

The Prevalence of Depressive Symptoms and Risk Factors among Older Adults Admitted to the Geriatrics Outpatient Clinic: A Natural Result of Normal Aging or Not?

Asli Tufan^{1*}, Gulistan Bahat² and Mehmet Akif Karan²

¹Department of Internal Medicine, Division of Geriatrics, Marmara University Hospital, Turkey

²Department of Internal Medicine, Division of Geriatrics, Istanbul Medical School, Istanbul University, Turkey

*Corresponding author: Asli Tufan, Department of Internal Medicine, Division of Geriatrics, Marmara University Hospital, Istanbul University, Pendik, 34390, Istanbul, Turkey, Tel: + 90 212 414 20 00-33204; E-mail: aslitufan@yahoo.com

Rec date: Jul 16, 2016; Acc Date: Aug 22, 2016; Pub Date: Aug 24, 2016

Copyright: © 2016 Asli T, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Introduction: Depression is a common geriatric syndrome. It is usually underdiagnosed and inadequately treated. The objective of this study was to investigate the frequency of depression and to examine its predictors in patients older than 75.

Methods: One hundred and eighty-six patients (123 female) older than 75 years of age were included in the study. All subjects were evaluated via 'Geriatric Depression Scale-Short Form (GDS-SF).' Multiple linear regressions were used to study the effects of continuous variables such as age, body mass index, marital status, who one lives with, having one's own room at home, frequency of contact with relatives, exercise, chewing problems, difficulties in swallowing, having a special diet, fear of falling, involuntarily waking up early, urinary incontinence, constipation, impairment in cognition, nutritional status (Mini Nutritional Assessment-Short Form, MNA-SF), frailty, number of illnesses, and number of drugs.

Results: The mean GDS-SF score was 3.49 ± 3.30 , of which 30.7% of patients had 'mild' depression. There was no significant difference between male and female groups. In multivariate regression analyses, low levels of exercise, chewing problem, involuntarily waking up early and constipation showed significantly associations with depression ($p < 0.05$).

Conclusion: We observed mild depression in nearly one-third of patients older than 75. For clinicians dealing with this population, it is important to assess depressive symptoms and predictors in geriatric patients.

Keywords: Depression; Geriatrics; Risk factors

Introduction

Depressive disorders are frequently encountered in the geriatric population. The prevalence of depressive disorders in the elderly was reported to be 1-4%, in addition to 2% with dysthymia and 4-13% with minor depressive disorder [1,2]. These rates go up to 25% for the elderly who live in hospitals and nursing homes. Disruption in quality of life is correlated to results such as the worsening of cognitive functions, early application to nursing homes, and mortality and morbidity increase. Depression causes an increase in "loss of ability" and "mortality" in older age groups and worsens prognosis of the accompanying medical diseases. Depression cause loss of ability and function more than the diseases such as diabetes and hypertension. However, depression in old age is lesser-known and poorly treated because it is difficult to diagnose and considered to be part of the aging process [3]. Patients are diagnosed as having depression when they are examined due to sleep disorders, decreased appetite, energy loss, immediate fatigue, constipation, pain, nausea and dementia [4]. In this study, we aimed to determine the frequency of depressive symptoms among patients aged over 75 years who were admitted to a geriatric outpatient clinic, as well as the accompanying risk factors.

Methods

One hundred eighty six patients aged over 75 years who applied to the geriatrics outpatient clinic within a university hospital in Istanbul were enrolled in the study. Patients who did not provide consent and received less than 24 points on the mini-mental state examination, with the questions being directly asked to the patients, were not involved in the study.

The participants were questioned about their age, their marital status, the people in their household, whether they had a room to themselves, the frequency of visits to relatives, and their ability to exercise by the geriatric specialist in order to determine their socio-demographic characteristics, and the data were recorded in their files.

Katz Activities of Daily Living (ADL) Scale was used for the functionality component in comprehensive geriatric assessment. This scale includes questions regarding bathing, dressing, going to the toilet, transfer, continence and nutrition. If unable, 1 point; if able with help, 2 points; and if able without help, 3 points are given to the participant. The total is maximum 18 points. While 6 points indicate dependence, 7-12 points indicate quasi-dependence, and 13-18 points independence.

The Lawton-Brody instrumental activities of daily living (IADL) scale was also included in our study. This scale questions elements such as using a phone, shopping, preparing food, house chores, laundry, traveling, taking medicine, managing financial affairs. If unable, 1 point; if able with help, 2 points; and if able without help, 3 points are given to the participant. The maximum total score is 24 points. While 8 points show dependence, 9-16 points show quasi-dependence, and 17-24 points are considered for independence [5,6].

The Mini Nutritional Assessment Short-Form (MNA-SF), body mass index (BMI), and difficulty in swallowing and chewing were questioned to determine the nutritional state. The MNA-SF is 14 points in total. A score of 0-7 points indicate malnutrition, 8-11 points risk of malnutrition, and over 11 points normal nutritional status [7].

Questions regarding chronic pain were asked. The participants were questioned about whether or not they experienced on going pain within the last 3-6 months. If the answer was positive, the region or regions of pain were found out and recorded. Suitable for the elderly, the Visual Analogue Scale (VAS) was used in order to determine the pain level and it was registered in the numeric scale [8,9]. Urinary incontinence (for urge incontinence by asking patient “Do you have a strong and sudden urge to void that makes you leak before reaching the toilet?” and for stress incontinence by asking patient “Is your incontinence caused by coughing, sneezing, lifting, walking, or running?”), fear of falling, presence of constipation (fewer than three defecations per week or Straining in more than 25 percent of defecations), condition of sleep (involuntarily waking up early than normal routine), number of chronic diseases and number of medications were recorded.

The Geriatric Depression Scale-Short Form (GDS-SF) was used as the screen test to discover the depression state. First developed by Yesavage et al. as a 30-question scale, the Geriatric Depression Scale was afterwards published and validated with a short-form version of 15 questions [10].

The 15-item scale inquires about the satisfaction with life, feeling of hopelessness or helplessness, dropping of activities or interest and other questions related to depression. According to the form, a score of 0-4 points was considered normal, 5-8 points mild depression, 9-11 points moderate depression, and 12-15 points severe depression [11-13]. The numeric variables were evaluated and compared using a Student's t-test, Spearman's correlation test, and linear regression analysis, whereas the non-numeric variables were analyzed using the Chi-square test. The analysis was accepted as statistically significant when the obtained p-value was ≤0.05. The statistical analysis of the data was performed using SPSS 21.0 (Statistical Package for Social Sciences, SPSS Inc., Chicago, IL) software.

The study was approved by the local Ethics and Research Committee and all of the participants provided written informed consent.

Results

The sex, age, body mass index, activities of daily living, nutritional status, socio-demographic findings and accompanying geriatric syndromes of 186 patients who participated in our study are shown in Table 1 in detail. The mean score of Geriatric Depression Scale-Short Form (GDS-SF) was 3.49 ± 3.3 (min.0-max.14) for all 186 patients, 2.71 ± 2.9 (min.0-max.13) for the male patients, and 3.9 ± 3.5 (min.0-max.14) for the female patients.

Parameter	Values
Age (year)	80.5 ± 3.7
Gender (female)	123 (66%)
BMI (kg/m ²)	29 ± 5.4
Katz ADL	16.5 ± 1.8
Lawton IADL	20.2 ± 4.8
MNA-SF	12.2 ± 1.8
Marital Status (Married)	79 (43%)
Living alone	40 (21.5%)
Having a room alone	166 (89.2%)
Never sees relatives	27 (14.5%)
Exercising daily physical activities	62 (33.3%)
Presence of chewing problem	57 (30.6%)
Presence of swallowing problem	21 (11.3%)
Has fear of falling	120 (64.5%)
Wakes up early involuntarily	107 (57.5%)
Has chronic pain	88 (47.3%)
Has urinary incontinence	68 (36.6%)
≥4 drugs	151 (81.1%)
Constipation	68 (36.6%)
Number of chronic diseases	4.7 ± 2.1

Table 1: Baseline demographic and comprehensive geriatric assessment characteristics of the patients (n= 186).

There was no significant difference between the GDS-SF scores of the female and male groups (p=0.022). The GDS-SF scores of the elderly that were involved in this study are shown in Table 2 by sex.

Parameters Range	Male n (%)		Female n (%)		Total n (%)	Significance n (%)
GDS-SF Normal (0-4)	48	76.1	81	65.8	129 69.4	$\chi^2=2.09$ p=0.148
Mild Depression (5-8)	12	19.7	24	19.5	36 19.4	
Moderate Depression (9-11)	2	3.1	12	9.8	14 7.5	
Severe Depression (12-15)	1	1.5	6	4.9	7 3.8	

Table 2: Comparison of GDS-SF scores by gender.

In order to determine possible depression risk factors, the relationships between presence of depression based on GDS-SF score and body mass index, problem with chewing, state of physical activity,

fear of falling, involuntarily waking up early, constipation, nutritional status (Mini Nutritional Assessment-Short Form, MNA-SF), and chronic pain were evaluated (Table 3).

Parameter	Depressive (n=57)	Non- depressive (n=129)	p-value
Gender			
Male	15	48	0.18
Female	42	81	
BMI (kg/m ²)			
<23.9	5	25	0.111
24-30	27	63	
>30	25	41	
Chewing problem			
Yes	34	23	<0.01*
No	23	106	
Physical activity			
Yes	21	103	<0.01*
No	36	26	
Fear of falling			
Yes	39	63	<0.012*
No	18	66	
Involuntarily waking up early			
Yes	45	62	<0.01*
No	12	62	
Constipation			
Yes	34	34	<0.01*
No	23	95	
MNA-SF			
Malnutrition	4	2	<0.01*
Malnutrition risk	22	15	
Normal	31	112	
Chronic Pain			
Yes	31	57	>0.199
No	26	72	

Table 3: Comparison of analysed parameters (socio-demographic, habitual and comprehensive geriatric assessment characteristics) of patients according to depression scores (n = 186).

There was a statistically significant correlation between depression and lack of physical activity, chewing difficulties, fear of falling, involuntarily waking up early, constipation, low MNA-SF scores (p< 0.05).

The significant relationship between lack of physical activity, chewing difficulties, fear of falling, involuntarily waking up early, constipation, low MNA-SF scores and depression was assessed using a multivariate regression analysis model. Chewing difficulties, involuntarily waking up early, lack of physical activity and constipation were discovered to be independent risk factors in the occurrence of depression (Table 4).

Independent depression risk factors		
Chewing problem (<0.001*)	0.170	0.074-0.391
Fear of falling (0.949)	0.973	0.423-2.238
Waking up early (0.041*)	0.403	0.169-0.963
Physical activity 0.001*	4.517	1.918-10.636
Constipation (0.029*)	0.410	0.184-0.915

Table 4: Independent depression risk factors (Multivariate regression analysis model).

Discussion

In our study, we found that 30.7% of patients had 'mild' depression. There was no significant difference between the male and female groups. In the multivariate regression analyses, low levels of exercise, chewing problems, involuntarily waking up early, and constipation showed significantly associations with depression.

Depressive symptoms were recorded in 10% to 15% of elderly patients who needed medical attention in the Canada. Also, British and American studies have reported a prevalence of substantial depressive symptomatology in 14.7% to 20% of elderly people living in the community [14].

Late-life depression, despite being common, is underdiagnosed because it is considered a natural result of normal aging. The usual symptoms of depression observed in young people are expressed differently by the elderly. For instance, depressive symptoms with no sadness and limited feelings and emotions, especially cognitive and somatic complaints and symptoms that are not remedied despite frequent visits to a hospital, can also indicate depression in older adults [14].

In a study by Linden et al. 50% of the patients who had complaints and internal diseases evaluated and treated by their doctors were diagnosed as having depression after being examined by psychiatrists [4]. Therefore, it is recommended that physicians screen elderly patients for depression, even if they do not have complaints [15,16].

The frequency of depression increases in old age because depression risk factors are experienced more often in old age. The loss of a partner, living alone, retirement, loss of functionality, chronic diseases, chronic pain, and using multiple drugs are among these risk factors [17,18].

Arslantaş, et al. found that the depression scores of the subjects who lived alone or had a history of chronic diseases, as well as those of female patients, were high in their study [19].

In our study, we discovered a relationship between the presence of depression and malnutrition when the risk factors were analyzed. Similarly, Feldblum et al. determined the state of depression using the GDS-SF in a study in which they tested 259 geriatric patients with a mean age of 75 years who applied to the internal diseases department of a university hospital in Israel for nutritional disorders. The mean depression score for the elderly was found to be 5.8 in their study, and the depression scores were higher in patients with malnutrition than in patients without malnutrition risk [20].

Saka et al. discovered that depression was one of the most significant factors in increasing the risk of malnutrition when they investigated the nutritional status of elderly patients who had applied to geriatric outpatient clinic and the relationship between malnutrition and other geriatric syndromes [21].

In our study, difficulty chewing was correlated with depression. Similarly, Laudisio et al. reported that chewing problems accompanied depression in their study of 927 patients over the age of 65 [22].

Contrary to reports in the literature, female sex was not a risk factor in terms of depression development in our study. This could be explained by the fact that the mean age of our patients was higher than that of literature. As age increases, the difference between the sexes in terms of the risk of depression may disappear, as was the case in a study by Stek et al. in which they investigated depression in the elderly aged over 85 years and the accompanying risk factors [23].

We discovered a relationship between a lack of physical activity and depression in our patients. Many studies in the literature show that regular physical activity can protect people from depression. White et al. also proved this positive effect in their study involving 9,560 elders [24].

The correlation between the fear of falling and depression was seen in our study. The fear of falling causes limitations in activity and limited activity causes decreases in independent social interaction, inactivity, and a lower quality of life. The limitation of activity is a determinant of falls [25]. Deshpande et al. state that depression is a modulated factor for the limitation of activity, which causes the fear of falling [26].

In a study, it was reported that patients who had limited movement and a fear of falling had anxiety and depressive symptoms more frequently and that depression increased the fear of falling in older adults more greatly than physical factors [27].

In our study, we found that involuntarily waking up early was a risk factor for depression. Depression's negative effect on sleep grows with age [28]. These effects are characterized by the lessening of sleep efficiency and waking up early in the morning. While the negative effects of depression on sleep have already been defined, untreated insomnia can also be a risk factor for the development and recurrence of depression [29,30].

It would be favorable to keep in mind that chronic pain that is unresponsive to various therapies can result from depression in the geriatric population. Constipation, on the other hand, is the most common somatic symptom. Woo et al. reported that constipation was an independent risk factor for depression in their study of depression symptoms and risk factors in adults aged over 70 years [31].

The present study has some limitations. The cross-sectional design prevented the investigation of causality. We excluded patients whose

minimal score was <24. This may have caused an underestimation of the prevalence of depression in the study.

Conclusion

Depression is one of the most common geriatric syndromes experienced by the elderly. The diagnosis of depression is often overlooked due to the prejudiced views of patients, relatives, or physicians who may believe that depressive symptoms are caused by old age or comorbidities. For early diagnosis and treatment of geriatric depression, it is of utmost importance that physicians treating geriatric patients evaluate their patients for depression.

Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

Disclosure: This paper was presented at the 10th International Congress of the European Union Geriatric Medicine Society – Geriatric Medicine Crossing held 17-19 September 2014 in Rotterdam, The Netherlands as a poster.

The poster was published in Supplement 1, Volume 5 of European Geriatric Medicine (2014): http://www.eugms2014.org/upload/siteimages/EUGMS/2014EUGMS_abstract%20supplement%20Final.pdf

References

1. Barua A, Ghosh M, Kar N, Basilio M (2010) Distribution of depressive disorders in the elderly. *J Neurosci Rural Pract* 1: 67-73.
2. Unützer J (2007) Clinical practice. Late-life depression. *N Engl J Med* 357: 2269-2276.
3. Kok RM, Heeren TJ, Nolen WA (2011) Continuing treatment of depression in the elderly: a systematic review and meta-analysis of double blinded randomized controlled trials with antidepressants. *Am J Geriatr Psychiatry* 19: 249-255.
4. Linden M, Borchelt M, Barnow S, Geiselmann B (1995) The impact of somatic morbidity on the Hamilton depression rating scale in the very old. *Acta Psychiatr Scand* 92: 150-154.
5. Cho CY, Alessi CA, Cho M, Aronow HU, Stuck AE, et al. (1998) The association between chronic illness and functional change among participants in Comprehensive Geriatric Assessment Program. *Am Geriatr Soc* 46: 677-682.
6. Lawton MP, Moss M, Fulcomer M, Kleban MH (1982) A research and service oriented multilevel assessment instrument. *J Gerontol* 37: 91-99.
7. Rubenstein LZ, Harker JO, Salva A, Guigoz Y, Vellas B (2001) Screening for undernutrition in geriatric practice: developing the short-form mini nutritional assessment (MNA-SF). *Journal of Gerontology* 56: 366-377.
8. Watanabe S, Kayama K (1989) Visual analogue pain scale with convenient digitizer. *Anesthesiology* 71: 481.
9. Beissner K (2012) Conservative pain management for the older adults. İçinde Guccione AA., Wong RA. Ve Avers D, (eds.) *Geriatric Physical Therapy* (3th edn), St. Louis, Missouri: Elsevier Mosby; 2012; Part IV, Chapter 21: 395-411.
10. Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, et al. (1982) Development and validation of a geriatric depression screening scale: a preliminary report. *J Psychiatr Res* 17: 37-49.
11. Almeida OP, Almeida SA (1999) Short versions of the geriatric depression scale: A study of their validity for the diagnosis of a major depressive episode according to ICD-10 and DSM-IV. *International Journal of Geriatric Psychiatry* 14: 858-865.

12. Burke WJ, Roccaforte WH, Wengel SP (1991) The short form of the geriatric depression scale: A comparison with the 30-item form. *J Geriatr Psychiatry Neurol* 4: 173-178.
13. Ertan T, Eker E (2000) Reliability, validity, and factor structure of the geriatric depression scale in Turkish elderly: Are there different factor structures for different cultures? *Int Psychogeriatr* 12: 163-172.
14. Mitchell AJ, Bird V, Rizzo M, Meader N (2010) Which version of the geriatric depression scale is most useful in medical settings and nursing homes? Diagnostic validity meta-analysis. *Am J Geriatr Psychiatry* 18: 1066-1077.
15. Lyness JM, King DA, Cox C, Yoediono Z, Caine ED (1999) The importance of subsyndromal depression in older primary care patients: prevalence and associated functional disability. *J Am Geriatr Soc* 7: 47-52.
16. Beers MH, Berkow R (2012) Section 1. Basics of geriatric care. Chapter 4. Comprehensive geriatric assessment. *The Merck Manual of Geriatrics*. (3rd edn). New Jersey: Merck Research Laboratories 40-6.
17. Kavakci O, Bilici M, Çam G, Ülgen M (2011) Prevalence of depression and cognitive impairment in old age in Trabzon. *Anadolu Psikiyatri Derg* 12: 258-265.
18. Fenton FR, Cole MG, Engelsmann F, Mansouri P (1994) Depression in older medical inpatients. *Int J Geriatr Psychiatry* 9: 279-284.
19. Arslantas D, Unsal A, Ozbabalik D (2014) Prevalence of depression and associated risk factors among the elderly in Middle Anatolia, Turkey. *Geriatrics & Gerontology International* 14: 100-108.
20. Feldblum I, German L, Castel H, Harman-Boehm I, Bilenko N, et al. (2007) Characteristics of undernourished older medical patients and the identification of predictors for under nutrition status. *Nutritional Journal* 6: 1-9.
21. Saka B, Ozkulluk H (2012) Evaluation of the nutritional status and relationship of malnutrition with other geriatric syndromes in elderly patients who admitted to the internal medicine outpatient clinic. *Gulhane Med J* 50: 151-157.
22. Laudisio A, Milaneschi Y, Bandinelli S, Gemma A, Ferrucci L, et al. (2014) Chewing problems are associated with depression in the elderly: results from the In CHIANTI study. *Int J Geriatr Psychiatry* 29: 236-244.
23. Stek ML, Vinkers DJ, Gussekloo J, Van der Mast RC, Beekman AT, et al. (2006) Natural history of depression in the oldest old: population-based prospective study. *Br J Psychiatry* 188: 65-69.
24. White J, Zaninotto P, Walters K, Kivimäki M, Demakakos P, et al. (2016) Duration of depressive symptoms and mortality risk: the English Longitudinal Study of Ageing (ELSA). *Br J Psychiatry* 208: 337-342.
25. Murphy SL, Williams CS, Gill TM (2002) Characteristics associated with fear of falling and activity restriction in community living older persons. *J Am Geriatr Soc* 50: 516-520.
26. Deshpande N, Metter EJ, Bandinelli S, Lauretani F, Windham BG, et al. (2008) Psychological, physical, and sensory correlates of fear of falling and consequent activity restriction in the elderly: the In Chianti study. *Am J Phys Med Rehabil* 87: 354-362.
27. Dias RC, Freire MT, Santos EG, Vieira RA, Dias JM, et al. (2011) Characteristics associated with activity restriction induced by fear of falling in community-dwelling elderly. *Rev Bras Fisioter* 15: 406-413.
28. Gillin JC, Ancoli-Israel S (2005) The impact of age on sleep and sleep disorders. In: Salzman C (ed). *Clinical Geriatric Psychopharmacology*. (4th edn). Philadelphia: Lippincott Williams and Wilkins 483-512.
29. Fava M (2004) Daytime sleepiness and insomnia as correlates of depression. *J Clin Psychiatry* 65: 27-32.
30. Perlis ML, Smith LJ, Lyness JM, Matteson SR, Pigeon WR, et al. (2006) Insomnia as a risk factor for onset of depression in the elderly. *Behavior Sleep Med* 4: 104-113.
31. Woo J, Ho SC, Lau J, Yuen YK, Chiu H, et al. (1994) The prevalence of depressive symptoms and predisposing factors in an elderly Chinese population. *Acta Psychiatr Scand* 89: 8-13.