INTRODUCTION

Aging can be regarded as an “event of failure” in which morphological, physiological, and pathological changes progress in a negative way and the physical and mental capabilities of which various diseases combine. A functional change is irreversible in the organism with the advancement of time. With this change, physical and cognitive functions are decreasing and the individual’s potential for intersystem balance decreases. The World Health Organization (WHO) defines aging as a diminishing capacity of the body to respond appropriately to internal and external stimuli. It is accepted as the first step of aging over the age of 65 years.

The World Health Organization (WHO) defines aging as a diminishing capacity of the body to respond appropriately to internal and external stimuli. It is accepted as the first step of aging over the age of 65 years. The weak areas were found to be be success expectancy, interest, choices, problem-solving, organization, and energy in MOHOST. The life satisfaction of individuals was found to be “satisfied” on average. Furthermore, there were a positive correlation between MOHOST (P < 0.001) and SF-36 scale (P < 0.001) and a negative correlation between MMSE and The Model of Human Occupation Screening Tool (MOHOST) (P < 0.001) scores. The cognitive status in elderly people is associated some variables, especially functional profile.

Conclusions: High rate of dementia was found in elderly individuals. The weakest areas were found to be motivation for activity-role of the individuals. It was concluded that low functional level was a risk factor for the elderly. Considering the higher ratio of dementia in the elderly, activity-role participation should be motivation to the affected elderly to improve their quality of life, cognitive status, and life satisfaction level.

Key words: Cognition, elderly, functional level, MOHOST, quality of life

The physiological and physical changes that occur with aging result in failure in social relationships due to the impairment of cognitive functions and the limitation of daily life activities (ADL). Although quality of life is often associated with physical condition, it actually includes all aspects of life, such as economic, social, and cognitive status. The world population is rapidly aging and the number of elderly individuals in societies is increasing day by day. Elderly brings along physical, social, and mental problems. The most common mental problem affecting the quality of life due to disability is dementia. According to the WHO, there are 47.5 million demented individuals

Access this article online

Website: www.saudijhealthsci.org

DOI: 10.4103/sjhs.sjhs_17_19

How to cite this article: Göktaş A, Kudret H, Kar I, Varlı M. The impact of activity-role participation on cognitive status in geriatric individuals. Saudi J Health Sci 2020;9:39-44.
worldwide. This number is expected to reach 76.5 million in 2030.\textsuperscript{[3]} Dementia is not a natural part of aging, but it is the most basic condition leading to cognitive impairment in old age.\textsuperscript{[6]} In a study, 64.6% of individuals aged 65 years and over and, in another study, 68% of individuals showed cognitive impairment.\textsuperscript{[7]} Although there is not much study on the subject, a study on factors that may affect cognitive impairment in elderly people found that 50.8% of elderly individuals have cognitive impairments.\textsuperscript{[8]} The physical and cognitive deficiencies that are seen in the elderly, the chronic diseases that cause insufficiency and the decrease in life expectancy, the difficulties of socializing, and the problems related to the use of health services affect the quality of life of the elderly and the variables that are important in maintaining the treatment and care.\textsuperscript{[9]}

Although there is a relationship between functionality, cognition, activity performance and quality of life, there are few studies showing that these factors affect quality of life.\textsuperscript{[4,8]}

Considering these, it is considered that determining the effect of our study on the role participation of elderly people, cognitive status, quality of life, and satisfaction will help to plan the occupational therapy priorities.

The functionality of elderly individuals is an important component in the preservation and development of cognitive status and quality of life and is directly related to the active aging that is now considered important.

The work done in our country because of this issue in outnumbered how to create occupational therapy services and initiatives directed toward the elderly and shed light on that situation should be identified.

The aim of this study was to determine the effect of activity-role participation levels of the elderly on cognitive status, quality of life, and life satisfaction.

MATERIALS AND METHODS

A total of 79 people, including 46 women and 33 men, were included in the study. All evaluations were completed with a one-to-one interview with the participant. The study was conducted according to the Declaration of Helsinki.

The study was conducted with the approval of the Ethics Committee of Ankara University Non-invasive Clinical Research Ethics Committee (decision no. 21-1310-17, dated December 25, 2017).

Demographic information questionnaire, Standardized Mini-Mental Test (SMMT), Human Activity Role Screening Tool (MOHOST), quality-of-life scale Short Form-36 (SF-36), and Life Satisfaction Scale were used in the study.

Participants

The study included individuals 65 years of age and older who were able to communicate and volunteer to participate in the study. A known mental disorder (major depression, schizophrenia, psychosis, etc.) with an acute medical problem, having a visual and hearing impairment, the elderly were not included in the study.

Assessment methods

Mini-Mental State Examination

The cognitive function level of the participants was evaluated by Standardized Mini-Mental Scale. SMMT was first developed by Folstein (1975).

Turkish validity and reliability was applied by Güngen et al. in 2002.

SMMT orientation (10 points), record memory (3 points), attention and calculation (5 points), recall (3 points), and language (9 points) are collected under five main headings. In this test, 0–9 points are considered severe cognitive disorder, 10–19 points moderate cognitive disorder, 20–23 points mild cognitive disorder, and 24–30 points standard.

The Model of Human Occupation Screening Tool version 2.0, 2006

Information will be obtained by examining individuals’ volition, habit, skill, and environment. For research and clinical purposes, MOHOST’s reliability and validity study was conducted and was found to be valid and reliable. A study carried out by Zakarneh, Turkish version of the study, was applied on 24 individuals. As the score increases, it is shown that the factor facilitates participation, decreases, or restricts it as it decreases. A maximum of 4, at least 1 point, is graded.

Short Form-36

This scale has been used in many different languages and cultures to measure the quality of life.\textsuperscript{[4]} The validity and reliability of the Turkish version of SF-36 has been reported by Kocyigit \textit{et al}. It is composed of simple questions on 8 subscales, including physical functioning, social functioning, physical role limitation, emotional role limitation, bodily pain, mental health, vitality, and general health. Zero indicates poor health and 100 indicates good health status.

The Satisfaction with Life Scale

The Turkish version of the Satisfaction with Life Scale was used to evaluate life satisfaction. It is a set of five short questions that are frequently used in the literature. The person was asked to express how satisfied he was when he thought and evaluated his life as a whole. The respondents were asked what degree they agreed with the following 1–7 figures (1 strongly disagree and 7 strongly agree) in the following five sentences. It is a validity and reliability scale developed by Diener \textit{et al}. They are scored between 7 and
35 points. The scale was translated into Turkish by Köker in 1991, and its internal consistency is 0.85.

Statistical analysis
Descriptive statistics are given as frequency (%) for categorical variables, mean ± standard deviation for continuous variables, and median (minimum–maximum). The level of statistical significance accepted as $P < 0.05$. Data were evaluated using SPSS 11.5 for Windows program was used (Made by the biostatistics department of Ankara University School of Medicine). In the statistical evaluation, Mann–Whitney U-test, Kruskal–Wallis variance analysis, and Spearman's correlation test were used to determine whether there was a statistically significant relationship between two variables.

RESULTS
Demographic data, marital status, educational level, presence of chronic disease, and social security status of the elderly participants were presented in Table 1.

The mean age of the patients was $76.72 \pm 7.26$ years, and 46 were female and 33 were male [Table 1]. The SF general health score was $48.79 \pm 21.79$ in males and $38.02 \pm 19.23$ in females.

In 34 (43.0%) of the elderly, mild, severe dementia in 11 (14%), moderate dementia in 17 (21.5%) and standard cognitive status in 17 (21.5%) were found. According to the Life Satisfaction Scale mean 4.658, standard deviation 1.422, median 5.000, the minimum value is very dissatisfied, the maximum value has been determined as very satisfied. The life satisfaction of individuals was found to be “satisfied” on average. SF physical function, SF mental health, SF social functionality, SF general health, and MOHOST scores were found to be significantly different in favor of men when examined in both sexes ($P < 0.001$). It was found a positive correlation between scores of MOHOST and SF-36 scale ($P < 0.001$) [Tables 2 and 3].

Between the SMMT scores and activity-role pattern ($r = -0.400, P < 0.001$), process skills ($r = -0.495, P < 0.001$), motor skills ($r = -0.364, P < 0.001$), environment ($r = -0.3700, P < 0.001$), and MOHOST total scores ($r = -0.454, P < 0.001$) were found statistically negative strong correlation [Table 4]. Activity-role participation has a positive effect on cognitive status. Men’s quality-of-life scale scores were found to be higher in all subparameters compared to women.

While there was a correlation between motivation, activated role pattern, motor skills, environmental components and individuals’ satisfaction with life, and motivation for activated-role, there was no correlation between communication interaction skills, knowledge, and organization and life satisfaction [Table 4].

There was a positive correlation between MOHOST and life satisfaction ($r = 0.285, P < 0.011$), and negative correlation between MOHOST and Mini-Mental Scale (SMMT) ($r = -0.454, P < 0.001$) [Table 4] the correlation between MOHOST and life satisfaction ($r = 0.285, P < 0.011, P < 0.001$) was found to be statistically significant ($r = -0.454, P < 0.001$). The SF-36 questionnaire for satisfaction with life and positive directional between a moderate level ($r = 0.473, P < 0.011$), SF-36 questionnaire, SMMT scores between positive directional with a moderate level ($r = -0.381, P < 0.001$) that there is a correlation have been identified [Table 4].

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**Table 1: Demographic information of individuals with geriatric science (n=79)**

| Gender       | n (%)   |
|--------------|---------|
| Male         | 33 (41.8) |
| Female       | 46 (58.2) |
| Marital status |       |
| Single       | 1 (1.3)  |
| The married  | 44 (55.7) |
| Widow        | 34 (43.0) |
| Cigarette    |         |
| Uses         | 30 (38.0) |
| Not use      | 49 (62.0) |
| Alcohol      |         |
| Uses         | 5 (7.1)  |
| Does not use | 74 (92.9) |
| Education    |         |
| Not literate | 25 (31.6) |
| Read and write| 5 (5.6) |
| Primary education | 39 (49.4) |
| High school  | 6 (7.6)  |
| Graduate     | 4 (5)    |
| Income status|         |
| Not enough   | 18 (22.8) |
| Self-sufficient | 61 (77.2) |
| Habitat      |         |
| Alone        | 15 (19.0) |
| With spouse  | 35 (44.3) |
| With children | 29 (36.7) |
| Chronic illness |     |
| No           | 10 (12.7) |
| There is     | 69 (87.3) |
| Social security |       |
| No           | 2 (2.5)  |
| There is     | 77 (97.5) |
| Child number |         |
| No           | 1 (1.3)  |
| One          | 8 (10.1) |
| Two          | 16 (20.3) |
| Three and more | 54 (68.4) |
Table 2: The relationship between MOHOST, SWLS, SMMT, and SF-36

| Activity-role scores (MOHOST) | Physical function (r, P) | Role difficulty (r, P) | Emotional role difficulty (r, P) | Vitality (r, P) | Mental health (r, P) | Social functionality (r, P) | Pain (r, P) | General health (r, P) |
|-----------------------------|-------------------------|-----------------------|-------------------------------|---------------|---------------------|---------------------------|------------|----------------------|
| Motivation for activity-role | 0.616, <0.001*          | 0.425, <0.001*        | 0.270, <0.016*                | 0.477, <0.001* | 0.266, <0.018*      | 0.474, <0.001*             | 0.36, <0.001* | 0.499, <0.001*       |
| Activity-role               | 0.758, <0.001*          | 0.394, <0.001*        | 0.287, <0.010*                | 0.536, <0.001* | 0.402, <0.001*      | 0.503, <0.001*             | 0.40, <0.001* | 0.531, <0.001*       |
| Communication interaction skills | 0.331, <0.003*        | 0.255, <0.023*        | -0.008, <0.945                | 0.266, <0.018* | 0.127, <0.263       | 0.291, <0.009*             | 0.19, <0.080 | 0.317, <0.004*       |
| Process skills              | 0.514, <0.001*          | 0.524, <0.001*        | 0.273, <0.015*                | 0.479, <0.001* | 0.260, <0.021*      | 0.446, <0.001*             | 0.31, <0.004* | 0.476, <0.001*       |
| Motor skills                | 0.717, <0.001*          | 0.507, <0.001*        | 0.255, <0.023*                | 0.523, <0.001* | 0.374, <0.001*      | 0.522, <0.001*             | 0.54, <0.001* | 0.519, <0.001*       |
| Environment                 | 0.734, <0.001*          | 0.463, <0.001*        | 0.229, <0.042*                | 0.509, <0.001* | 0.392, <0.001*      | 0.537, <0.001*             | 0.40, <0.001* | 0.470, <0.001*       |
| SWLS                        | 0.329, <0.003*          | 0.346, <0.002*        | 0.217, <0.055                 | 0.425, <0.001* | 0.461, <0.001*      | 0.326, <0.003*             | 0.277, <0.013* | 0.473, <0.001*       |
| SMMT                        | -0.276, <0.014*         | -0.188, <0.097        | -0.117, <0.303                | -0.319, <0.004* | -0.306, <0.006*     | -0.306, <0.006*            | -0.325, <0.003* | -0.381, <0.001*      |

*P<0.05, SF-36: Short Form-36, r: Correlation, SWLS: Satisfaction with Life Scale

Table 3: Comparison of the MOHOST

|          | Male (n=33) |             | Female (n=46) |             | Z    | P    |
|----------|-------------|-------------|---------------|-------------|------|------|
|          | Mean±SD     | Median (minimum-maximum) | Mean±SD     | Median (minimum-maximum) |      |      |
| Motivation for activity-role | 9.70±3.35 | 9.00 (4.00-16.00) | 8.37±3.20 | 8.00 (4.00-16.00) | -1.644 | 0.100 |
| Activity-role pattern | 10.82±2.99 | 12.00 (4.00-16.00) | 9.30±3.15 | 9.00 (4.00-16.00) | -2.132 | 0.033* |
| Communication interaction skills | 13.70±2.31 | 15.00 (8.00-16.00) | 13.39±3.16 | 15.00 (4.00-16.00) | -0.170 | 0.865 |
| Process skills | 10.18±2.96 | 9.00 (4.00-16.00) | 9.02±2.51 | 8.00 (4.00-16.00) | -1.595 | 0.111 |
| Motor skills | 10.91±2.43 | 11.00 (8.00-16.00) | 9.54±2.47 | 9.00 (4.00-16.00) | -2.184 | 0.029* |
| Environment | 10.73±2.36 | 11.00 (8.00-16.00) | 9.91±2.58 | 9.50 (4.00-16.00) | -1.129 | 0.259 |
| General total | 66.03±14.34 | 65.00 (43.00-6.00) | 59.54±4.75 | 59.50 (24.00-96.00) | -1.621 | 0.105 |

P: Significance Level, *P<0.05, r: Correlation, SD: Standard deviation, MOHOST: Activity-Role Scores

Table 4: The relationship between the Mini-Mental, life satisfaction, and activity-role screening tool (MOHOST)

| MOHOST subparameters | SWLS (r, P) | SMMT (r, P) |
|----------------------|-------------|-------------|
| Motivation for activity-role | 0.278, 0.013* | -0.419, <0.001* |
| Activity-role pattern | 0.308, 0.006* | -0.408, <0.001* |
| Communication-interaction | 0.043, 0.706 | -0.259, 0.021* |
| Process skill | 0.235, 0.037* | -0.495, <0.001* |
| Motor skills | 0.313, 0.005* | -0.364, <0.001* |
| Environment | 0.323, 0.004* | -0.370, <0.001* |
| General total | 0.285, 0.011* | -0.454, <0.001* |

P: Significance Level, *P<0.05, r: Correlation, SWLS: Satisfaction with Life Scale

DISCUSSION

The study concluded that functional level was the factor affecting the cognitive status, quality of life, and quality-of-life satisfaction of the elderly in the hospital. In this study only the elderly living in the hospital were examined, 34 (43.0%) had mild dementia, 28 (35.5%) had severe dementia, and 17 (21.5%) had standard cognitive status. When human activity-role participation is examined, the weakest areas were determined as success expectation, interest, choice, problem-solving, organization, and energy. The strongest areas have been to provide communication interaction skills, posture, mobility, and routine. Communication and interaction skills are strong because spouses, family, or caregivers living at home can have an impact. We think that even the elderly who live alone in the house are more willing and willing to participate in the relations between neighbors, relatives, or friends due to the family structure of our country. According to MOHOST, it was found that individuals were dependent on activity-role participation. Supported participation is realized.

In a study conducted by Raber et al., the role of ergotherapy in the care of individuals residing in supported life centers and their relationship with volition in participation in daily life activities were investigated. In the literature study, the motivation of the individuals was found to be low. It was found to be higher in our study group than in the literature. In our study group, low motivation was attributed to the prevalence of dementia. In our study, it was determined that the motivations of individuals were “inhibited” for activity-role participation. Motivation challenge, evaluation of skills, expectation of success, and support in making choices...
were found to be needed in individuals to participate in daily life activities.

Many epidemiological studies have found a positive relationship between dementia or cognitive decline and social and leisure time activities.\(^\text{[10,11]}\)

It was observed that the elderly who participated in our study were not fully dependent on ADL and instrumental ADL. We believe that the elderly involved in the study may be the result of physical and cognitive deficiencies such as muscle strength deficiency, coordination disorder, decrease in motor skills, and the use of devices such as telephones, irons, and kitchen appliances. In a study according to ADL mean score, it was found that 45.7% of them were moderately dependent.\(^\text{[5]}\) Considering similar studies, most of the elderly were found to be moderately dependent and independent and at least fully dependent on the study.\(^\text{[12]}\)

In our study, according to MOHOST, it was found that individuals were moderately dependent on activity-role participation.

In other studies, the mean score of Life Satisfaction Scale is between 20 and 26.\(^\text{[5,12]}\) The mean score of Life Satisfaction Scale was found to be 21.89 ± 5.87 and life satisfaction was found to be high. When the relationship between the mean scores of the elderly individuals is examined, it is determined that life satisfaction increases as the level of independence increases, life satisfaction increases with all subdimensions and quality of life, life satisfaction increases with all subdimensions, and quality of life increases as the level of independence increases.\(^\text{[3]}\)

In our study, it was found in the range of 26–30, and the satisfaction level of the individuals was found to be higher than the literature. We believe that this is due to the physical, mental, cultural, social, and economic characteristics of our sample group.

In a study examining the variables affecting the quality of life in the elderly, physical activity qualification, education level, and health perception affect all subdimensions of quality of life.\(^\text{[3]}\) In the present study, it was found that the quality-of-life indicators were lower. Similarly, in our study, individuals are not totally dependent on activity-role participation.

Similar results have been found in the studies. The decrease in activity role participation affects the cognitive status negatively. The level of independence in activity participation was thought to affect the cognitive level, quality of life, and life satisfaction level positively.

Levasseur et al.\(^\text{[7]}\) stated that the quality of life was affected by the level of independence in activity-role.\(^\text{[14]}\) Studies have shown that quality of life is associated with cognitive functions and functional level in ADL.\(^\text{[7]}\)

Standardized Mini-Mental Scale (SMMT) \(P = 0.001\); \(P < 0.001\), quality-of-life scale \(P = 0.001\); \(P < 0.001\), and mean scores of the participants were statistically significantly higher than those who did not participate in the activities. In this study, it was concluded that low cognitive level, ADL, and low independence level adversely affect the quality of life.\(^\text{[15]}\)

In our study, between the SMMT scores and activity-role pattern \(r = -0.400, P < 0.001\), process skills \(r = -0.495, P < 0.001\), were found statistically strong correlation [Table 4]. Activity-role participation has a positive effect on cognitive status. In 34 (43.0%) of the elderly, mild and severe dementia in 28 (35.5%) and standard cognitive status in 17 (21.5%) were found. The life satisfaction status of the individuals was determined as “satisfied” in the general average. There was a strong correlation between MOHOST and life satisfaction \(r = 0.285; P = 0.011\) and MOHOST and Standardized Mini-Mental Scale \(r = -0.454; P < 0.001\).

There is a strong correlation between communication interaction skills which are subparameter of MOHOST scores and all other areas except role difficulty of quality-of-life module, mental health, and pain areas \(r = 0.499; P < 0.001\).

In other studies, quality of life in elderly individuals with mild cognitive impairment and dementia was evaluated. The results support our study results.\(^\text{[8,16]}\) In studies that evaluated quality of life in elderly individuals with mild cognitive impairment and dementia, the results support our study results.

### CONCLUSIONS

Ergotherapy interventions for the elderly should be performed taking into account the impact of activity-role participation on cognitive status. According to the results of the research, it is recommended to plan activities that facilitate the participation of the activity-role of the elderly individuals, together with the cognitive status, life satisfaction, and quality of life.

### Limitations

We think that work needs to be done in different cities and regions.

### Financial support and sponsorship

Financial support was not accepted in this study.

### Conflicts of interest

There are no conflicts of interest.

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