

Depression Among Elderly Patients Admitted to a Sub-Acute Medical Care and Rehabilitation Center in Bahrain

ORIGINAL

Abstract

Background: Depression is common among community indwelling elderly. It is even more common among in-patients. Depressed elderly individuals have a poorer quality of life, lower rehabilitation success, and a higher mortality. The aim of the current study is to assess the prevalence of depressive symptoms and associated factors in elderly patients admitted in a Rehabilitation and sub-acute medical care center in Bahrain.

Method: All elderly patients 60 years old and over, admitted to the center during a 6 month period were included in the study. Geriatric depression scale (GDS), Mini-mental State exam (MMSE), Barthel activities of daily living (ADL) Index, and a medical and social history were obtained from each patient. Further evaluation of depression using Diagnostic and Statistical Manual of Mental Disorders – IV (DSM-IV) criteria was done for each patient with positive GDS.

Results: The study included all 51 elderly admitted to the center in 6 months, 23 females (45.1%) and 28 males (54.9%) with a mean age of 75.59 ± 9.32 (60-95). The prevalence of depression was found to be 39.2% with no statistically significant gender difference. There was a positive correlation between the severity of depressive symptoms and age, poor functional status, and poor cognitive function.

Conclusion: There is a high rate of depression among elderly patients admitted to medical facilities with significant association with the functional and cognitive capacity of the elderly. Depression is under estimated and further studies in our region are needed to assess the prevalence and detection rate in different health care settings.

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Keywords

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Rehabilitation; Subacute Care;
Geriatric Depression Scale.

Introduction

Depression is common among the elderly living in the community affecting up to 12% of the population. It is even more common among ill patients admitted to health care institutions rising up to 29% [Dennis *et al.*, 2012]. In a study conducted in day care centers in the Kingdom of Bahrain the prevalence of positive screening by GDS in elderly attending the centers was as high as 41.7% [Al-Dosseri *et al.*, 2014].

Depression in the elderly has been linked to numerous socio-demographic factors including age, gender, marital status, educational level, Nursing home stay etc. [Ranjan *et al.*, 2012]. Compared with the younger population, depression in the elderly presents with numerous different and unusual symptoms and a very heterogeneous etiology. It is well accepted that depression affects the outcome and prognosis of hospitalized patients during the acute phase and recovery [Dennis *et al.*, 2012].

Depressive symptoms also correlate negatively with functional status post rehabilitation [Lieberman *et al.*, 1999].

Depression and dementia are also frequently seen together. [Shah *et al.* 2000] Late-life depression has also been suggested to be a prodromal feature of dementia [Denihan *et al.*, 2000]. This is very important to pin point especially in the cases of pseudo-dementia since it is reversible with appropriate treatment [Shah *et al.*, 2000].

Suicidal ideation and loss of self-respect increase the mortality risk [Young *et al.*, 2013]. Major depressive disorder increases the chance of death among both elderly males and females somewhat equally [Schoevers *et al.*, 2000].

Economically, depression can increase the length of hospital stay and cost of treatments. [Dennis *et al.*, 2012] Since depression is usually associated with multiple social problems, it may globally become the disease with the most social burden after ischemic heart disease [Young *et al.*, 2013].

Despite the high prevalence and significance effect of depression on the outcome of health, it remains under diagnosed and undertreated. This might be related to the difficulty of detecting depression since most of the somatic symptoms (loss of appetite, lethargy, and poor concentration) are related to physical illness and the possible under-experience of health care professionals in diagnosing it [Dennis *et al.*, 2012].

The adoption of preventive strategies and rational allocation of resources to lessen the impact of depression depend mostly on knowing the prevalence and the relative importance of its determinants. So the aim of the current study was to assess for the prevalence of depression and associated factors among elderly cohort attending a sub-acute medical center in the Kingdom of Bahrain.

Methods

A cross sectional study was conducted assessing depression prevalence and its common determinants among patients admitted for post-acute care and rehabilitation center (Ebrahim Khalil Kanoo Community Medical Center - EKKCMC) in Bahrain. The data was taken from the newly implemented system of assessment of elderly patients at EKKCMC. This includes a full comprehensive geriatric assessment of cognition, mood, dependency levels, social status and full medical assessment regarding co morbidities and medications.

After gaining the approval from the administration, all patients admitted during the period from December 2014 to May 2015 (6 Months period) males and females, 60 years old and above, were recruited for the study.

Those less than 60 years age and those who refused or failed to complete the assessment battery (due to unstable health conditions) were excluded from the study.

Reasons for admission included post-acute medical care of various medical and surgical disorders

e.g. post stroke, post hip fracture, post pneumonia, post CCU or ICU admissions, and for involvement in a planned rehabilitation program. The aim of EKKCMC is to optimize patient's Medical and physical conditions to be able to discharge them home or to prepare them for a long term care. The center is currently in a soft opening phase, with total bed capacity of 47 beds amongst them only 28 are actually working.

All patients were subjected to Comprehensive Geriatric Assessment (CGA) including:

Full medical and personal history including educational level, marital status and past history of previous and current illnesses and medications.

Functional assessment was done using the Barthel ADL index (BI) [Katz *et al.*, 1963]. It uses ten variables describing activities of daily living (ADL) and mobility. The BI includes 10 personal activities: feeding, personal toileting, bathing, dressing and undressing, getting on and off a toilet, controlling bladder, controlling bowel, moving from chair to bed and returning, walking on level surface (or propelling a wheelchair if unable to walk) and ascending and descending stairs. Each item is rated in terms of whether the patient can perform the task independently, with some assistance, or is dependent on help based on observation (0=unable, 1=needs help, 2=independent). Total possible scores range from 0 – 20, with lower scores indicating increased disability.

The mini-mental state examination (MMSE) (Arabic translated form) [El Okl *et al.*, 2001] was used for assessment of cognitive function. The MMSE assesses different domains of cognitive function with a total score of 30. The MMSE comprises: 30 questions with 10 devoted to orientation (five regarding time and five regarding place); three items requiring registration of new information (repeating three words); five questions addressing attention and calculation (mental control questions requiring patient to make five serial subtractions of 7 from 100 or spell word backwards); three recall items (remembering the three registration items): eight items

assessing language skills (two naming items, repeating phrase, following a three-step command, reading and following a written command and writing a sentence); and one construction question (copying a figure consisting of two overlapping pentagons). A score less than 24/30, indicates cognitive impairment.

Presence of depression was assessed using Geriatric depression scale 15 items (GDS-15) [Sheikh & Yesavage, 1986]. The GDS short form (15 questions) has been derived from the 30 question version. It has been designed for screening for depressive symptoms in the elderly population excluding any questions relating to the physical symptoms of depression common in old age. Each answer indicating depression counts for one point. Scores greater than 5, are indicative of probable depression. Depression was diagnosed then clinically according to DSM-IV criteria.

Assessment tools were applied by the members of the research team. The collected data was coded, tabulated, and statistically analyzed using SPSS program (Statistical Package for Social Sciences) software version 17. Qualitative data was presented in the form of frequency tables (number and percentage). Quantitative data was presented in form of mean \pm standard. Pearson correlation coefficient was performed to test correlation between 2 quantitative variables, while Independent sample t test was also used to compare two groups with quantitative continuous variables.

Results

After applying the inclusion and exclusion criteria, the study included 51 elderly, 23 females (45.1%) and 28 males (54.9%) with a mean age of 75.59 ± 9.32 (60-95). None of the participants were screened or diagnosed to have depression before the current study.

The mean MMSE score was 16.34 ± 8.95 (0-30), that of the Barthel index was 5.59 ± 3.93 (0-15), while the mean GDS score was 5.74 ± 3.87 (0-13)

with no statistically significant gender difference for each.

The prevalence of depressed mood (using GDS and confirmed with DSM-IV) was 39.2% (n=20), with no statistically significant gender difference (p=0.254). The mean age of depressed was 77.80±10.92 compared with a mean age of 74.16±8.00 for the non-depressed elderly with no statistical significant difference (t=1.372, p=0.176). 90% (n=18) of those depressed were found to be cognitively impaired with statistically significant difference (Table 1).

Table 1.

Variable	Depressed (N=20)		Not depressed (N=31)		Total group (N=51)		Significant associations	
	N	%	N	%	N	%	X ²	p
Age group								
60-65	3	15	4	12.9	7	13.7	8.517	0.074
66-70	3	15	7	22.6	10	19.6		
71-75	3	15	8	25.8	11	21.6		
76-80	1	5	7	22.6	8	15.7		
80+	10	50	5	16.1	15	29.4		
Gender								
Male	9	45	19	61.3	28	54.9	1.303	0.254
Female	11	55	12	38.7	23	45.1		
Marital state								
Widowed	11	55	14	45.2	25	49	2.258	0.323
Married	9	45	15	48.4	24	47.1		
Single	0	0	2	6.5	2	3.9		
Cognitively impaired	18	90	15	48.4	33	64.7	9.218	0.002

Statistically significant positive correlation was found between age and GDS score (Table 2); so, the older the age, the higher the GDS score, i.e. the more the risk for depression. In the other hand, Statistically significant negative correlation was found between both MMSE, Barthel score and GDS score (Table 2), so the higher the GDS score, the lower the score of both MMSE and Barthel index i.e. the more the risk for cognitive and functional impair-

ment. The number of diseases each participant has was added to get chronic diseases sum, the mean number of diseases was 3.14±1.48 (1-6) with no significant correlation with the GDS score (Table 2).

Table 2. Correlation between GDS score and age, MMSE, Barthel score and number of diseases

Variable	GDS	
	r	p
Age	0.344	0.019
MMSE	-0.647	0.000
Barthel index	-0.466	0.001
Sum of diseases	-0.127	0.399

Discussion

Depression is the most common mood disorder in elderly People [Raspopovic *et al.*, 2014]. Because of its devastating consequences, late life depression is an important public health problem. It is associated with increased risk of morbidity, increased risk of suicide, decreased physical, cognitive and social functioning, and greater self-neglect, all of which are in turn associated with increased mortality [Blazer, 2003]. Risk factors leading to the development of late life depression, likely comprise complex interactions among genetic vulnerabilities, cognitive diathesis, age-associated neurobiological changes, and stressful events [Fiske *et al.*, 2009].

Community-based mental health studies have revealed that the point prevalence of depressive disorders in the elderly population of the world varies between 10% and 20%, depending on cultural situations [Barua *et al.*, 2011].

The prevalence of major depressive disorder in community samples of adults aged 65 and older ranged from 1-5% in most large-scale epidemiological investigations internationally [Fiske *et al.*, 2009]. Clinically significant depressive symptoms, was found in approximately 15% of community-dwelling older adults [Blazer, 2003].

Rates of major depression among older adults are substantially higher in particular subsets of the older adult population, including medical outpatients (5-10%, though estimates vary widely), medical inpatients (10-12%), and residents of long term care facilities (14 to 42%) [Blazer, 2003; Djernes, 2006].

The current study is one of the first of its kind in Bahrain. It was conducted in EKKCMC which is a sub-acute medical care and rehabilitation center providing new services in Bahrain for patients that need medical and physical attention after passing prolonged acute phase of illness with longer admission periods in acute care facilities.

The study included 51 elderly, 23 females (45.1%) and 28 males (54.9%) with a mean age of 75.59 ± 9.32 . The prevalence of depression was found to be 39.2%.

Another study done in 2011 assessing health care centre attendees in the Kingdom of Bahrain found the prevalence to be 41.7% [Al-Dosseri *et al.* 2013].

Although studies have shown rates of depression to be higher in older women than in older men [Djernes, 2006], the current study found no statistical significant gender difference.

The current study also showed positive correlation between the severity of depressive symptoms and age, poor functional status, and poor cognitive function.

Evidences have suggested that depression increases the risk of cognitive impairment and functional disability [Lebowitz *et al.*, 1997; Charney *et al.*, 2003].

Disability is associated with increases in depressive symptom scores [Yang, 2006].

Increasing levels of depressive symptoms in elderly hip fracture patients was found to influence short-term functional outcome. Failure to identify such patients is a missed opportunity for possible improvement of early functional outcome after hip fracture in elderly [Raspopovic *et al.*, 2014].

Late onset depression and cognitive impairment often occur together, suggesting a close

association between them [Jorm, 2001; Zubenko *et al.*, 2003].

Cognitive impairment and depression are linked by structural and functional alterations in cortical and sub-cortical brain areas regulating processing of emotional and cognitive information [Papazacharias & Nardini, 2012].

Some studies found that depression is a risk factor for the development of cognitive decline [Paterniti *et al.*, 2002; Green *et al.*, 2003], whereas others could not confirm this finding [Cervilla *et al.*, 2000; Broday *et al.*, 2003].

Wilson *et al.* suggested that depression precedes cognitive decline in old age [Wilson *et al.*, 2004].

Although virtually any serious or chronic condition can produce a depressive reaction, the current study did not find significant association with any, neither of the available diseases nor with the sum of these diseases. This might be due to the nature of the sample recruited from sub-acute care facility or due to small sample size.

There is no doubt that there is a high rate of depression among elderly patients admitted to medical facilities. As it was obvious from our study that none of our patients was diagnosed or screened for depression, it is commonly under-detected and under-treated most likely due to an overlap with somatic symptoms [Cullum *et al.* 2006]. Globally, the prevalence of depression in Asia is higher than Europe and the Americas looking at the community [Barua *et al.*, 2011]. The percentages are much higher for patients admitted to hospital with acute or chronic illnesses.

Still the results of the current study are limited with the small sample size, collected from a single center and the lack of follow up data after management of depression, whether it had positive impact on the quality of life of our elderly or not.

Further studies in our region are needed to assess the prevalence and detection rate in different health care settings. Early screening for depressive symptoms enables early initiation of psychological and/

or pharmacological treatment. Such an approach might alter the negative influence of depression on short- and long-term functional outcomes after acute illness thus avoiding long hospital stay and promoting successful rapid cure and discharges with elimination of cost of acute beds care.

It is also worth mentioning that studies are needed to assess the success rate of intervention in depressed individuals in our region.

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Creating EKKCMC by Bahrain MOH was a great step towards optimizing health care for a big sector of patients most of them were elderly. The help and support we got to start the services in EKKCMC and to start implementing the assessment system and then to use it to conduct the study actually reflects the enthusiastic intentions of Bahrain MOH to start a new era in implementing geriatric medicine as a subspecialty of medicine needed for supporting elderly population health care in Kingdom of Bahrain,

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