavirus outbreak. The validity and reliability of the scale were established by Çiçek and Uğur, with a total Cronbach’s alpha value of 0.704 [20].

OBQ

The OBQ is a questionnaire consisting of 11 items, designed by Wagman and Håkansson [21]. The OBQ focuses on the person's experience of the amount and variety of activities in daily life. The questionnaire contains 11 items, and each item is scored on a 4-point Likert scale from "strongly disagree" to "strongly agree." The total score, calculated by summing the responses to all items, ranges from 0 to 33, with higher scores reflecting

greater occupational balance. Günal et al. carried out the validity and reliability analysis of the Turkish adaptation of the questionnaire. The Cronbach's alpha value of the Turkish version of the questionnaire was found to be 0.785 [22].

Statistical Analysis

The data were analyzed using the IBM SPSS Statistics Version 26.0 software. Descriptive statistics were reported as mean ± standard deviation for numerical variables, median values for categorical variables, and percentages (%). To assess the normality of the data, Skewness, Kurtosis, Histogram Analysis, and the Kolmogorov-Smirnov Test were applied, revealing that the data did not follow a normal distribution. The Chi-square test was utilized to compare categorical variables between two groups, while the Mann-Whitney U test was employed for numerical variable comparisons. Relationships between variables were examined using the Spearman correlation test. A p-value of less than 0.05 was considered statistically significant.

Results

A total of 102 geriatric individuals (51 with a history of COVID-19 and 51 without a history of COVID-19) aged 65-75 years with a mean age of 68.60±2.51 years participated in the study. There was no statistically significant difference between the groups with respect to age, height, weight, or gender (p>0.05) (Table 1)

Table 1. Comparison of results of descriptive data between groups

	Geriatric individuals with a history of COVID-19	Geriatric individuals without a history of COVID-19	
	Mean±SD	Mean±SD	p
Age (years)	69.03±2.72	68.17±2.22	^a 0.105
Height (centimeters)	158.33±6.06	160.17±5.46	^a 0.134
Weight (kilogram)	67.60±12.61	69.64±8.18	^a 0.415
	n (%)	n (%)	p
Gender			
Female	27	32	^b 0.316
Male	24	19	

n: number of people, %: percentage, SD: standard deviation, a Mann Whitney U test, b Chi square test, p<0.05

A statistically significant difference was found between the groups in terms of Coronavirus Impact Scale and OBQ results (p<0.05). It was concluded that geriatric individuals with a history

of COVID-19 were more negatively affected by the coronavirus outbreak and their occupational balance was worse than geriatric individuals without a history of COVID-19 (Table 2).

Table 2. Comparison of Coronavirus impact scale and OBQ results between groups

	Geriatric individuals with a history of COVID-19	Geriatric individuals without a history of COVID-19	
	Mean±SD	Mean±SD	p
Coronavirus impact scale	13.92±4.44	11.90±5.37	0.038
OBQ	7.05±2.96	8.47±3.46	0.042

OBQ: occupational balance questionnaire, SD: standard deviation, Mann Whitney U Test, p<0.05

A statistically significant relationship was found between the coronavirus impact scale and OBQ results in geriatric individuals in both groups in the study ($p<0.05$). It was concluded that the occupational balance of geriatric individuals worsened with the increase in the level of being affected by the coronavirus epidemic in both groups (Table 3).

Table 3. Examination of the relationship between the Coronavirus impact scale and OBQ in groups

	OBQ			
	Geriatric individuals with a history of COVID-19		Geriatric individuals without a history of COVID-19	
	p	rho	p	rho
Coronavirus impact scale	0.008	-0.367	0.028	-0.308
OBQ: occupational balance questionnaire, Sperman test, $p<0.05$				

Discussion

The study found that geriatric individuals with a history of COVID-19 were more affected by the coronavirus outbreak and had worse occupational balance than geriatric individuals without a history of COVID-19. It was also concluded that occupational balance worsened as the level of being affected to coronavirus increased in both groups.

It is known that the COVID-19 outbreak has negative effects on the health of geriatric individuals [23]. Mutlu et al. found that geriatric individuals with a history of COVID-19 had worse functional mobility, physical activity, quality of life, and fear of disease and depressive symptoms than geriatric individuals without a history of COVID-19 [24]. McKinlay and colleagues concluded that the mental health of geriatric individuals was negatively affected by staying at home for long periods of time during the pandemic [25]. Another study concluded that the general health status of geriatric individuals diagnosed with COVID-19 deteriorated due to the symptoms of the disease [26]. In our study, it was found that geriatric individuals with a history of COVID-19 were more affected by the coronavirus outbreak than geriatric individuals without a history of COVID-19. This result may be related to the fact that the symptoms of COVID-19 negatively affect many areas of the lives of geriatric individuals. However, it should be kept in mind that this outbreak may have negatively affected not only those who have had the disease but also the general health of geriatric individuals, especially due to the curfews. Therefore, necessary precautions should be taken and necessary strategies and planning should be made in order to control the effects of the disease and future pandemics.

Occupational balance is defined as the harmony and balance that an individual provides in the activities he/she performs meaningfully and purposefully in his/her daily life [27]. This concept includes the variety, frequency and distribution of activities that support the physical, mental and social health of the individual [28]. Occupational balance is a fundamental element that helps an individual live a healthy and fulfilling life [29]. It is known that mobility, balance, participation in activities and physical fitness decrease in geriatric individuals with the aging process [30,31]. The addition of quarantine and social isolation

measures implemented during the COVID-19 pandemic to this situation has significantly limited the daily activities of geriatric individuals. The decrease in outdoor activities has led to a decrease in physical activity levels and an increase in sedentary lifestyle [32]. Yamada and colleagues found that physical activity levels of individuals with COVID-19 were negatively affected [33]. Chen et al. concluded that COVID-19 disease restricts individuals' participation in daily life activities [34]. Another study found that the symptoms of coronavirus prevented sick individuals from performing leisure time activities [35]. According to the results of our study, it was concluded that geriatric individuals with a history of COVID-19 had worse occupational balance than geriatric individuals without a history of COVID-19. This result is thought to be related to the fact that COVID-19 symptoms negatively affect the ability of geriatric individuals to perform their daily life, work, productive and leisure time activities in a balanced way, leading to restrictions.

The COVID-19 pandemic has severely restricted social relationships, increasing the feeling of loneliness and causing individuals to have difficulty in performing daily life, work, production, leisure and social activities [36,37]. A study has revealed that the mental health of geriatric individuals is negatively affected due to social isolation [38]. The study by Lohmöller and colleagues showed that geriatric individuals who had coronavirus experienced a significant decrease in their leisure time activities [39]. Goethals et al. emphasized that the COVID-19 pandemic significantly restricted the physical activities of geriatric individuals by reducing the rate of leaving the house [40]. Another study found that the risk of infection caused by COVID-19 disease is one of the main factors that prevent geriatric individuals from maintaining their social lives [41]. In our research, it was determined that the occupational balance of geriatric individuals deteriorated as the level of impact from coronavirus increased in geriatric individuals with and without a history of COVID-19. This finding may be associated with the restrictive effect of COVID-19 symptoms on the capacity of geriatric individuals to perform activities. It was predicted that the relationship between occupational balance and the level of exposure to the pandemic in geriatric individuals without a history of COVID-19 is related to the restriction of

activities, especially during the curfew period. In addition, it can be said that the fear of contracting coronavirus in these individuals negatively affects their occupational balance. The findings provided important information to understand the wide-ranging effects of the pandemic on geriatric individuals.

There are some limitations to our study. A standardized test such as a mini mental state test was not used to assess the cognitive status of geriatric individuals. Participants' self-reports regarding their COVID-19 status were used. In addition, the fact that the sample group was selected from only a certain region limits the generalizability of the findings.

Conclusion

According to the results of the study, it was determined that geriatric individuals with a history of COVID-19 experienced the effects of the coronavirus more deeply than geriatric individuals without a history of COVID-19 and had worse occupational balance. In addition, it was concluded that occupational balance deteriorated as the level of impact from the coronavirus outbreak increased for both groups. It has been observed that the COVID-19 pandemic has negatively affected the lives of geriatric individuals and occupational balance. In order to minimize the level of geriatric individuals' exposure to possible future epidemics, the necessary planning and strategies should be developed in line with the World Health Organization's healthy aging strategies covering the years 2021-2030. A multidisciplinary approach should be adopted to re-establish the occupational balance, and health professionals, local and central governments, non-governmental organizations, associations and foundations should collaborate to create community-based rehabilitation strategies to increase the activity participation of geriatric individuals. Social solidarity and individualized support mechanisms play a critical role in this process. The research results reveal the vulnerabilities of geriatric individuals during the pandemic process and emphasize the need for solution proposals at both individual and societal levels. In periods when leaving home is restricted, such as the pandemic, telerehabilitation methods can offer an effective solution to maintain the occupational balance of geriatric individuals and can be considered as an alternative approach. In future studies, research should be planned in which assessment and intervention methods for this field are addressed more comprehensively.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

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Ethical Approval

All procedures involving human participants were carried out in compliance with the ethical principles outlined by the institutional research committee (Ankara Etlik City Hospital Clinical Research Ethics Committee No. 1; Decision No.: AEŞH-BADEK-2024-055, dated 15/05/2024). The study adhered to the guidelines of the 2013 Declaration of Helsinki, including its subsequent revisions or equivalent ethical standards.

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