Original Article

A Study of Prevalence of Depression in Elderly with Medical Disorders

Monica Gupta*, SS Lehl, Navjant Singh Boparoy***, Rahul Katyal***, Atul Sachdev****

Abstract

Background : Depression is a common problem in the elderly. It is often associated with other medical illnesses. This association is bidirectional leading to further potentiation of morbidity. It is easy to identify depression in the elderly by the administration of screening tests.

Material & Methods : The present study was a crosssectional observational study of elderly (>65 years of age) patients with underlying medical diseases. The study subjects were randomly selected from the Geriatric clinic of Government Medical College and Hospital (GMCH), Chandigarh. Demographic data and co-morbidities were recorded. Depression was assessed by hindi version of the geriatric depression scale (GDS-H). The cutoff point for depression was 22 or more rated on a 30 point scale.

Results : A total of 196 elderly patients were enrolled in the study, of which 49.5% were males and 50.5% were females. 65% of the individuals had an urban background, 57.65% were literate, 71% had a living spouse, 82% had some family support and 42% were pensioners. 32.6% had 3 or more chronic medical diseases coexisting. The overall prevalence of depression was 28%, with a higher prevalence among females (33.33%) as compared to males (22.7%). Depression was more prevalent in rural vs urban population (33.3% vs 25.2%), illiterate vs literate (34% vs 24%), those without living spouse (33.3% vs 26%), non-pensioners vs pensioners (31.6% vs 23%). The prevalence of depression was more in elders suffering from 3 or more chronic medical diseases vs those with < 3 diseases (48.44% vs 18%). Prevalence was the highest among the stroke patients (50%), followed by hypothyroidism (42%), arthritis (41.54%), chronic obstructive airway disease (37.7%), coronary artery disease (32.8%), hypertension (32%) and diabetes mellitus (28.8%). Multiple medical morbidities were more pronounced in the depressed elderly in comparison to those without depression (54.5% vs 23.9%).

Conclusion : A high proportion of elderly with multiple chronic medical problems are suffering from unrecognized depression. Screening these individuals for depression coupled with appropriate psychiatric referral should be an integral part of any Geriatric service.

Keywords: Depression, geriatric, medical illness.

(Journal of The Indian Academy of Geriatrics, 2010; 6 : 18-22)

Introduction

It is a popular misconception that depression is a part of the normal aging process.[1,2] Although the aging brain is more vulnerable to depression, it cannot be considered physiological and an inevitable part of aging. Depression is the most common psychiatric illness among elderly.[3,4] It accounts for more than half the psychiatric morbidity in Indian elderly.[5] It has been observed to be more common in immigrant population, females, low socio economic status, uneducated and unemployed.[2,6,7] With the growing number of elderly in the Indian population, the burden of depression is going to be enormous on the society.

Depression is commonly associated with many medical illnesses.[8] It is also linked to increased morbidity and mortality as it can worsen underlying medical disorders.[9] Untreated depression in elderly is associated with a poor quality of life, difficulty with social and physical functioning and

*Assistant Professor, **Professor, ***MBBS Student, Department of Medicine, Government Medical College and Hospital, Chandigarh.

Address for Correspondence: Dr. Monica Gupta, 1217, 32-B, Chandigarh

email: monicamanish2001@gmail.com

poor adherence to treatment.[10] Various studies worldwide have reported increased disability, poor health care utilization and increased cost of health services among depressed individuals.[11,12] Depression is an independent predictor of mortality in older adults. Depressive symptoms are a significant risk factor for cardiovascular as well as non-cancer, non-cardiovascular mortality.[13]

Depression in elderly is an under diagnosed and under treated entity.[10,14] Symptoms of late-onset depression like agitation, anxiety and irritability are often ignored by the primary care physician. The diagnosis of depression may be complicated by pain, cognitive impairment, alcohol or substance misuse.[7] However, the response to medical treatment is as rewarding in elderly as in younger individuals. Thus it is imperative for the physician to recognize the symptoms of depression in the elderly, correlate them with the underlying medical disorders and treat them appropriately.

Material and Methods

This was a cross sectional observational study of elderly patients with underlying common medical diseases. Patients were randomly selected from the Geriatric clinic at the GMCH, Chandigarh between July to December 2008. The nature and the purpose of the study were explained to the patients in their own language. The written informed consent was obtained from the patients. The socio-demographic data of all the patients was recorded. The variables studied included the age, sex, rural/urban background, literacy status, whether they had a living spouse or not, whether they lived with their children or alone and if they were pension beneficiaries.

Morbidities in major organ systems were looked for keeping in mind the common medical disorders in the elderly. A provisional checklist looking at the major organ systems included: coronary artery disease (CAD), hypertension, diabetes mellitus, stroke, arthritis, chronic obstructive pulmonary disease (COPD) and hypothyroidism. These diagnoses were made by the physician based on the reported illness, clinical examination and cross-checking of the medical records and the drug prescriptions. Depression was assessed by GDS-H. The cutoff point for depression was 22 or more when rated on a 30 point scale. Patients with prior psychiatric diagnosis were excluded. All patients who needed referral to a psychiatrist were identified. The study was duly cleared by the Institutional Research and Ethics Committee. The data was analyzed statistically by using percentage and chi-square with SPSS software.

Results

A total of 196 elderly (65 years or more) were enrolled in the study with 97 (49.5%) males and 99 (50.5%) females. 105 (53.6%) were between 65-69 years, 52 (26.5%) 70-74 years, and 39 (19.9%) above 75 years of age. The last group had 7 (3.1%) elderly more than 85 years of age. The mean age of the population studied was 69.75 ± 5.57 years. The minimum and the maximum age were 65 and 90 years respectively. Of the 196 subjects, 127 (65%) individuals had an urban background, 113 (57.65%) were literate, 139 (71%) had a living spouse, 160 (82%) elderly had a family support and 82 (42%) were pensioners (Table 1).

Table 1. Relationship of socio-demographic variables with the prevalence of depression

Socio-demographic variable	Number of subjects (n= 196)	Number of subjects with depression (n=55)	p-value
Age groups (yrs)			
65-69	105 (53.6)	26 (24.8)	0.339*
70-74	52 (26.5)	14 (26.9)	
>=75	39 (19.9)	15 (38.46)	
Sex			0.113*
Male	97 (49.5)	22 (22.7)	
Female	99 (50.5)	33 (33.33)	
Locality			
Rural	69 (35)	23 (33.33)	0.246*
Urban	127 (65)	32 (25.2)	
Education			
Literate	113 (57.65)	27 (24)	0.149*
Illiterate	83 (42.35)	28 (34)	
Living Spouse			
Yes	139 (71)	36 (26)	0.299*
No	57 (29)	19 (33.3)	
Family support			
Yes	160 (82)	46 (28.8)	0.837*
No	36 (18)	9 (25)	
Pension benefit			
Yes	82 (42)	19 (23)	0.259*
No	114 (58)	31.6)	

(data in parenthesis= %), *= not significant

Hypertension was the commonest medical illness (75%), followed by arthritis (33%), coronary artery disease (32.65%), diabetes mellitus (30.1%), chronic obstructive pulmonary disease (27%), hypothyroidism (9.7%) and stroke (6.12%) (Table 2). 64 of the 196 (32.6%) elderly had 3 or more coexisting chronic medical diseases while the others had <3 medical disorders.

Table 2. Prevalence of depression according to number of medical co-morbidities.

Medical morbidities		No. of subjects (n=196)	No. of subjects with depression (n=55)	p- value
Number	3 or more	64 (32.65)	31 (48.4)	<0.0001
	<3	132 (67.35)	24 (18)	
Hypertension	Yes	147 (75)	47 (32)	0.0539(ns#)
	No	49 (25)	8 (16.3)	
Coronary artery disease	Yes	64 (32.65)	21 (32.8)	0.389(ns#)
	No	132 (67.35)	34 (25.76)	
Arthritis	Yes	65 (33.2)	27 (41.54)	0.0053
	No	131 (66.8)	28 (21.4)	(highly significant)
Obstructive airway disease	Yes	53 (27.1)	20 (37.7)	0.0977(ns#)
	No	143 (72.9)	35 (24.5)	
Diabetes	Yes	59 (30.1)	17 (28.8)	0.877(ns#)
	No	137 (69.9)	38 (27.7)	
Hypothyroidism	Yes	19 (9.7)	8 (42)	0.244(ns#)
	No	177 (90.3)	47 (26.55)	
Stroke	Yes	12 (6.12)	6 (50)	0.157(ns#)
	No	184 (93.88)	49 (26.63)	

(data in parenthesis= %), *= not significant

55 of the 196 elderly had scores 22 or more on the GDS-H. Thus the overall prevalence of depression among the elderly was 28%. More females were depressed (33 of 99; 33.3%) as compared to the males (22 of 97; 22.7%) although the difference did not reach statistical significance. Depression was more prevalent in the rural population (33.3%) in contrast to urban population (25.2%). Illiterate individuals were more depressed (34%) than their literate counterparts (24%). Elderly with a living spouse perceived less depression (26%) than those who had lost their life companions (33.3%). Pension beneficiaries experienced less depressive symptoms (23%) than non-pensioners (31.6%). Elderly staying with their children had a slightly higher evidence of depression (28.8%) than those staying alone (25%) (Table 1).

The prevalence of depression was significantly more in elders suffering from 3 or more chronic diseases (48.44%) than those with <3 diseases (18%). This difference was highly significant statistically (p<0.005) (Table 2). Prevalence was the highest among the stroke patients (50%), followed by hypothyroidism (42%), arthritis (41.54%), COPD (37.7%), CAD (32.8%), hypertension (32%) and diabetes mellitus (28.8%) (Table 2). When we looked at the number of medical morbidities in those depressed according to our screening method, the result was informative. We found that 30 of the 55 (54.5%) depressed individuals had 3 or more medical illnesses coexisting simultaneously, while 34 of 114 (23.9%) suffered from < 3 medical conditions. This difference was highly significant statistically (p<0.005) (Table 3).

Table 3. Prevalence of medical co-morbidities in depressed elderly.

Depression	Number of subjects	Number of subjects with 3 or >co-morbidities	p- value
Present	55 (28)	30 (54.5)	<0.0001
Absent	141 (72)	34 (23.9)	

% in parenthesis

Discussion

Normal ageing can be complicated by the development of a variety of psychiatric illnesses. The most prevalent among them is depression. Other disorders include anxiety, mood disorders, psychosis, paranoid disorders, pseudodementia and dementia. The elderly may also acquire new personality traits of overcautiousness, introversion and obsession. In addition, they may often be the victims of intentional or unintentional neglect and abuse. In a recent study, the prevalence of psychiatric morbidity in elderly was reported as 29%, of which depression was the commonest.[15]

Depression in elderly is a cause of concern both from medical and societal aspects. At least 10% of elderly who are seen in primary care settings have clinically significant depression.[16] Depression is ten times more common in medically ill geriatric patients than in overall elderly.[4,8] The prevalence of depression varies from 0.5%-43.5% in medically ill patients in various studies.[17,18] One study from the urban slums of Mumbai reported depression in up to 45.9% elderly.[7] These wide variations are due to differences in study populations and evaluation methods. In our study, the overall prevalence of depression is 28% which is comparable to other data.[15]

Depressive disorders are more common in the elderly women than men. This fact has been highlighted by many studies and the same is reflected in our study also. Our study reemphasizes that depression affects rural elderly more in

comparison to their urban counterparts[15,19,20]. Our observation that depressive symptoms are prominent in illiterate is consistent with that reported in previous studies.[19,21] Although some studies have observed that depression tends to diminish with advancing age, we found evidence to the contrary.[15]

Chronological aging brings with it a host of new disorders related to specific stresses and circumstances of old age. There is generally a sense of low self esteem, financial misery, insecurity about life and fear of isolation among the eldery.[22] Most urban elderly have lost their role as advisors and mentors due to rapid modernization and loss of joint family culture.[2] Elderly have an added propensity to develop both acute and chronic medical illnesses. These may further reinforce their insecurity and anxiety. In the present study we observed that depression was less pronounced in those receiving pension and in those who had a living spouse. The observation that depression was slightly more in those living with their children requires further evaluation of their living conditions and the complex interpersonal relationships of the joint family.

The elderly often suffer from multiple chronic illnesses.[5] The mean number of morbidities among elderly may vary from 2.5-6.1.[5,20] Depression is commonly associated with many medical illnesses and vice versa. The common medical illnesses associated with depression are cardiovascular diseases.[9,14] end stage renal disease, diabetes, hypothyroidism, hyperparathyroidism, chronic obstructive airway disease, tuberculosis, Vitamin B 12 deficiency and cancer.[9,14,23]. In the present study the prevalence of depression varied from 28.8%-50% in various medical illnesses.

In the present study, 48.4% of the elderly with 3 or more medical illnesses were depressed where as only 18% of elderly with <3 diseases were depressed. These results strongly indicate that depression is directly linked to the number of chronic medical illnesses. This positive correlation has also been examined in previous studies.[24,25] This implies that depression should be positively screened for in elderly suffering from multiple medical morbidities. We have also observed that the vice-versa is also true.

Depression is often underdiagnosed and undertreated in the primary care setting.[10,14] The problem is further aggravated by the elderly hesitating to reveal his/her feelings of hopelessness and sense of isolation. The symptoms of depression are easy to recognize. In a study using the Standardized Assessment of Depressive Disorders (SADD), the ten most frequently reported symptoms were sadness, anxiety, joylessness, lack of energy, hopelessness, loss of interest, disruption of social functioning, irritability, loss of ability to concentrate and lack of appetite.[26] Self reported depression screening tests can easily identify individuals at risk. For the uneducated elderly in India a reliable and valid Hindi version of the GDS has been developed and validated[21]. The GDS-H had high internal consistency and a factor structure comparable to the original English language version. However, an ideal assessment of elderly should initially include a domiciliary visit to assess their living conditions, social support and their role/ status in the family.

In India although the social and family network is partly intact, there are still limitations in the care of aged. A qualitative study to investigate the concepts of late-life depression and dementia reveals that these could be attributed to abuse, neglect or lack of love on the part of children towards a parent. Fear for the future and in particular 'dependency anxiety' was commonplace among elders.[27] It is therefore the moral duty of the youth to improvise ways to resolve the conflicts and agony experienced by their parents. It has been observed that supportive relationships are associated with lower illness rates, faster recovery rates and better health care behavior.[3,28]

Untreated late-life depression is associated with a poor quality of life, poor social interaction, physical disability and poor compliance with treatment. Fortunately elderly persons respond to antidepressants and other therapies as well as the young. They should not be denied treatment because of the notion that it is natural condition of old age. A holistic approach to treatment including practice of yoga may benefit elderly with depression[29].

Limitations of the study

Since our study was a hospital based study, it is not a true reflection of the elderly in the Indian community. A bias for urban and literate population was present which may reflect the health seeking behavior in our city.

Conclusion

In response to the changing demography, the last 40 years have witnessed a sea change in evolution of geriatric psychiatry as a new specialty. However there is still immense need to raise awareness about mental disorders in late-life in the community and among health professionals. Simultaneously, it is essential to improve access to health care for this vulnerable section of the society by

bringing comprehensive health services at their doorstep.

References

1. Sarkisian CA, Lee-Henderson MH, Mangione CM. Do depressed older adults who attribute depression to "old age" believe it is important to seek care? *J Gen Intern Med* 2003; 18:1001-1005.
2. Devi ES, Neenu A, Anu P, et al. Elderly and depression. *Nurs J India* 2007; 98:221-223.
3. Dhar HL. Gender, aging, health and society. *J Assoc Physicians India* 2001; 49:1012-1020.
4. Tiwari SC. Geriatric psychiatric morbidity in rural northern India: implications for the future. *Int Psychogeriatr* 2000; 12:35-48.
5. Dey AB, Soneja S, Nagarkar KM, Jhingan HP. Evaluation of the health and functional status of older Indians as a prelude to the development of a health programme. *Natl Med J India* 2001; 14:135-138.
6. Bhatnagar K, Frank J. Psychiatric disorders in elderly from the Indian sub-continent living in Bradford. *Int J Geriatr Psychiatry* 1997; 12:907-912.
7. Jain RK, Aras RY. Depression in geriatric population in urban slums of Mumbai. *Indian J Public Health* 2007; 51:112-113.
8. Khandelwal SK. Depressive disorders in old age. *J Indian Med Assoc* 2001; 99:41-44.
9. Katon WJ. Clinical and health services relationships between major depression, depressive symptoms and general medical illness. *Biological Psychiatry* 2003; 54:216-226.
10. Unützer J. Late-life depression. *N Engl J Med* 2007; 357: 2269-2276.
11. Unutzer J, Patrick DL, Simon G, et al. Depre-ssive symptoms and the cost of health services in HMO patients aged 65 years and older: a 4-year prospective study. *JAMA* 1997; 277:1618-1623.
12. Covinsky KE, Fortinsky RH, Palmer RM et al. Relation between symptoms of depression and health status outcomes in acutely ill hospitalized older persons. *Ann Intern Med* 1997; 126:417-425.
13. Mary A. Whooley WSB. Association between depress-ive symptoms and mortality in older women. *Arch Intern Med* 1998; 158:2129-2135.
14. Prakash O, Gupta LN, Singh VB, et al. Profile of psychiatric disorders and life events in medically ill elderly: experiences from geriatric clinic in Northern India. *Int J Geriatr Psychiatry* 2007; 22:1101-1105.
15. Singh VB, Kataria DK, Verma SK, et al. Psychiatric co-morbidities in patients attending geriatric clinic at a tertiary care hospital. *J Ind Acad Geriatrics* 2005; 2:65-69.
16. Lyness JM, Caine ED, King DA, et al. Psychiatric disorders in older primary care patients. *J Gen Intern Med* 1999; 14:249-254.
17. Kai-Uwe K, Maier W. Depression in patients with somatic diseases. *Pharmacopsychiatry* 1997; 25:167-180.
18. Sachdeva JS, Shergill SC, Sridhar BS. Prevalence of psychiatric morbidity among medically in-patients. *Indian J Psychiatry* 1986; 28:293-296.
19. Weissman MM, Meyers JK, Tischler GL, et al. Psychiatric disorder (DSM III) and cognitive impair-ment among the elderly in a US urban community. *Acta Psychiatr Scandinavica* 1985; 71:366-379.
20. Joshi K, KumarR, Avasthi A. Morbidity profile and its relationship with disability and psychological distress among elderly people in northern India. *Int J Epidemiol* 2003; 32:978-987.
21. Ganguli M, Dube S, Johnston JM, et al. Depressive symptoms, cognitive impairment and functional impairment in a rural elderly population in India: a Hindi version of the geriatric depression scale (GDS-H). *Int J Geriatr Psychiatry* 1999; 14:807-820.
22. Jambunathan J. Sociocultural factors in depression in Asian Indian women. *Health Care Women Int* 1992; 13:261-270.
23. Alexander PJ, Dinesh N, Vidyasagar MS. Psychiatric morbidity among cancer patients and its relationship with awareness of illness and expectations about treatment outcome. *Acta Oncol* 1993; 32:623-626.
24. Perez Stable EJ, Miranda J, Munos RF, et al. Depression in medical out patients. *Arch Intern Med* 1990; 150:1083-1088.
25. Kitchell MA, Barnes RF, Veith RC, et al. Screening for depression in hospitalized geriatric medical patients. *J Am Geriatr Soc* 1982; 30:174-177.
26. Gupta R, Singh P, Verma S, Garg D. Standardized assessment of depressive disorders: a replicated study from northern India. *Acta Psychiatr Scand* 1991; 84:310-2.
27. Patel V, Prince M. Ageing and mental health in a developing country: who cares? Qualitative studies from Goa, India. *Psychol Med* 2001; 31:29-38.
28. Guglani S, Coleman PG, Sonuga-Barke EJ. Mental health of elderly Asians in Britain: a comparison of Hindus from nuclear and extended families of differing cultural identities. *Int J Geriatr Psychiatry* 2000; 15:1046-1053.
29. Krishnamurthy MN, Telles S. Assessing depression following two ancient Indian interventions: effects of yoga and ayurveda on older adults in a residential home. *J Gerontol Nurs* 2007; 33:17-23.