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Relationship between living arrangements, quality of life and depressive symptoms of older adults

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Abstract

This study aimed to investigate the relationship between different types of living arrangement, quality of life and depressive symptoms of older adults. This study was conducted in 2012 in the provincial centre of Kayseri, Turkey. Four groups were formed according to living arrangements of older adults; living alone, living with spouse only, living with spouse and children, living with other family members without spouse. Socio-demographic questionnaire, activities of daily living scale (ADL), World Health Organization Quality of Life Assessment for Older Adults (WHOQOL OLD) questionnaire and the Geriatric Depression Scale (GDS) were administered. The mean depression score (13.9 ± 6.6) of the older adults participated in the study was high. Nearly fifty percent (45.8 %) of the whole group had depressive symptoms. Among older adults living with other family members without spouse, median ADL score (11.0, min: 1.0, max: 12.0) was lowest ($p=0.001$), mean GDS score (16.3 ± 5.9) was highest ($p=0.011$) and two domains of quality of life scores mean: autonomy ($p=0.002$) and social participation ($p=0.006$) were lowest. Older adults living with other family members without spouse were more likely to be ADL restricted and worse at autonomy and social participation. As having depressive symptoms were common among older adults especially the ones having more risk (poor economic situation, restricted ADL and living in an extended family) should be followed closely by health professionals.

Keywords: Older adult, living arrangement, quality of life, depression, activities of daily living

Introduction

Quality of life have become more important in health care practice and research, since the maintaining a high level of quality of life at old age is becoming a growing public health concern as the older population continues to increase in developed countries [1].

Turkey is one of the countries in which the older population is increasing with a speed higher than that of other age groups. In 2013 the proportion of older population (65 years and over) was 8% in Turkey. According to the population projections, this proportion will reach to 10.2% in 2023 [2]. As the average expected life span increases, an important issue is whether the years added to life are characterized by good health and independence or by health problems and the need for care [3]. The purpose of medical interventions today is to favour the duration of life and to assure its quality. Depression is the most prevalent psychiatric disorders among older adults.

The World Health Organization indicated that depression would be the second cause of disability by 2020 [4]. A decline in health quality with age is inevitable. It is important to define the risk factors affecting older adults' health. By this way some prevention programs can be developed for older adults'. Living arrangements are defined by household composition or the number and identity of the cohabitants [5]. Living arrangements are closely related to the health and well-being of the older adults [6]. Household affects the social roles of the older adults by providing social participation and support. This study was aimed to determine the relationship between living arrangements, quality of life and depression levels of older adults.

Material and Methods

This cross-sectional study was performed in 2012 in Kayseri province. Approval was received from the Ethics Committee of Erciyes University Medical Faculty (decision number: 2012/467, date: 07.08.2012). Four groups were formed from the 65 and over age older adults living at home according to their living arrangement. Living arrangements were classified as follows: [1] living alone, [2] living with the spouse, [3] living with the spouse

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and children, [4] living with other family members without spouse.

Sampling

It was thought that the standard deviation of the depression scores at older adults will be nearly 5 points and also will be 3 points differences between the groups. The minimum sample size for each group was calculated as 42 based on $\alpha=0.05$, $\beta=0.20$. Sixty individuals were planned for each group.

Multi-stage sampling method was used in the study. Firstly two out of 60 family health centers in Kayseri province center were randomly selected. Then four physicians from each of the selected family health centers were randomly selected. All the people aged 65 years and over in the list of the selected eight family physicians were divided into four groups according to their living arrangements. At the third stage, 60 people were selected from each group randomly and included in the study. Backup lists consisting 60 people were created with the same method.

Data collection tools

The research data were collected with a socio-demographic questionnaire consists of 20 questions designed by researchers, ADL Scale, WHOQOL OLD questionnaire and GDS. The socio-demographic variables included gender, age, marital status, having a child, living arrangement, education level, economic status, health status, having any chronic disease. These data were collected according to participants self reports. Participants were asked to respond to economic and health status using a five-point Likert scale ranging from 1 (very good) to 5 (very bad) and these data were re-scaled to three items (good, moderate, bad) while analysing. Individuals' six major life activities including: feeding, dressing, toileting, bathing, transferring and continence were assessed by ADL Scale [7]. WHOQOL OLD Scale was used to examine the quality of life [8] and GDS was used to identify the older adults with depressive symptoms [9,10]

Older adults in the sample were invited to FHC. Those who cannot come to FHC were visited at home. Verbal consent was obtained from participants before survey administration. Individuals in the reserve list were included in the study instead of the individuals with difficulty in communicating or not wishing to participate in the study. Questionnaires were applied by face to face interviews.

Evaluation of data

ADL scores calculated from the answers given to the six questions ranged from 0 to 12. If the score was equal to 12 we accepted "ADL normal" if it was fewer than 12 we accepted "ADL restricted" [7].

GDS scores were performed between 0-30, by scoring the answers of the 30 questions. The depression scores were considered as: 11 and below "no depressive symptoms", 11-13 "possible depressive symptoms", 14 and over "depressive symptoms" [9]

WHOQOL-OLD scale consists of 24 questions within six dimensions (sensory abilities, autonomy, past-present-future, social participation, death and dying, intimacy), the answers determined by five-point Likert scale. Subscale scores range between 4 and 20, total score range between 24 and 120. Some questions (sensory abilities:1,2,10, death and dying:6,7,8,9) scores were calculated after reverse conversion ($1=5, 2=4, 3=3, 4=2, 5=1$). Higher score means better quality of life.

Statistical analysis

Kolmogorov-Simirmov test was used to evaluate the suitability of numerical data to normal distribution. For statistical analyses, chi-square test for categorical data, one-way ANOVA (post hoc Scheffe), factorial ANOVA and Kruskal-Wallis H test (post hoc Dunn's test) for quantitative data were used. The factors which may affect quality of life scores like age, gender, economic situation and living arrangement were analysed together. Binary logistic regression analysis was performed to determine the effect of some variables on depressive symptoms. In logistic regression analysis, depression status was the dependent variable, while gender, age, living arrangement and activities of daily living were independent variables. In all analyses, $P<0.05$ was considered as statistically significant. Categorical data was shown as number and percentage while the quantitative data was shown as mean $\pm$ SD or median (min-max). For the factorial ANOVA applied data; the adjusted mean and standard deviation according to age, gender and economic situation were showed.

Results

The mean age of the study group was 71.1 ± 4.6 years. The sociodemographic characteristics of the study group compared with their living arrangements were given in Table 1.

ADL scores of older adults' according to their living arrangements

In the study group, 38.8% (93) of older adults were evaluated as ADL limited. As shown in Table 2, ADL score of older adults living with other family members without spouse was lower than all the other groups ($p<0.001$) and also the rate of the ADL limited ones in the same group was found to be significantly higher than the others ($p=0.001$).

Mean QOL scores of older adults' according to their living arrangements

The mean quality of life score of the whole study group was 83.6 ± 10.2 . As shown in the Table 3, the lowest mean quality of life score found in the older adults living with other family members without spouse, but this difference was not statistically significant. Older adults living with other family members without spouse had significantly lower scores at autonomy ($p=0.002$) and social participation ($p=0.006$) dimensions of quality of life.

Mean GDS scores and having depressive symptoms among older adults' according to their living arrangements

Mean GDS score was 13.9 ± 6.6 and the prevalence of having depressive symptoms was 45.8% ($n=110$) at the whole group. Mean GDS score of older individuals living with other family members without spouse was found significantly higher than all the other groups ($p=0.011$), but the prevalence rate of having depressive symptoms was not significantly different among the groups (Table 4).

The effects of some independent factors on depressive symptoms

Binary logistic regression analysis was applied to assess the relationship between various socio-demographic factors (gender, age, economic situation, number of children), daily living activities and depressive symptoms (Table 5). We found possibility of having depressive symptoms higher among older adults who lived with the spouse and children, whose economic situation was poor and who were ADL restricted. We found no relationship between age, gender, number of children and having depressive symptoms (Table 5).

Table 1. Sociodemographic and Health Related Characteristics of the Study Groups

Characteristics	Groups	Living Arrangements										X ² /F	p
		With the Spouse		With the Spouse and Children		With Other Family Members		Alone		Total			
		n	%	n	%	n	%	n	%	n	%		
Gender	Male	27	45.0	36	60.0	11	18.3	17	28.3	91	37.9	25.83	<0.001
	Female	33	55.0	24	40.0	49	81.7	43	71.7	149	62.1		
Age (years)	65-69	24	40.0	38	63.3	21	35.0	16	26.7	99	41.3	21.51	0.010
	70-79	31	51.7	22	36.7	32	53.3	37	61.7	122	50.8		
Education	≥80	5	8.3	0	0.0	7	11.7	7	11.7	19	7.9	12.31	0.196
	Illiterate	14	23.3	16	26.7	27	45.0	22	36.7	79	32.9		
	Literate without diploma	7	11.7	6	10.0	4	6.7	6	10.0	23	9.6		
	Primary school	34	56.7	29	48.3	27	45.0	28	46.7	118	49.2		
	Secondary school and over	5	8.4	9	15.0	2	3.3	4	6.7	20	8.3		
	Good	11	18.3	10	16.7	3	5.0	12	20.0	36	15.0		
Economic Situation	Moderate	39	65.0	48	80.0	49	81.7	36	60.0	172	71.7	15,49	0.017
	Poor	10	16.7	2	3.9	8	13.3	12	20.0	32	13.3		
Marital Status	Married	60	100.0	60	100.0	0	0.0	0	0.0	120	50.0	240.00	<0.001
	Unmarried	0	0.0	0	0.0	60	100.0	60	100.0	120	50.0		
Number of children		2.8±1.4		4.2±1.3		4.3±1.8		4.9±1.8		4.0±1.6		1.33	0.265
Chronic disease	Have	46	76.7	46	76.7	52	86.7	50	83.3	194	80.8	2.91	0.407
	Don't have	14	23.3	14	23.3	8	13.3	10	16.7	46	19.2		
Self-reported health	Good	17	28.3	23	38.3	11	18.6	17	28.3	68	28.5	9.64	0.140
	Moderate	17	28.3	14	23.3	14	23.7	21	35.0	66	27.6		
	Poor	26	43.3	23	38.3	34	57.6	22	36.7	105	43.9		
Total		60	100.0	60	100.0	60	100.0	60	100.0	240	100.0		

Table 2. ADL scores of older adults' according to their living arrangements

Living Arrangement	n	ADL Score	ADL limited	
		median (min–max)	number	%
Alone	60	12.0 (8.0–12.0)a	27	45.0
With the spouse	60	12.0 (6.0–12.0)a	20	33.3
With the spouse and children	60	12.0 (7.0–12.0)a	13	21.7
With other family members without spouse	60	11.0 (1.0–12.0)b	33	55.0
Total	240	12.0 (1.0–12.0)	93	38.8
Statistical comparison		KW = 17.74, p<0.001	X ² = 15.82, p=0.001	

a,b: The groups not having the same letter are different (p<0.05).

Table 3. Mean QOL domain scores of older adults' according to their living arrangements *

Domains of QOL	Living Arrangement				F	P
	Alone (n=60)	With the spouse (n=60)	With the spouse and children (n=60)	With other family members (n=60)		
Sensory abilities	14.3±0.6a	14.6±0.6a	14.6±0.6a	14.0±0.7a	0.024	0.995
Autonomy	14.7±0.4a	14.2±0.4a,b	13.7±0.4b	12.2±0.4c	5.222	0.002
Past–present–future	13.7±0.3a	13.7±0.3a	13.1±0.4a	12.4±0.3a	1.931	0.126
Social participation	10.9±0.4a	12.0±0.4a	11.5±0.5a	9.8±0.4b	4.337	0.006
Death and dying	15.7±0.6a	16.2±0.6a	17.0±0.7a	16.8±0.6a	0.653	0.582
Intimacy	14.6±0.5a	14.9±0.5a	13.8±0.6a	13.5±0.5a	0.898	0.443
Total score	84.0±1.6a	85.7±1.7a	83.7±1.9a	78.7±1.8a	1.403	0.243

*: The scores in the table are mean±SEM values adjusted according to age, sex and economic situation

a,b,c: For each row, the groups not having the same letter were significantly different (p<0.05)

Table 4. Mean GDS scores and having depressive symptoms among older adults' according to their living arrangements

Living Arrangement	n	GDS Score (mean± SD)	Prevalence of Depressive Symptoms	
			Number	%
Alone	60	13.4±6.6a,b	25	41.7
With the spouse	60	12.6±6.7a	22	36.7
With the spouse and children	60	13.4±6.6 a,b	29	48.3
With other family members without spouse	60	16.3±5.9b	34	56.7
Total	240	13.9±6.6	110	45.8
Statistical comparison		F = 3.76, p =0.011	X ² = 4.438, p=0.142	

a, b: The groups not having the same letter were significantly different (p<0.05)

Table 5. The effects of some independent factors on depressive symptoms

Independent Variables	Groups	n	Depressive Symptoms		p	OR (95%CI)
			number	%		
Gender	Male	91	32	35.2		1.00
	Female	149	78	52.3	0.092	1.73 (0.92–3.26)
	65 – 69	99	44	44.4		1.00
Age	70 – 79	122	55	45.1	0.920	1.03 (0.56–1.90)
	80 +	19	11	57.9	0.179	2.24 (0.69–7.24)
	Good	36	7	19.4		1.00
Economic Situation	Moderate	172	78	45.3	0.050	2.57 (1.01–6.57)
	Poor	32	25	78.1	<0.001	12.84 (3.62–45.55)
Number of children (numeric)					0.969	0.99 (0.83 – 1.20)
	With the spouse	60	22	36.7		1.00
Living Arrangement	With the spouse and children	60	29	48.3	0.012	2.93 (1.27–6.79)
	With other family members	60	34	56.7	0.225	1.69 (0.72–3.94)
	Alone	60	25	41.7		0.96 (0.41–2.23)
Activities of Daily Living	Normal	147	51	34.7		1.00
	Restricted	93	59	63.4	0.001	2.93 (1.58–5.43)
Total	240	110	45.8			

Discussion

Older adults' living with other family members without spouse ADL score was the lowest. It was an expected result because the older adults in this group generally have lost their spouse and their health situation is not adequate for living alone.

In our study we noticed that the QOL and its subgroups scores were the lowest among the elders living with other family members without spouse. The subgroup scores of autonomy and social participation were significantly lower in the group living with the other family members without spouse compared the other groups. In the literature, there are researches that compares the quality of life of the older adults' living alone with the others. Lee et al. and Chou et al. found that older adults living alone had lower level of quality of life, than living with others [11,12]. In our study older adults living alone was not the most disadvantaged group for the quality of life. This difference may be due to the differences in the study design or the differences of socio-cultural values at the communities where the studies were conducted. In Turkey only the older adults who have good health, social, and economic status live alone. They usually live with their children if they need care or support. We could not find any study that compares the quality of life of older adults' according to four different living arrangements as ours in the literature.

The prevalence of having depressive symptoms in our study group was 45.8%. The depression prevalence of the older adults reported in the different researches varies enormously. In a review; thirty-four studies were examined, and the reported prevalence values were ranging from 0.4 to 35% [13]. In a study covering nine European countries the prevalence of depressive symptoms varies from country to country: the lowest prevalence was in Iceland

(8.8%), while the highest was in Germany (45.9%) [14]. Another study from Sri Lankans the prevalence of depressive symptoms was observed as 27.8% [15]. In Turkey; the prevalence of depressive symptoms was reported as; 27.9% in Malatya, 58.3% in Erzurum, 61.1% in Erzincan [16-18]. These differences may be due to regional differences and to different screening methods used in studies.

In our study, prevalence rate of depressive symptoms was found higher among females than males, but the difference between genders was not statistically significant. In the literature there are studies showing depression is more common among women [19-21]. Women's biological and mental structure, social and cultural characteristics may lead them to be more prone to depression.

It was determined that older adults living in an extended family had more depressive symptoms. But when we examine the literature living alone seems more nearer to depression. Joutsenniemi et al [22] found depressive symptoms were two times more common among older men living alone or living with someone except spouse than the older men living with the spouse. Ramos and Wilmoth [23] reported that older people living alone had two times more depressive symptoms than the ones living with spouse. As in many other studies, the prevalence of depressive symptoms in older adults living alone was significantly higher than others [24]. The difference between our result and the literature may be due to Turkish family structure. In Turkey, most of the older adults live with their children because they usually need care and support. The ones living alone may be really the ones who are good at health and socioeconomic situation. Older adults usually may become dependent while living in an extended family and this may be a factor for having depressive symptoms.

The possibility of having depressive symptoms in ADL limited older adults was about three times higher than the ADL normal ones. Similar results were found in different studies. In a study consisting of 1181 elders in Sri Lanka, it has been reported that depressive symptoms was more significantly among the individuals with disabilities and functional impairments [25]. Wada et al have determined a strong correlation between low ADL score and depression among elders [26]. Bozo and colleagues were found that low ADL scores were associated with depression among elders [27].

Older adults with low economic situation had 13 times more depressive symptoms than those with good economic situation at our study. Poor economic situation has found to increase the symptoms of depression in other several studies [28,29]. However, some studies showed depression was not associated with low socioeconomic status [30,31]. These different results may be due to the different determining and perception of economic situation.

We found no significant relationship between age and depressive symptoms. In many studies as ours', it has been reported that age was not an important determinant for depression [32,33]. In contrast, some researchers have determined that the prevalence of depression increases with age [30,34].

This is the first study examining the ADL, QOL and depressive symptoms among the elders living in four different living arrangements in Turkey. There are also several limitations of the study. First, the study is cross-sectional, it is not clear whether this is a causal relationship between living arrangement and ADL, two domains of QOL (autonomy, social participation) and having depressive symptoms or not. Secondly, having depressive symptoms was assessed by only GDS and it is not a clinical evaluation. Thus, the obtained values do not give the prevalence of depression. Thirdly, potential associated factors of depressive symptoms such as comorbidities and household status were not investigated in this study. On the other hand, this study was performed only a provincial center and the results can't represent all of the older adults in Turkey.

In conclusion; the prevalence of the depressive symptoms among older adults was high. The depression scores and the rates of depressive symptoms were the highest and ADL, two domains of QOL (autonomy, social participation) were the lowest among the older adults living with other family members without spouse. Older adults living with other family members without spouse should be encouraged to participate to social life. Programs and projects should be developed to ensure the participation of the older persons in social life. The rates of having depressive symptoms were higher at older adults with poor economic status, ADL limited and living in an extended family. Older adults especially those with higher risk should be closely followed for depression by family health professionals. More comprehensive and prospective studies should be made to better determine the factors affecting the elders' quality of life and depression levels.

Conflict of interest statement

All authors declare no conflict of interest.

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