

## Determining the predictors associated with the difficulty of adaptation to ageing of hospitalized older adults. *Difficulty of older adult to aging*

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### ABSTRACT

**Objectives:** To determine the predictors associated with the difficulty of adaptation to ageing of hospitalized older adults.

**Methods:** This descriptive cross-sectional study was carried out in a university hospital between October 2019 and March 2020. The sample consisted of 247 older adults. Research data were collected using a Visual Analogue Scale (VAS), the Falls Efficacy Scale (FES) International, Hospital Anxiety and Depression Scale, and Assessment Scale of Adaptation Difficulty for the Elderly (ASADE).

**Results:** The average age of the patients was  $73.90 \pm 7.38$  years, 22.3% of the patients had a fall history in the last year, and 74.5% had a high fear of falling. The mean FES score of the older adult patients was  $35.60 \pm 11.09$ , and the mean VAS score was  $1.40 \pm 1.36$ . The mean scores for anxiety was  $9.30 \pm 2.32$  and depression was  $10.08 \pm 1.96$ . The mean ASADE total score was  $16.56 \pm 10.7$ , role and the self-actualization mode score was  $9.05 \pm 4.66$ , interdependence mode score was  $2.02 \pm 1.02$ , physiological mode score was  $3.00 \pm 2.03$  and self-concept score was  $2.47 \pm 2.07$ .

**Conclusion:** The findings revealed that using walking aids, being single, pain, fear of falling, and anxiety affect adaptation difficulties to aging. Anxiety was found to have an effect on all sub-dimensions of adaptation difficulty to aging. There is a need for further studies to determine the correlation between anxiety and the adaptation difficulties experienced by older adults.

**Keywords:** anxiety, adaptation difficulty, depression, older adult, fear of fall

*Saudi Med J 2024; Vol. 45 (3): 317-321*  
doi: 10.15537/smj.2024.45.3.20230267

increase to 22% and 2.1 billion by 2050.<sup>1</sup> In developed countries, an increase of 29% is expected between 2000 and 2015, while this rate is expected to increase by 60-71% by 2030 in underdeveloped countries.<sup>2</sup> In line with this trend throughout the world, the older adult population is increasing in Turkey, and has been estimated to reach 12.9% by 2030 and 22.6% by 2060.<sup>3</sup>

Weakening of physical and cognitive functions, chronic diseases and difficulties in performing daily activities experienced by older adults affect their adaptation to ageing.<sup>4</sup> Adaptation of the older adult to ageing is important to be able to cope with these changes and the problems caused by ageing and to prevent problems that may arise in the future.<sup>5,6</sup> It has been stated by 81% of older adults that they have adapted to the changes experienced in older age, 94% have reported that they live independently in their own home, 38% that they have not experienced any inadequacies, and 74% have declared that they are actively connected to life. The same study indicated that the well-being of older adults deteriorates as age increases, the state of well-being in old age is positively related to the attitude towards ageing and the level of cognitive competence is negatively related to the level of depression symptoms and the perception of stress.<sup>7</sup> In other studies, most older adults have stated that well-being in old age is only achieved with adaptation to ageing.<sup>4-6,8</sup> However, the number of relevant studies in the literature that have studied adaptation to ageing is limited. The aim of this study was to determine the predictors associated with difficulty in adaptation to ageing of hospitalized older adults.

**Methods.** This cross-sectional study was conducted in a Dokuz Eylul University Hospital, Izmir, Turkey between October 2019 and March 2020. The criteria for including older adult patients in the research sample were age  $\geq 65$  years, voluntary participation in the research, the ability to understand and speak Turkish, being oriented to person, place, and time, and having no hearing or speech impairments. The study exclusion criteria were defined as any neurological or psychiatric medical diagnosis that affects cognitive status. The study sample consisted of 247 patients. The research data were collected using the Demographic Characteristics Form, Visual Analog Scale (VAS), Falls Efficacy Scale International (FES I), Hospital Anxiety and Depression Scale (HADS), and Assessment Scale of Adaptation Difficulty for the Elderly (ASADE).

Permission for the study was obtained from the University Hospital, and approval was granted by the University Ethics Committee (approval no. 2019/67,

With the worldwide rapid increase in older adults, the population comprising individuals over aged >60 years, which was 12% in 2015, is projected to

03.04.2019). Written informed consent for participation in the study was provided by all the patients.

**Statistical analysis.** Statistical analyses were performed using the Statistical Package for the Social Sciences, version 22, (IBM Corp, Armonk, NY, USA). The continuous data are presented as mean, median, with standard deviation and range of values respectively; categorical data were expressed as ratio and percentage.

**Results.** The average age of the patients was  $73.90 \pm 7.38$  years (range, 65-93 years), 22.3% of the patients had a fall history in the last year, and 74.5% had a high fear of falling. The mean FES score of the older adult patients was  $35.60 \pm 11.09$  (range, 16- 64) and the mean VAS score was  $1.40 \pm 1.36$  (range, 0-8). The mean scores for anxiety was  $9.30 \pm 2.32$  and depression was  $10.08 \pm 1.96$ . The mean ASADE total score was  $16.56 \pm 10.7$ , role and the self-actualization mode score was  $9.05 \pm 4.66$ , interdependence mode score was  $2.02 \pm 1.02$ , physiological mode score was  $3.00 \pm 2.03$  and self-concept score was  $2.47 \pm 2.07$ .

The adaptation difficulties to ageing of older adult patients according to the socioeconomic and clinical characteristics are shown in **Table 1**. The mean scores of the role and self-actualization sub-dimensions on the basis of marital status, education level, presence of chronic diseases, fall history, and using an assistive walking device were found to be statistically significant ( $p < 0.005$ ). The mean scores of the Interdependence sub-dimension on the basis of education level, presence of chronic diseases, living alone, fall history, and using an assistive walking device were found to be statistically significant ( $p < 0.005$ ). The mean scores of the Physiological Mode sub-dimension on the basis of marital status, presence of chronic diseases, living alone, and using an assistive walking device were found to be statistically significant ( $p < 0.005$ ). The mean scores of the Self-Concept sub-dimension on the basis of marital status, presence of chronic diseases, living alone, and using an assistive walking device were found to be statistically significant ( $p < 0.005$ ) (**Table 1**). The Role and Self-Actualization sub-dimensions were found to be positively and statistically significantly related to age ( $r = 0.290$ ), pain ( $r = 0.240$ ), FES ( $r = 0.670$ ), HAD-A ( $r = 0.426$ ) and HAD-D ( $r = 0.231$ ) criteria. The interdependence sub-dimension was found to be

positively and statistically significantly related to age ( $r = 0.231$ ), pain ( $r = 0.125$ ), FES ( $r = 0.544$ ), HAD-A ( $r = 0.345$ ), and HAD-D ( $r = 0.122$ ). The physiological mode sub-dimension was found to be positively and statistically significantly related to age ( $r = 0.231$ ), pain ( $r = 0.288$ ), FES ( $r = 0.572$ ), HAD-A ( $r = 0.372$ ), and HAD-D ( $r = 0.246$ ). The sense of self sub-dimension was found to be positively and statistically significantly related to age ( $r = 0.242$ ), pain ( $r = 0.309$ ), FES ( $r = 0.521$ ), HAD-A ( $r = 0.369$ ), and HAD-D ( $r = 0.242$ ) (**Table 2**).

Multiple regression analysis was performed to determine the factors associated with the adaptation difficulty of hospitalized older adults to ageing. The variables that were found to have a moderate and highly significant relationship with the sub-dimensions of the ASADE were included in the regression model. The regression model performed for the role and self-actualization sub-dimension of the ASADE explained 54% of the total variance ( $F = 30.618$ ,  $p < 0.001$ ) and of the independent variables included in the model, the presence of chronic diseases ( $\beta = 0.100$ ,  $p = 0.045$ ), using walking aids ( $\beta = -0.161$ ,  $p = 0.003$ ), fear of falling ( $\beta = 0.544$ ,  $p < 0.001$ ), and anxiety ( $\beta = 0.252$ ,  $p < 0.001$ ) were found to be statistically significant predictors in this context. The regression model performed for the interdependence sub-dimension explained 33% of the total variance ( $F = 14.760$ ,  $p < 0.001$ ) and of the independent variables included in the model, being single ( $\beta = -0.108$ ,  $p = 0.043$ ), fear of falling ( $\beta = 0.544$ ,  $p < 0.001$ ), and anxiety ( $\beta = 0.252$ ,  $p < 0.001$ ) were found to be statistically significant predictors. The regression model performed for the physiological mode sub-dimension explained 43% of the total variance ( $F = 21.905$ ,  $p < 0.001$ ) and of the independent variables included in the model presence of chronic diseases ( $\beta = 0.139$ ,  $p = 0.012$ ), using walking aids ( $\beta = 0.158$ ,  $p = 0.010$ ), pain ( $\beta = 0.123$ ,  $p = 0.029$ ), fear of falling ( $\beta = 0.477$ ,  $p < 0.001$ ), and anxiety ( $\beta = 0.215$ ,  $p < 0.001$ ) were found to be statistically significant predictors. The regression model performed for the sense of self sub-dimension explained 38% of the total variance ( $F = 21.905$ ,  $p < 0.001$ ) and of the independent variables included in the model, the use of walking aids ( $\beta = 0.130$ ,  $p = 0.040$ ), pain ( $\beta = 0.392$ ,  $p < 0.001$ ), fear of falling ( $\beta = 0.392$ ,  $p < 0.001$ ), and anxiety ( $\beta = 0.217$ ,  $p < 0.001$ ) were found to be statistically significant predictors (**Table 3**).

**Disclosure.** Authors have no conflict of interests, and the work was not supported or funded by any drug company.

**Discussion.** In this study, the predictors affecting the difficulty of adaptation to ageing were identified. Weakening of the physical abilities and cognitive functions, difficulty in maintaining daily activities

**Table 1 -** The difficulties of older adult patients adapting to old age according to socioeconomic and clinical characteristics.

Variables	Role and Self-Actualization mode		Interdependence mode		Physiological mode		Self-concept	
	Test	P-values	Test	P-values	Test	P-values	Test	P-value
<i>Gender</i>								
Female	t=0.487	0.627	t=0.752	0.453	t=-0.314	0.754	t=0.355	0.723
Male								
<i>Marital status</i>								
Married	t=-3.357	0.000	t=-1.588	0.114	t=-3.393	0.001	t=-3.970	0.000
Single								
<i>Education level</i>								
Literate								
Primary School	KW=12.166	0.007	KW=16.845	0.001	KW=9.983	0.191	KW=5.524	0.137
High School								
University								
<i>Chronic disease</i>								
Present	t=3.671	0.000	t=4.485	0.000	t=2.289	0.023	t=2.391	0.018
Absent								
<i>Living alone</i>								
Yes	U=1326,500	0.062	U=1397,000	0.012	U=1352,5	0.043	U=1334,500	0.048
No								
<i>Fall History (within the last year)</i>								
Yes	t=-3.099	0.002	t=-2.741	0.007	t=-1.323	0.187	t=-1.604	0.110
No								
<i>Fall History (in hospital)</i>								
Yes	U=3218,500	0.102	U=2753,500	0.817	U=3223,500	0.096	U=3210,000	0.095
No								
<i>Use of walking aids</i>								
Yes	t=-7.889	0.000	t=-4.495	0.000	t=-7.395	0.000	t=-6.981	0.000
No								

\*p<0.05, KW= Kruskal-Wallis (KW) test, t=Student's t test; F=one-way Anova, U=Mann Whitney U-test

**Table 2 -** Relationships between adaptation of elderly patients and age, pain, fear of falling, anxiety, and depression.

Mode	Age		VAS		FES		HADS-A		HADS-D	
	r	P-values	r	P-values	r	P-values	r	P-values	r	P-values
Role and Self-Actualization mode	0.290	0.000	0.240	0.000	0.670	0.000	0.426	0.000	0.231	0.000
Interdependence mode	0.231	0.000	0.125	0.049	0.544	0.000	0.345	0.000	0.122	0.055
Physiological mode	0.231	0.000	0.288	0.000	0.572	0.000	0.372	0.000	0.246	0.000
Self-concept mode	0.242	0.000	0.309	0.000	0.521	0.000	0.369	0.000	0.242	0.000

VAS: Visual Analog Scale, FES: Falls Efficacy Scale International, HADS-A: Hospital Anxiety and Depression Scale-Anxiety, HADS-D: Hospital Anxiety and Depression Scale- Depression

and social relationships, fear of approaching death, deterioration in the economic situation experienced as an individual ages, together with other criteria such as living alone and the decrease in the social support systems provided makes it difficult to adapt to ageing.<sup>6,9</sup> The results of this study revealed that the main predictors concerning the role and self-actualization sub-dimension of adaptation difficulty to ageing were the presence of chronic disease, using walking aids, fear of falling, and anxiety. Chronic diseases cause

deterioration in the general health status of older adults, making them more dependent on others, resulting in difficulty in maintaining daily activities, and weakening social relationships, thereby adversely affecting adaptation to ageing.<sup>10</sup>

The results of this study revealed that the main predictors concerning the interdependence sub-dimension of adaptation difficulty to ageing were being single, fear of falling, and anxiety. The interdependence of older adults indicates communication of the older

**Table 3** - Predictors of the adaptation difficulty for the older adults.

Variables	SE	Beta	t	P SE: stan
<i>Role and Self-Actualization mode</i>				
Marital status	0.548	0.014	0.290	0.772
Education level	0.284	-0.077	-1.752	0.081
Chronic disease	0.463	0.100	2.017	0.045*
Fall History (last one year)	0.520	0.008	0.162	0.871
Use of walking aids	0.503	0.161	2.977	0.003*
Age	0.032	0.018	0.353	0.725
VAS	0.171	0.069	1.380	0.169
FES	0.024	0.544	9.555	<0.001*
HADS-A	0.098	0.252	5.160	<0.001*
HADS-D	0.113	0.006	0.115	0.908
Model R <sup>2</sup> : 0.565, Adjusted R <sup>2</sup> : 0.546, F: 30.618, p<0.001				
<i>Interdependence mode</i>				
Marital status	0.236	-0.108	-2.037	0.043
Chronic disease	0.383	-0.027	-0.447	0.655
Living alone	0.976	0.092	1.696	0.091
Fall History (within the last year)	0.433	0.009	0.167	0.868
Use of walking aids	0.419	0.020	0.311	0.756
Age	0.025	0.047	0.825	0.410
VAS	0.142	0.057	0.944	0.346
FES	0.020	0.411	5.971	<0.001*
HADSA	0.078	0.186	3.312	<0.001*
Model R <sup>2</sup> : 0.359, Adjusted R <sup>2</sup> : 0.335, F: 14.760, p<0.001				
<i>Physiological mode</i>				
Marital status	0.266	0.046	0.851	0.395
Chronic disease	0.224	0.139	2.537	0.012*
Living alone	0.570	0.011	0.211	0.833
Use of walking aids	0.245	0.158	2.610	0.010*
Age	0.015	-0.020	-0.358	0.721
VAS	0.084	0.123	2.194	0.029*
FES	0.011	0.477	7.669	<0.001*
HADSA	0.047	0.215	3.974	<0.001*
HADSD	0.055	0.049	0.918	0.359
Model R <sup>2</sup> : 0.454, Adjusted R <sup>2</sup> : 0.433, F: 21.905, p<0.001				
<i>Self-concept mode</i>				
Marital status	0.283	0.095	1.699	0.091
Chronic disease	0.238	0.094	1.646	0.101
Living alone	0.605	0.014	0.269	0.788
Use of walking aids	0.261	0.130	2.068	0.040*
Age	0.016	0.005	0.356	0.563
VAS	0.089	0.160	2.747	0.006*
FES	0.012	0.392	6.056	<0.001*
HADS-A	0.050	0.217	3.865	<0.001*
HADS-D	0.058	0.055	1.003	0.317
Model R <sup>2</sup> : 0.410 Adjusted R <sup>2</sup> : 0.388, F: 18.336, p<0.001				
VAS: Visual Analog Scale, FES: Falls Efficacy Scale, HADSA: Hospital Anxiety and Depression Scale –Anxiety, HADSD: Hospital Anxiety and Depression Scale – Depression, Beta: standardized beta coefficient, SE: standard error, *p<0.005				

adult with another person. Similar studies have reported that married older adults living with their spouse tend to have higher social support scores and experience lower levels of loneliness compared to single individuals.<sup>11-13</sup>

In this study, the main predictors concerning the physiological mode sub-dimension were determined to be the presence of chronic disease, using walking aids,

pain, and fear of falling. The study results showed that individuals with chronic diseases have a lower level of adaptation to ageing. Similar studies in the literature have also indicated that the health status of older adults and the presence of chronic diseases have a negative effect on adaptation to old age.<sup>8,14</sup>

Anxiety was determined as a predictor in all of the sub-dimensions of adaptation difficulties of the older adults. An individual who feels useless as a result of the changes encountered in old age, who has decreased interest in what is happening in the surrounding environment, and who needs the help of others to maintain daily life activities is more likely to feel lonely, isolated from the environment, and experience depression, and anxiety.<sup>15</sup> Therefore, anxiety was found to affect all the sub-dimensions of adaptation difficulty to ageing, diagnosing increased levels of anxiety in older adults and providing the necessary psychological support to be able to reduce these levels may facilitate adaptation. However as there is no comprehensive work on this issue, it can be suggested that further studies are conducted to determine the correlation between levels of anxiety and the adaptation difficulties experienced by older adults and the associated predictors.

**Study limitations.** There were some limitations to this study, primarily that the data were collected from older adult patients hospitalized in different clinics. It can be recommended that in future studies, longitudinal studies and quasi-experimental studies are made to compare the fear of falling in hospital and at home.

In conclusion, the findings of this study showed that the adaptation difficulty to ageing is affected by the use of walking aids and their negative impact on physical capabilities, being single, pain, fear of falling, present of chronic disease and anxiety. It has been determined that anxiety affects all sub-dimensions of difficulty adapting to aging. There is also a need for experimental studies aimed at improving the adaptation to ageing of older adults.

**Acknowledgment.** *The authors gratefully acknowledge Caroline Walker for the English language editing.*

*Received 4th October 2023. Accepted 17th December 2023.*

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