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Research Article

A Study of the Prevalence of Depression in Geriatric Outpatients and Associated Predisposing Factors

Dr. Bineetha BS[1], Dr. Priya Vijayakumar[2], Dr. Sunil K. Senan[3],Dr. George Paul[4]

[1]MD Resident, AIMS, Amrita Vishwa Vidyapeetham, Kochi, Kerala
[2] Clinical Professor, AIMS, Amrita Vishwa Vidyapeetham, Kochi, Kerala
[3] Clinical Professor, AIMS, Amrita Vishwa Vidyapeetham, Kochi, Kerala
[4] Associate Professor, AIMS, Amrita Vishwa Vidyapeetham, Kochi, Kerala

Abstract :Geriatric depression is a major health hazard which may affect upto 15-20% of the geriatric population in the world. This study is being undertaken to estimate the prevalence of depression in the elderly population and to identify the predisposing factors associated with depression. A cross sectional study on patients above 65 years of age attending an outpatient clinic was done. They were screened using the Geriatric Depression Scale (30-point questionnaire). The association between depression and possible predisposing factors was tested using chi-square test. Out of 250 outpatients at the Geriatrics Outpatient Department, 133 patients were diagnosed to have depression, giving a prevalence of 53.2%. Out of these patients, 102 patients (76.69%) were diagnosed to have mild depression and 31 patients (23.31%) were diagnosed to have severe depression. The commonest symptoms associated with depression were anxiety (57.9% patients), sleep disturbances (55.6% patients), irritability (42.9% patients) and somatic symptoms (37.6% patients). The predisposing factors that were significantly associated with depression were female gender, poor level of education, unemployed or retired life, multiple comorbid illnesses, polypharmacy, adverse life events, fincancial crisis in the family and functional impairment.The prevalence of depression was 53.2% in Geriatric patients, and majority of cases were mild depression. Gender, socioeconomic variables, lifestyle and comorbid medical conditions are important predisposing factors to the development of depression in the geriatric population.

1. INTRODUCTION

Depression is a disorder of major public health importance, in terms of prevalence and the associated suffering, dysfunction, morbidity and economic burden. It is considered to be one of the major causes of disease burden all over the world. It is estimated that by the year 2020 if current trends for demographic and epidemiological transition continue, the burden of depression will increase to 5.7% of the total burden of disease and it would be the second leading cause of disability-adjusted life years (DALYs), second only to ischemic heart disease[1].

Depression is one of the most common psychological changes during the normal course of life with so much of losses and disappointments. Geriatric depression is a major health hazard, and may affect upto 15-20% of the geriatric population [2]. In spite of this, as many as two-thirds of people with depression do not realize that they have a treatable illness and therefore do not seek professional help. Much of this has to do with the fact that the presenting complaints of many of these patients can often be somatic, such as fatigue, headache, abdominal distress, or sleep problems. In addition, persistent ignorance and misperceptions of the disease by the public, including many healthcare providers, as a personal weakness or failing that can be willed or wished away leads to painful stigmatization and avoidance of the diagnosis by many of those affected.

Major depressive disorder has significant potential morbidity and mortality, contributing significantly to suicide, incidence and adverse outcomes of medical illness, disruption in interpersonal relationships, substance abuse, and loss of work time. Depression can also have a distinctly deleterious impact on mortality. Major depressive disorder was associated with a 1.83 fold higher mortality risk over four years in men and women[3].

Depression in old age is quite complex and poses significant difficulty in diagnosis due to coexisting medical illnesses, dementia syndromes and heterogeneity of patients in the affected population [2]. Depression contributes significantly to health care costs as well, as depressed patients tend to have more primary care visits per year and increased length of stay in the hospital[3]. The incidence of clinically significant depressive symptoms increases with advancing age, especially

when associated with medical illness or institutionalization. To enhance detection, an important strategy may be to identify patient characteristics associated with a higher risk of depression. Moreover, the increasing number of elderly people in the population will probably lead to an increase in the number of nursing home patients. Insight into the prevalence rates and risk indicators of depression, is therefore, of paramount importance in developing adequate prevention and treatment strategies [4].

In this background, it is clear that screening of at risk population and adequate therapeautic measures in terms of both counseling as well as pharmacotherapy are essential to reduce the morbidity and mortality associated with depression. Hence this study is being undertaken to estimate the prevalence of depression in the patients presenting to the Geriatric Outpatient department in a tertiaty health care centre in Kochi. An attempt is also being made to identify the predisposing factors that are associated with depression in this population

2. MATERIALS AND METHODS

This cross sectional study was performed over a 30 month period (September 2012 to March 2015) at Amrita Institute of Medical Sciences, Kochi. All patients above 65 years of age who had presented to the Geriatrics Outpatient Clinic were screened for depression using the Geriatric Depression Scale (30-point questionnaire). A score of greater than or equal to 10 was considered positive for depression. A score of 10-19 was graded as mild depression, whereas a score of 20 or above was graded as severe depression. Patients who were too sick to take the test, as well as those with severe cognitive impairment were excluded from the study.

Following inclusion in the study, a detailed clinical history was obtained from each patient. The main points covered were :

i. Marital status : Whether the patient was married and living with their spouse, or widow / separated from their spouse.

ii. Educational status : Whether the patient was uneducated, or educated upto primary level, high school level or graduate level.

iii. Occupational status : Whether the patient was unemployed or leading a retired life; or were actively working.

iv. Lifestyle : Whether the patient was living with spouse alone, spouse and children, with children alone or whether he/she was living alone.

v. Income status : Whether the patient was earning an adequate income to sustain their requirements (independent); or whether they were depending on their children or relatives for their financial requirements (dependent).

vi. Alcohol consumption.

vii. Smoking.

viii. Comorbidities : All comorbid illnesses the patient was currently suffering from. The common diseases asked for were :

A. Diabetes mellitus

B. Systemic hypertension

C. Coronary artery disease

D. Cerebrovascular accident

E. Dyslipidemia

F. Chronic Obstructive Pulmonary Disease

G. Chronic renal failure

H. Chronic Liver Disease

I. Any malignancy which the patient was suffering from or had suffered from in the recent past.

J. Arthritis / arthralgia : Whether the patient has any diagnosed arthritis syndromes or has single or multiple joint pains.

i. Polypharmacy : Details regarding drug intake was obtained and existing medical records reviewed if available. Polypharmacy was defined by simultaneous intake of five or more oral or intravenous medications (reported by Hajjar et al[99].)

ii. Symptoms : The common symptoms enquired for were sleep disturbances, anxiety, irritability, inability to enjoy, somatic symptoms attributable to depression, feeling of hopelessness, significant weight loss, loss of appetite, delusions and suicidal tendencies.

iii. Any perceived negative event in the life of the patients within the past 12 months

iv. Any financial crisis as perceived by the patient in the family

v. Functional impairment : Whether the patient had any significant visual impairment or a limitation of any of the basic activities that he/she could perform on his/her own previously.

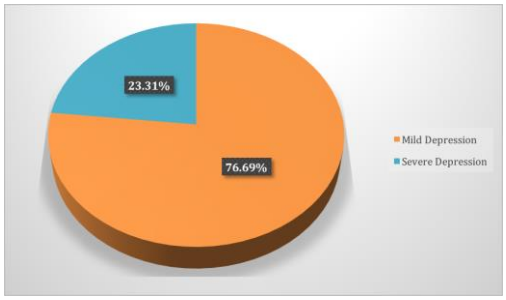
Based on the prevalence rate reported by Tiwari and colleagues in a study conducted in a North India[5], with and with 95% Confidence and 20% allowable error, minimum sample size came to 130. Percentage prevalence rate of depression in the geriatric sample was computed. To test the statistical significance of the association between depression and risk indicators, chi square test was applied.

2. RESULTS AND DISCUSSION

During the period of study, a total of 250 patients who had presented to the Geriatrics Outpatient Department were assessed for depression using the Geriatric Depression Scale. A total of 133 patients were diagnosed to have depression, the prevalence rate of depression being 53.2%. Among the 133

patients with depression, 102 (76.69%) patients were diagnosed to have mild depression. The remaining 31 (23.31%) patients were diagnosed to have severe depression.

Fig 1. Grading of Depression



The commonest symptoms noted in patients with depression included anxiety (77 patients, 57.9%), sleep disturbances (74 patients, 55.6%), irritability (57 patients, 42.9%) and somatic symptoms (50 patients, 37.6%)

Table 1. Symptomatology in patients with depression

Symptoms	**Number of patients (Percentage)**
Sleep disturbances	74 (55.6%)
Anxiety	77 (57.9%)
Irritability	57 (42.9%)
Inability to enjoy	25 (18.8%)
Feeling of hopelessness	18 (13.5%)
Somatic symptoms	50 (37.6%)
Weight loss	11 (8.3%)
Loss of appetite	27 (20.3%)
Suicidal symptoms	2 (1.5%)

Amomg the predisposing factors that were analysed in the study population, female gender, low level of education, unemployed / retired life, multiple comorbid illnesses, polypharmacy, adverse life events,financial crisis in the family and functional impairment were significantly associated with depression.

Table 2. Predisposing factors for depression in the study population

Predisposing factor	**Patients with depressio n (n=133)**	**Patients without epression (n=117)**	**P value**
Female gender	68	43	0.031
Widowed / separated life	40	22	0.056
Low level of education	47	25	0.022
Unemployed / retired life	113	83	0.011
Dependent	91	66	0.067
Alcohol consumption	24	30	0.193
Tobacco use	17	11	0.519
Multiple comorbid illness	106	58	<0.001
Polypharmacy	90	45	<0.001
Adverse life events	58	3	<0.001
Financial crisis in the family	22	0	<0.001
Functional impairment	36	12	0.001

In this study, we analysed the prevalence of depression among 250 patients who had presented to the Geriatrics Outpatient department. The prevalence rate for depression in this population was 53.2%. A number of Indian studies have looked at the prevalence of depression in different subsets of the geriatric population. Based on prevalence studies in North India, Tiwari and colleagues reported that the overall psychiatric morbidity in the geriatric population was 43.32%, and depression was the commonest psychiatric morbidity[5]. A rural community based study from West Bengal found that the prevalence of depression was 522 per 1000 population, and it was the commonest illness of old age in their study population[6]. Another community based study from Surat city reported a prevalence of 39.04% for depression[7]. In a study which investigated the psychiatric morbidity in the old age home population, Guha and colleagues reported that major depressive disorder (13.4%) was the commonest psychiatric diagnosis[8]

Two Indian studies have determined the prevalence of depression and other forms of psychiatric morbidity among patients attending the Geriatrics outpatient department. Jhirwal and colleagues evaluated the psychiatric morbidity in 100 randomly selected elderly patients attending geriatric clinics. They reported that 29% patients suffered from psychiatric illness, among which depressive disorders were the most common[9]. Another prospective cross sectional study evaluated the health and functional status of 1586 subjects aged 60 or above who attended the Geriatric Clinic of All India Institute of Medical Sciences, New Delhi. This study reported that about one-third of a subset of 209 patients had a psychiatric illness; and depression accounted for 50% of all psychiatric illnesses[10].It is interesting to note that the prevalence in our study is still higher than most of the published literature. The main reason for this could be the fact that we included patients who had presented to the Outpatient Clinic, and were therefore likely to be having symptoms that could hamper their daily activities. Moreover, the prevalence rates could be highly variable depending on the characteristics of the study population, and this could be the reason for the high prevalence rate noted in our study.

Among the 133 patients diagnosed with depression in the study population, 76.69% were diagnosed to have mild depression and 23.31% were diagnosed to have severe depression. Jongenelis and colleagues reviewed the literature on prevalence of the different grades of depression in elderly nursing home residents. They reported that the prevalence rate

was 6-26% for major depression and 11-50% for mild depression[11]. This would mean that a higher proportion of patients may not seek medical attention with a typical clinical picture suggestive of depression. These patients may not be diagnosed at all and may continue to not receive any treatment at all. As it is, inadequate detection and treatment are major concerns in the effective management of geriatric depression all over the world[12-14]. Hence, it is important that the diagnosis of depression is not overlooked in this subset of patients.

The commonest symptoms of depression encountered in this study were anxiety, sleep disturbances and somatic symptoms. In a study on 100 patients diagnosed with depression, Teja and colleagues reported that insomnia and anxiety were common symptoms in their study population[15]. Somatic symptoms have been fairly commonly reported in patients with depression, especially in the Indian scenario. Studies on the prevalence of functional somatic complaints in patients attending the psychiatric outpatient have also reported that a high percentage of these cases are reported as depression[16,17]. Feeling of guilt and delusions have been reported in depressed patients[18,19], but were not encountered in our study. In our study, only 1.5% of patients reported suicidal ideas as a symptom attributable to depression, higher rates have been reported in other studies[20]. The low incidence of suicidal symptoms could be due to the fact that our study dealt with the subset of patients who had come to the Outpatient Clinic to seek medical help for their symptoms. Hence the incidence of suicidal symptoms might be lower than that of a community based sample.

The prevalence of depression was significantly higher in females, as has been reported by many other studies[21,22,23]. One of the reasons for this finding may be that the established risk factors for depression, such as stressful life events, are specifically more prevalent in females[24]. Secondly, at least to some extent, this may be an artifact of how depression is defined and symptoms elicited. As compared to women, men are more likely to present with anger, irritability, withdrawal or alcohol abuse, and less likely to acknowledge sadness or psychological symptoms[24,25].

The prevalence of depression was higher in widowed / separated patients, but the difference did not reach statistical significance. In an epidemiological survey on geriatric depression, Ramachandran et al. found that the percentage of widowed or divorced were significantly higher in the depressed group as compared to the normal patients[26]. The lack of a significant difference in our study may be because those who were widowed may have been well taken care of by the remaining care-givers such as their children.

The prevalence of depression was significantly higher in patients of lower educational status and those who were unemployed or had a retired life. However, there was no significant difference in prevalence between dependent and independent income patients. An epidemiological survey had also reported that the prevalence of depression was higher in illiterate patients as well as unemployed dependents[26]. Patients who were uneducated and unemployed may have had to spend long hours in loneliness at their homes which could have contributed to the development of depression. In comparison, patients who were educated may be able to carry on working at least few hours a day which can improve their overall health status. Moreover, there may be other factors that may be indirectly responsible for this finding. For instance, those who continue to work in old age often have well controlled comorbid illnesses and have less of functional impairments, and may therefore represent an overall healthier subset of population. In our study, in terms of income status, although the prevalence of depression was higher in dependent subjects, the difference did not reach statistical significance. This may be partly because these patients lived with their spouse and children, and the lack of income from their end may have been compensated by an overall good family income.

Multiple comorbid illness and polypharmacy were identified as significant predisposing factors for depression in our study. A number of previous studies have shown that the association between geriatric depression and comorbid illnesses is essentially bidirectional. Wells and colleagues reported that respondents suffering from one or more of eight chronic medical conditions had a 41% increase in the risk of developing depression[27]. At the same time, another study reported that patients who developed depression after a stroke were 3.4 times more likely to have died over a ten-year followup period[28]. The overall prevalence of polypharmacy in our study was 54%. An Indian study on polypharmacy had reported a significant association between depression and polypharmacy[29]. Multiple factors associated with polypharmacy can aggravate depression. Patients who are subject to polypharmacy may have multiple comorbid illnesses, which, by itself, can increase the risk of depression. The cost of the medications can be a concern to the family, especially those with poor socioeconomic status. The side effects of the medications can themselves be of significant concern to the patients and can aggravate the risk of depression.

The other significant factors associated with depression were adverse life events, financial crisis in the family and functional impairment. All these factors have been reported as significant predisposing factors in previous studies[4,26,30]. On the other hand, alcohol consumption and smoking were not found to have any significant bearing on the prevalence of depression.

Our study had some limitations as well. Firstly, the study was focused on patients who presented to the Geriatrics Outpatient. Hence it may not be possible to extrapolate our findings to the community or to special groups of geriatric population such as institutionalized individuals. Secondly, since the study included outpatients, the prevalence rates of depression may be on the higher side, as at least a proportion of these patients would have experienced distressing symptoms prior to presentation to the OPD.

4. CONCLUSION

Thus, we found that the prevalence of depression in patients presenting to the Geriatrics Outpatient Department was 53.2%. Of these, 76.69% of patients were graded to have mild depression. The major predisposing factors for depression identified in the study were female sex, lower level of education, unemployed or retired life, multiple comorbid illnesses, polypharmacy, adverse life events, fincancial crisis in the family and functional impairment.

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