

**ORIGINAL  
ARTICLE**

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## **Determination of Geriatric Depression Levels Undergoing Homecare Patients: An Investigation in Turkey**

### **ABSTRACT**

**Aim:** The aim of this study was to investigate the home care patients undergoing geriatric depression levels, depending on the demographic characteristics.

**Methods:** Research was conducted by convenience sample method from patients receiving home care services on selected 496 people aged 60 and over. Data were collected by interviewing home care experts from home care patients.

**Results:** The average age of patients in the study was 77.34 (SD = 6.25). 57.3% of the participants were female, 66.9% live with their children in to discuss with other people, 68.5%, 55.6% also feels pain. Research participants' depression levels of individuals within the group; 188 people (37.9%), minor depression, 176 persons (35.5%), moderate depression and 132 people (26.6%) were the major depression.

**Conclusion:** According to the depression levels of the people who participated in the study; sex, converse with other people, the number of pills used, difficulty sleeping status, experience pain, number of pills used was significantly differences in average.

**Keywords:** Home Care, Geriatric Depression, Geriatric Depression Levels, Quality of Home Care Service

## **Evde Bakım Yapılan Hastalarda Geriatrik Depresyon Düzeyinin Belirlenmesi: Türkiye’de Bir Araştırma**

### **ÖZET**

**Amaç:** Bu çalışmanın amacı evde bakımı yapılan hastalarda demografik özelliklerine bağlı olarak geriatrik depresyon düzeylerinin incelenmesidir.

**Yöntem:** Çalışma 60 yaş ve üzerinde bulunan evde bakım hizmeti verilen hastalardan kolayda örneklem yoluyla seçilen 496 kişi üzerinde gerçekleştirilmiştir. Veri evde bakımı yapılan hastalarla evde bakım uzmanlarına yüz yüze görüşmek suretiyle toplanmıştır.

**Bulgular:** Çalışmaya katılan hastaların yaş ortalaması 77,34’dür (S.S=6,25). Katılımcıların %57,3’ü kadın, %66,9’unun çocuklarıyla beraber yaşadığı, %68,5’inin evde bakım uzmanlarının dışında başka insanlarla görüştüğü, %55,6’sının ağrı çekme durumunda olduğu görülmektedir. Araştırma grubunu oluşturan katılımcı bireylerin depresyon düzeyleri; 188 kişi (%37, 9) minör depresyon düzeyinde, 176 kişi (%35, 5) orta ya da ılımlı depresyon düzeyinde, 132 kişi (%26, 6) ise majör depresyon olarak görülmüştür.

**Sonuç:** Çalışmaya katılan kişilerin depresyon durumlarına göre; cinsiyet, diğer kişilerle görüşme, kullanılan hap sayısı, uyku zorluk durumu, ağrı çekme durumuna ve kullanılan hap sayısı ortalamalarında anlamlı farklar bulunmuştur.

**Anahtar Kelimeler:** Evde Bakım, Geriatrik Depresyon, Geriatrik Depresyon Düzeyi, Geriatrik Bakım Kalitesi.

## INTRODUCTION

The aging global population has emerged as a rapidly growing demographic challenge in 21st century. According to the data of United Nations, the ratio of global over-60 population to the general population increased by 3% between 1950 and 2009 (1). About one-quarter (26 per cent) of the world's people are under 15 years of age, 62 per cent are aged 15-59 years, and 12 per cent are 60 or over (2). In 2015, there are 901 million people aged 60 or over, comprising 12 per cent of the global population. The population aged 60 or above is growing at a rate of 3.26 per cent per year. The number of older persons in the world is projected to be 1.4 billion by 2030 and 2.1 billion by 2050, and could rise to 3.2 billion in 2100 (2).

Turkey has the most aging population among all OECD countries (3). The ratio of its elderly population (over-65) was 5,6% in 2000 while it was estimated as 10,2% in 2023 (4). According to the 2016 TUIK data, Elderly population is reached %8.3 in the total population of Turkey. Also, it has increased by %17.1 at least five years (5). According to the same data, the top three countries, which have the highest elderly population, are Monaco with 31.3%, Japan with 27.3% and Germany with 21.8%. As for Turkey, ranks 66th among 167 countries in this index (5).

According to the World Population Prospects Reports of United Nations, it is stated that over the 60 age population ratio is 11.2% in the total population in Turkey in 2015. To the same report, this ratio expected to be 26.6% in 2030, %37.7 in 2050 (2). In parallel with the recent developments both in Turkey and the World, the challenge of population ageing has brought about a need to develop new methods and policies within the field of home-care services. Provision of care by members of families at home to their elder relatives has been more challenging due to several reasons; such as today's changing demographic structure and transition to the nuclear family pattern, women's increasing participation in business activities and residing in smaller housings compared to the past. Therefore, the need to provide adequate nursing (care) services for the elderly is considered as a priority in this field.

Home care service is defined as a supportive care provided by social workers through regular home visits for self-sufficient people who need assistance and support but do not need to be institutionalized (6). However, together with the advancing technology and recent population trends, health care professionals have embarked on a quest to develop new and alternative service delivery methods and support mechanisms. A reason for this is the fact that today's family bonds are getting weaker as a result of certain economic, social, demographic and epidemiologic factors. Due to the complexity of domiciliary care, members of families who have to take care for the others often need professional consultancy services (7, 8).

Home care service is a newly-emerging and also a newly-modeling health care system in Turkey. With the regulation published in the official gazette in February 2015, the term of "home care service" has been changed as "in-home health care service", in addition to an extension in its scope. This regulation, having been published in the official gazette, has also extended the new regulation of home care services and its scope. Miscellaneous provisions, subjects and principles determined by the Ministry of Health were also covered by the publication in official gazette. Furthermore, a number of regulations and projects within the field are still under development (Regulations of the Ministry of Health no. 3359 and the Law no.663) (9).

Elder individuals are psychologically and adversely affected by all the losses they have experienced throughout their lives. Although it is often considered that the elderly are in a relatively peaceful and quiet period of life, they indeed suffer severe forms of depression. Geriatric depression is the most frequent one among other kinds experienced by this age group (10). There are a lot of risk factors for geriatric depression and gender, solitary life, lack of religious rituals and social activities can be given as the major examples among them (11, 12).

Clinical studies aimed at identifying geriatric depression levels in Turkey have intensely increased within the last few years. However, evaluation of its social aspect is a novel approach and yet to be developed well enough. Geriatric depression levels of individuals have also been analyzed in terms of demographic patterns (13). A relevant study on the elderly also analyzes depression incidence in multiple aspects. Elders may hide symptoms of depression in different ways. In this period of life, they may start to show indications of disowning, phobic disorders and ego defense. A solitary life is often preferred as a transition period to deal with this challenge. Isolating selves from the society often results in weaker emotional bonds with others. This situation stimulates the increase in depression levels and occurrence of social isolation among the elderly (14).

When the literature is reviewed we see that there is a lack in studies on geriatric depression levels of patients in Turkey, especially those receiving home care services. The aim of contributing to delivery of home care services in Turkey constitutes the main scope of our study. In addition to this, the main target of our study is to scale geriatric depression levels of patients cared at home.

Within the scope of this target, we will seek answers for the questions below;

1. *What is the overall geriatric depression level of patients who receive home care services in Turkey?*
2. *How do demographic features of patients change by geriatric depression?*

3. *How do demographic features of patients, who receive home care services, change by geriatric depression levels?*

**MATERIAL AND METHODS**

**Hypotheses of the Research:** Certain hypotheses created to achieve the research adjective and answer the research questions given above are as follows;

*H1: There is significant difference in terms of depression level by gender.*

*H2: There is significant difference in depression level by sleep problems.*

*H3: There is significant difference in depression level by the pain situation.*

*H4: There is significant difference in depression level by living with own children.*

*H5: There is significant difference in depression level by meeting others.*

*H6: There is significant difference in depression level by age groups.*

*H7: There is significant difference in depression level by the amount of drug intake.*

**Sample of the Research:** This study was conducted on 496 patients from 14 hospitals operating under the Association of Northern Anatolia Public Hospitals, who are over the age of 60 and receive hospital-based home care services. The sample group was chosen by convenience sampling method. The data was collected by home care professionals through face-to-face interviews with the patients who receive home care services. The participants were informed about the study and their consent for participation was taken. The Geriatric Depression Form, which had been translated into Turkish, was translated back to English by two experts. Both of the versions were compared and no difference was identified between

them (19). Translated into Turkish, the hypotheses of research were tested by this short form of Geriatric Depression Scale and the data obtained through responses given to questions about demographic features. Interviews with the patients lasted for 10-20 minutes in average.

**The Scale Used in the Research:** “Yesavage Geriatric Depression Scale” was used to evaluate moods of the elderly (15). This scale questions seven hidden emotional mood characteristics of individuals. These are somatic anxiety, cognitive inefficiency, sense of discrimination, motivation disorder, low expectation towards the future and lack of self-respect and low mood situation.

**RESULTS**

Table 1 shows demographic features of the patients who receive home care services. A majority of the patients undergo neurologic, psychiatric, cardiovascular, chronic and endocrine diseases. The average age of the participant patients is 77,34 (s.d.=6,25). 57,3% of the participants were women, 66,9% were living with their own children, 68,5% were meeting people other than home care professionals and 55,6% were having pains. Depression levels of participants, who formed the sample group of the study, were measured by a short form of Geriatric Depression Scale with 15 questions. Scale items were categorized as Minor Depression (1-5), Mild or Moderate Depression (6-10) and Major Depression (10-15). Results obtained through application of the scale revealed that 188 participants were undergoing minor depression (37,9%), 176 were having mild or moderate depression (35,5%) while the other 132 were suffering with major depression (26,6%).

**Table 1.** Demographic features of patients receiving home care services

<i>Sex</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Living with own children</i>	<i>Frequency</i>	<i>Percentage</i>
Female	284	57.3	Yes	332	66.9
Male	212	42.7	No	164	33.1
Total	496	100.0	Total	496	100.0
<i>Age</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Meeting other people</i>	<i>Frequency</i>	<i>Percentage</i>
60 - 74 ages	148	29.8	Yes	340	68.5
75 - 84 ages	188	37.9	No	156	31.5
85 and over	160	32.3	Total	496	100.0
Total	496	100.0			
<i>Sleep problem</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Amount of Drug Intake</i>	<i>Frequency</i>	<i>Percentage</i>
Empty	4	0.8	3 and less	116	23.4
Yes	260	52.4	4-5 pieces	196	39.5
No	232	46.8	6 and more	184	37.1
Total	496	100.0	Total	496	100.0
<i>Pain situation</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Depression Levels</i>	<i>Frequency</i>	<i>Percentage</i>
Yes	276	55.6	Minor depression	188	37.9
No	220	44.4	Moderate depression	176	35.5
Total	496	100.0	Major depression	132	26.6
			<b>Total</b>	<b>496</b>	<b>100,0</b>

T-test and uni-directional variance (ANOVA) analyses were applied to identify

differences by demographic factors. For cases with significant differences, the Turkey HSD test was

used as an additional method. Some factors such as gender, sleep problem, pain situation, living together with own children and meeting other people were evaluated by T-test while the others including age and drug intake were tested by ANOVA. “p” value for the hypotheses used in this research was considered as 0.05. By this means, results of the analyses could be interpreted with a reliability ratio of 95%.

Results given in Table 2 indicate significant difference between depression levels of males and females by gender variable. The reason for this difference was found out to be depression levels of females. There is also significant difference in depression levels by sleep problems. The reason for

this difference was found out to be depression levels of those with sleep problems. Significant difference was revealed in depression levels by pain situation. The reason for this difference was found out to be depression levels of those having pains. There is significant difference in depression levels by the variable of meeting people other than health professionals. The reason was found out to be caused by depression levels of those never meet other people. On the other hand, no significant difference was identified in depression levels by the variable of living with own children. Those living with their own children do not show any difference in depression levels.

**Table 2.** T-test for demographic variables

Variable	M	SS	t	p	%95 CI		Cohen's d
					LL	UL	
Sex			2.393	0.017*	0.14	1.49	0.2
Female (n=284)	8.19	8.19					
Male (n=212)	7.37	3.62					
Sleep Problem			4.462	0.000*	0.84	2.16	0.4
Yes (n=260)	8.53	3.79					
No (n=232)	7.03	3.66					
Pain situation			3.526	0.000*	0.52	1.86	0.3
Yes (n=276)	8.37	3.96					
No (n=220)	7.18	3.45					
Living with own children			0.575	0.565	-0.50	0.92	0.3
Yes (n=332)	7.91	3.66					
No (n=164)	7.70	4.03					
Meeting other people			-1.838	0.45*	-1.39	0.046	0.2
Yes (n=340)	7.63	3.98					
No (n=156)	8.30	3.30					

\*p<0.05, df=494

Results given in Table 3 indicate that there is significant difference in depression levels by age groups (p<0,01). The Turkey HSD test was applied to find out the reason for this difference and depression levels of 60-74 and 75-84 age groups as

well as 60-74 and over-85 age groups were identified to be different (p<0,01). Another difference was found between depression levels of 75-84 and over-85 age groups (p<0,01).

**Table 3.** Uni-Directional Variance Analysis (ANOVA) for demographic variables and its results

Age		Sums of Squares	Degress of Freedom	Means of Squares	F	P
Intergroup		624.089	2	312.044	23.681	0.000**
Intragroup		6496.266	493	13.177		
Total		7120.355	495			
(I) AGE	(J) AGE	Mean difference (I-J)	SS	P	95% confidence interval	
					Maximum	Minimum
60-74 ages	75-84 ages	-1.52099 (*)	0.39890	0.000	-2.4587	-0.5832
	85 and over	-2.84865 (*)	0.41399	0.000	-3.8219	-1.8754
75-84 ages	60-74 ages	1.52099 (*)	0.39890	0.000	0.5832	2.4587
	85 and over	-1.32766 (*)	0.39044	0.002	-2.2455	-0.4098
85 and over	60-74 ages	2.84865 (*)	0.41399	0.000	1.8754	3.8219
	75-84 ages	1.32766 (*)	0.39044	0.002	0.4098	2.2455
Drug Intake		Sums of Squares	Degrees of Freedom	Means of Squares	F	P
Intergroup		273.321	2	136.660	9.840	0.000**
Intragroup		6847.034	493	13.889		
Total		7120.355	495			
(I) PILL	(J) PILL	Mean difference (I-J)	SS	P	95% confidence interval	
					Maximum	Minimum
3 and less	4-5 pieces	0.26460	0.43656	0.817	-0.7617	1.2909
	6 and more	-1.35607 (*)	0.44183	0.006	-2.3947	-0.3174
4-5 pieces	3 and less	-0.26460	0.43656	0.817	-1.2909	0.7617
	6 and more	-1.62067 (*)	0.38255	0.000	-2.5200	-0.7214
6 and more	3 and less	1.35607 (*)	0.44183	0.006	0.3174	2.3947
	4-5 pieces	1.62067 (*)	0.38255	0.000	0.7214	2.5200

\*\*p<0,01; Tukey HSD

There is also significant difference in depression levels by drug intake ( $p<0,01$ ). The Turkey HSD test was applied to reveal the reason for this difference and depression levels of those taking 3 or less pills and 6 and more pills was identified to be different as a result of the comparison among all groups ( $p<0.01$ ). There is also difference between depression levels of those taking 4-5 pills and 6 and more pills ( $p<0.01$ ). On the contrary, no significant difference was identified between depression levels of those taking 3 or less pills and 4-5 pills ( $p<0.01$ ). H1, H2, H3, H4, H6 and H7 hypotheses were approved according to these results (Table 2 and Table 3).

## DISCUSSION

This study was conducted in order to analyze demographic features of patients who receive home care services in Istanbul and their average depression levels. Depression is a widespread and frequent psychological disorder among the elderly and an ignored problem as well.

This study analyzes social, psychological and demographic conditions of the sample group of elders. Similar with the findings in literature, we identified significant difference in depression levels by a variety of factors, namely gender, meeting others, amount of drug intake, sleep problems, pain situation and number of pills taken. Furthermore, results obtained in analysis of distribution by gender show similarity with other studies in the field. For instance; a study conducted in USA in 2004 reveals that ratio of females over-65 individuals who suffer with major depression problems is 1.4% in general population while that of males is 0.4%. Findings obtained through our study support these aforementioned results (10).

This study also supports findings of researches on social and psychological aspects of the subject (10). The ever changing world, advancing technology and new social interaction tools have had an impact on the elderly, as well as others. All these developments have made them be socially more abstracted and isolated and this problem has started to be considered as a common problem of both social environments and governments.

Through this study it was identified that those living as a family with their own children show relatively low levels of depression. This result was an expected and favorable one as it is well known that the only source of happiness for elder individuals is their children. In terms of a number of different variables, family bonds have positive and constructive effects on individuals. For different reasons to be mentioned below members of younger generations have difficulties in taking care of their old mothers and/or fathers. Although most of them feel raw about this decision, they often have to resort to institutionalizing them at nursing homes or similar institutions (16).

The study also reveals that depression levels of those who meet people other than health care professionals are relatively lower than others. As a person ages, his/her social environments gets smaller and social interaction gets weaker together with this lack in communication. In order to avoid this, activities done by the elderly in question should be sustained and the social isolation should be prevented. Likewise the number and diversity of elders' social activities should be increased as far as possible. Founding associations, social environments, clubs and organizing feasts and attractions that may help them gather with each other would contribute to the efforts in this context. Furthermore, having them go to the theatre and movies, attend to art exhibitions, sport activities, dancing and entertainment events and organizing pleasure trips would also promote social interaction and communication, thus socialization of the elderly.

We identified another significant difference in depression levels by pain situation. As for the factor of pain situation, it was found out that 20-80% of those having chronic pains may show indications of depressive disorders. This changeable ratio may be dependent on target group of participant patients and the research tools used during the study, based on selection of patients, age and many other variables. For instance; as patients who undergo treatments in pain and oncology clinics have more severe levels of physical disorders and workforce loss. Studies conducted on this group of patients have exposed higher depression levels compared to those receiving treatment by family practice centers (17). As for the elderly, pain levels often appear as relatively high due to age, physiological factors and aging. Pain levels are also affected by depression levels. Increased levels of pain impair quality of life and cause distress as a result.

A moderate level of stress and depression is considered normal for the elderly unless it reaches to a clinical level. In clinical cases patients may have to stay in clinics for a long time and the treatment process should properly be observed. Stress in elders is often confused with many other cases and thus the required treatment is ignored. We identified during this study that elders in 60-75 age group have relatively lower levels of depression compared to those in 75-85 and over-85 age groups with higher levels of depression. Furthermore; as multiple drug intakes suppress pains and emotions, depression ratio among patients taking 6 and more pills was identified to be low and significant. Studies also revealed significant relation between drug dependency and depression. It is supposed that causing factors of distress and depression increase drug intake and dependency and the emergent dependency may result in psychologically destructive consequences. Nevertheless, depression levels may be decreased by treating these causing

factors of distress and increasing quality of patients' lives. Consequences dependent on pain and illnesses may be suppressed by drug intake (18).

In conclusion; findings of this study, conducted on cases experienced by the elderly, other than normal and expected ones, expose different impact factors of distress and depression. Chronic diseases, being a woman (gender), being single or widow(er), mental problems, alcohol abuse, drug dependency and depressive and stressful environments can be given as examples of common risk factors of depression and distress in elders (10). It was concluded by the study that women, patients with drug dependency, sleep problems and pains, those never meet other people and those take 6 or more pills tend to have higher levels of depression. The mentioned frequent drug intake may be based on either an illness or dependency (18). Determinants in evaluation of depression levels among patients who receive home care services were identified as gender, meeting other people, amount of drug intake, sleep problems and pain situation. The most seen cases for patients over-65 admitting to clinics are sleep disorder, high amounts of drug intake, social isolation and pain situation (17). Considering all the findings obtained by the study, some possible projects and initiatives may be proposed as follows;

- *Home care professionals should be developed and supported through trainings,*
- *Home care and health professionals should be motivated (through overtime fees or premiums),*
- *Follow-up cards should be developed and given to families during home visits to ensure*

*efficiency of data input processes and to observe medical histories,*

- *Preventive medicine should be effectively implemented as a part of home-based health services to enable treatment and follow-up at home, without coming to hospitals,*

- *Considering the ageing trend of population and increase in prevalence of diseases, "community based health care services" should be adopted as a duty with the consciousness of being a social state,*

- *Social services and health units should work coordinately to bring health care and social services to patients' doorstep and social isolation of elders should be prevented,*

- *Public awareness of elderliness and ageing should be raised so as to establish empathy among society,*

- *Treatments for physical diseases based on ageing should be supported with psychological therapies,*

- *Governments should act cooperatively and develop common solutions in this respect.*

Sample group of the study consists of patients over 60 who receive hospital-based home care services. The study was implemented only in one district of a city in Turkey. It may be extended and implemented in all cities of the country. Adequate data and standard inspection forms should be developed to achieve Turkey's general level of representation. Larger sample groups and more comprehensive and sustained follow-up processes are recommended for further studies.

**Conflict of Interests:** Not stated.

## REFERENCES

1. WHO. World Health Statistics. [http://www.who.int/gho/publications/world\\_health\\_statistics/EN\\_WHS09\\_Full.pdf](http://www.who.int/gho/publications/world_health_statistics/EN_WHS09_Full.pdf). 2009.
2. United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, Key Findings and Advance Tables. Working Paper No. ESA/P/WP.241.
3. Akdeniz M, Yaman A, Howe J, et al. Birincil Bakımda Yaşlılarda Depresyonun Rehberlere Dayalı Yönetimi. Gerofam. 2010; 1(3): 25-46.
4. TÜİK. Türkiye İstatistik Kurumu. [www.tuik.gov.tr](http://www.tuik.gov.tr); Nüfus Projeksiyonları, 2013-2075, Sayı: 15844, Şubat 2013.
5. TÜİK. Türkiye İstatistik Kurumu. [www.tuik.gov.tr](http://www.tuik.gov.tr); İstatistiklerle Yaşlılar 2016, Sayı: 24644, Mart 2017
6. Tobambay İ. Sosyal Hizmetler Yükseköğrenim Kurumları Neden Hala Bir Tane?. Sabem Dergisi, Sosyal Hizmetler Araştırma, Belgeleme, Eğitim Vakfı Yayını, 1999 Mayıs; 23: 6a.
7. WHO. Definition Diagnosis and classification of Diabetes Mellitus and its Complications, 1999, [http://apps.who.int/iris/bitstream/10665/66040/1/WHO\\_NCD\\_NCS\\_99.2.pdf](http://apps.who.int/iris/bitstream/10665/66040/1/WHO_NCD_NCS_99.2.pdf).
8. WHO. Technical Report Series 89. Long Term Care Laws in Five Developed Countries: A Review, 2000. [http://www.who.int/chp/knowledge/publications/lc\\_laws\\_5developed\\_countries.pdf](http://www.who.int/chp/knowledge/publications/lc_laws_5developed_countries.pdf).
9. Sağlık Bakanlığı 3359 ve 663 Sayılı Kanun. Kanun Numarası: 3359 Kabul Tarihi:7/5/1987, Yayımlandığı R. Gazete: Tarih: 15/5/1987, Sayı: 19461, Yayımlandığı Düstur: Tertip: 5 Cilt: 26
10. Birrer RB, Vemuri SP. Depression In Later Life: A Diagnostic And Therapeutic Challenge. Am Fam Physician. 2004;69(10):2375-82.
11. Heikkinen RL, Kauppinen M. (2004). Depressive Symptoms in Late Life: A 10- Year Follow-Up. Arch Gerontol Geriatr. 2004;38(3):239-50.

12. Tiemeier H, Breteler MM, van Popele NM, et al. Late-Life Depression is Associated with Arterial Stiffness: A Population-Based Study. *J Am Geriatr Soc.* 2003;51(8):1105-10.
13. Bodur S. Using WHOQOL-BREF to Evaluate quality of life among Turkish elders in different residential environs', *J Nutr Health Aging.* 2009;13(7):652-6.
14. Eker E, Noyan A. Yaşlıda Depresyon ve Tedavisi. *Klinik Psikiyatri.* 2004; 7(2): 78-97.
15. Yesavage JA, Brink TL, Rose TL, et al. Development and validation of a geriatric depression screening scale: A preliminary report *J Psychiatr Res.* 1982-1983;17(1):37-49.
16. Demirkan T, Kırdı N, Akyar İ ve ark. Dün, Bugün ve Yarın Yaşlılık; Kent Yaşamı ve Yaşlılık. Ankara: Yaşlılık Platformu Yayınları; 2009.
17. Edmondson JC. Chronic Pain and the Placebo Effect. In: Sadock B, editor. *Comprehensive Textbook of Psychiatry.* 7th ed. Philadelphia, PA: Lippincott Williams and Wilkins; 2001: 1981-2001.
18. Gellad WF, Grenard JL, Marcum ZA. A systematic review of barriers to medication adherence in the elderly: looking beyond cost and regimen complexity. *Am J Geriatr Pharmacother.* 2011;9(1):11-23.
19. Brislin RW. Back-Translation for Cross-Cultural Research. *Journal of Cross-Cultural Psychology.* September 1970. 1(3): 185-216.

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