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Original Research Article

Depression and its associated factors among elderly patients attending rural primary health care setting

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ABSTRACT

Background: Depression is a growing public health challenge in India due to increase in the population of elderly and drastic changes in the socio-cultural environment. There is a dearth of information regarding depression among elderly patients attending primary health care setting in rural India. Hence present study was undertaken.
Methods: Data was collected from seventy five elderly patients attending a preventive geriatric clinic in a rural health training centre with the help of pre-tested, semi-structured questionnaire by employing interviewer administered method. In the clinic, elderly patients were screened for cognitive impairment by using translated version of abbreviated mental test (AMT) scale. Data on socio-demographic characteristics were collected. Anthropometric measurements such as standing height, weight and waist circumference were taken as per standard guidelines. Depression was assessed by validated geriatric depression scale (GDS-15) (Kannada version). Subsequently, the standard of living index and housing conditions were assessed by visiting the houses of the elderly patients.
Results: The proportion of depression among elderly was found to be 32%. Depression was found to be statistically associated with illiteracy ($P<0.05$, OR=4.6) and lack of separate living room in the house ($P= 0.01$, OR= 3.5) and not associated with obesity.
Conclusions: Around one third elderly patients attending the primary health care setting were found to be suffering from depression. The illiteracy and lack of separate living room for elderly in the house were associated with depression, which call for further in-depth research.

Keywords: Depression, Elderly, Housing, Primary health care

INTRODUCTION

Elderly are more prone for psychological disturbances due to natural age-related decline in the physical and physiological functioning and drastic changes in the socio-cultural environment. Currently, geriatric depression is a growing public health challenge in India due to increase in the population of elderly which is projected to reach 20 per cent by the year 2050 from about 8 per cent in 2013.[1] According to the WHO global burden of disease report 2004, depression was projected to be second leading cause of disease burden worldwide by 2020 and first by 2030.[2] The community-based mental health studies in India have revealed that the prevalence of depression in elderly varies between 13 and 25%.[3]

In India, studies have shown that 22 to 65% of elderly patients attending primary health care settings are suffering from depression.[4] Hence primary care doctors play an important role in the early detection and prompt treatment of the depressed elderly there by significantly reducing morbidity, mortality and health care cost.[5]

There is credible evidence which shows primary care doctors focus their attention in treating medical health problems in elderly without realizing the importance of mental health component in it.[6] The quality of life of the elderly patients can be improved by providing equal importance to both physical and mental health components. In this regard, there are many screening instruments available to help primary care doctors to detect depression in elderly patients. Among them, Geriatric Depression Scale (GDS) has been proven to be a valid instrument, which is translated and validated in many languages of the world.

Many studies from developed countries have found an association between obesity and housing conditions with depression. However in Indian context, there is paucity of information in this regard. These factors being modifiable in nature, control of such factors will have significant impact on health and wellbeing of elderly.[7]

In India, despite many studies on depression, only few studies are available with regards to depression among elderly patients attending rural primary care settings by using validated geriatric depression scale – 15 in an Indian language, also there is inadequate information regarding associated factors such as socio-demographic characteristics, obesity and housing conditions.

In this regard, the present study was conducted to find out the proportion of depression and its association with socio-demographic characteristics, obesity and housing conditions among elderly patients attending rural primary health care setting using a validated Kannada version of Geriatric Depression Scale (GDS -15).

METHODS

After obtaining the approval from the Institutional Ethics Committee (IEC), this descriptive study was conducted from July 2013 to April 2014 at the Preventive Geriatric Clinic of the Rural Health Training Centre of a medical college of Bangalore, which provides essential primary health care services to elderly above the age of 60 years. Sample size of 72 was arrived at taking the prevalence of depression among the elderly as 25% and an absolute precision of 10% and was later rounded off to 75.[8] The subjects were selected from the outpatient attendees by consecutive sampling. Subjects who fulfilled the criteria of being a local resident (minimum duration of 6 months), and willing to participate and co-operate for house visits were included in the study. Elderly having severe abnormality in speech and hearing were excluded.

All the personal interviews were carried out by a trained investigator in a separate room after explaining the purpose of the study, and getting informed consent from the subjects. The study was conducted in two stages, first stage at the clinic and next in the houses of the subjects. At the beginning, all the subjects were screened for cognitive impairment using the Abbreviated Mental Test (AMT) scale.[9] AMT was translated in to Kannada language using translation and back-translation method by different bilingual experts and both the versions were compared. Finally, with the help of third reviewer in the reconciliation meeting, a consensus version was developed and subjects were screened using this version. The elderly with AMT scores <6 were considered to have cognitive impairment and were excluded and only those with ≥ 6 were invited to participate in the study. The rationale behind using AMT to exclude elderly patients with cognitive impairment, was that the ability of GDS-15 to detect depression is reduced in the presence of cognitive impairment. Using a pre-tested, semi-structured questionnaire, data was collected from the elderly patients regarding the socio-demographic characteristics. The height was measured to the nearest 0.1 cms with stadiometer and weight was measured to the nearest 0.1 kg by using digital weighing scale. The Asia-Pacific guidelines were used to classify BMI, The waist circumference (WC) was measured using standard guidelines to assess central obesity according to International Diabetes Federation Classification (IDF).[10,11] Depression was assessed using Geriatric Depression Scale – 15 (Kannada version) which was validated in the previous study by psychiatrist using DSM – IV criteria and found to have a sensitivity of 100% and specificity of 88.8%.[12] The GDS score between 0 to 4 represents no depression, 5 to10 mild depression and ≥ 11 severe depression respectively.

The house visits were made to collect the data on standard of living index (SLI).[13] The following components were used to assess the housing conditions a) presence/absence of separate living room for the elderly b) per capita floor space availability (< 50 square feet per capita floor space availability implies overcrowding c) ventilation (area of windows and doors combined ≥ $2/5^{th}$ of floor area implies adequate ventilation) d) lighting (a person should be able to read the newspaper in $2/3^{rd}$ area of the room under natural lighting for lighting to be adequate).[14]

Data was entered and analyzed using Epi Info version 7.1.3.0. Descriptive statistics such as proportion, mean, standard deviation were used to describe the data. Associations were tested by using chi-square test and *P*-value of <0.05 was considered statistically significant

RESULTS

In this study, a total of 75 elderly patients attended the preventive geriatric clinic; the mean age of the subjects was 68.9±6.6 years. Thirty seven subjects (49.3%) were

males and 38 (50.7%) females. The mean age of male subjects was 68.7±6.2 years and female subjects 69.2±6.9 years.

Twenty four (32%) subjects were found to have depression according to the GDS-15 Kannada version, amongst which 21 (28%) were having mild depression and 3 (4%) severe depression. The mean score of depressed and non-depressed subjects were 7.8±2.2 and 1.4±1.3 respectively.

There was statistically significant association between depression and literacy status with illiterates having more depression (61.5%) than literates (25.8%) [OR=4.6, *P*=0.02] implying illiterates were five times more at risk of depression compared to literates. There was no statistically significant association of depression with age, sex, type of family, occupation status, living arrangement and SLI (*P*=0.3, 0.7, 0.6, 0.5, 0.5, 1.0, 0.7 respectively) (Table 1).

There was no statistically significant association of depression with either BMI or central obesity (*P*=0.08 and 0.2 respectively). However depression was higher among those not having overweight/obesity when compared to those having overweight/obesity (Table 2).

With respect to housing conditions, there was a statistically significant association between depression and provision of a separate living room with depression being higher among those not having a separate living room (50%) when compared to those having a separate living room (22.4%) [OR=3.5, *P*=0.01] implying elderly patients not having a separate room for living were four times at higher risk of developing depression compared to those having a separate room for living. There was no statistically significant association between depression and other factors related to housing conditions such as overcrowding, ventilation, lighting, location of bathroom and toilet and signs of neglect of the building (P=0.4, 0.2, 0.3, 1.0, 1.0, 0.3 respectively) (Table 3).

Table 1: Association between socio-demographic characteristics and depression.

Socio-demographic characteristics		Depression (n=24)	No Depression (n=51)	OR	CI		χ^2	*P* -value
					Lower	Upper		
Age (years)	60-69	11 (26.8)	30 (73.2)	0.6	0.2	1.6	1.1	0.3
	≥ 70	13 (38.2)	21 (61.8)					
Sex	Female	13 (34.2)	25 (65.8)	1.2	0.5	3.2	0.2	0.7
	Male	11 (29.7)	26 (70.3)					
Marital status	Single	12 (35.3)	22 (64.7)	1.3	0.5	3.5	0.3	0.6
	Married	12 (29.3)	29 (70.3)					
Type of family	Non-nuclear	14 (35)	26 (65)	1.3	0.5	3.6	0.3	0.5
	Nuclear	10 (28.6)	25 (71.4)					
Literacy status	Illiterate	08 (61.5)	05 (38.5)	**4.6**	**1.3**	**16.1**		**0.02****
	Literate	16 (25.8)	46 (74.2)					
Occupation status	Employed	05 (45.5)	06 (54.5)	2.0	0.5	7.2		0.5*
	Unemployed	19 (29.7)	45 (70.3)					
Living arrangement	Living with others	23 (32.4)	48 (67.6)	1.4	0.1	14.6		1.0*
	Living Alone	01 (25)	03 (75)					
SLI	Low/Medium	03 (42.9)	04 (57.1)	1.7	0.3	8.2		0.7*
	High/Very High	21 (30.9)	47 (69.1)					

*Fisher's exact test was applied as at least one of the cells has expected frequency less than 5; Figures in parenthesis indicate percentages. ** Statistically significant association.

Table 2: Association of BMI and central obesity with depression.

Obesity		Depression (n=24)	No Depression (n=51)	OR	CI		χ^2	P-value
					Lower	Upper		
According to BMI (kg/m^2)	Not overweight/ obese	14 (42.4)	19 (57.6)	2.3	0.9	6.3	2.9	0.08
	Overweight/ obese	10 (23.8)	32 (76.2)					
Central obesity (cms)	Absent	12 (41.4)	17 (58.6)	2.0	0.7	5.4	1.9	0.2
	Present	12 (26.1)	34 (73.9)					

Asia-pacific guidelines on BMI: Overweight: BMI≥23 kg/m^2; Obese: BMI > 25 kg/m^2 ; International diabetes federation classification: Central obesity: ≥90 cms for males, ≥80 cms for females, Figures in parenthesis indicate percentage.

Table 3: Association between housing conditions and depression.

Housing conditions		Depression (n=24)	No depression (n=51)	OR	CI		$\chi 2$	*P*-value
					Lower	Upper		
Provision of separate room for elderly	No	13 (50)	13 (50)	**3.5**	**1.2**	**9.6**	**5.9**	**0.01****
	Yes	11 (22.4)	38 (77.6)					
Overcrowding	No	17 (35.4)	31 (64.6)	1.5	0.5	4.4	0.7	0.4
	Yes	07 (25.9)	20 (74.1)					
Adequate Ventilation	No	11 (42.3)	15 (57.7)	2.0	0.7	5.5	1.9	0.2
	Yes	13 (26.5)	36 (73.5)					
Adequate Lighting	No	09 (40.9)	13 (59.1)	1.7	0.6	4.9	1.1	0.3
	Yes	15 (28.3)	38 (71.7)					
Location of bathroom	Not attached	01 (33.3)	02 (66.7)	1.0	0.1	12.3		1.0*
	Attached	23 (31.9)	49 (68.1)					
Location of toilet	Attached	23 (32.4)	48 (67.6)	1.4	0.1	14.6		1.0*
	Not attached	01 (25)	03 (75)					
Signs of neglect (building)	Present	08 (42.1)	11 (57.9)	1.8	0.6	5.3	1.2	0.3
	Absent	16 (28.6)	40 (71.4)					

*Fisher's exact test was applied as at least one of the cells has expected frequency less than 5; Figures in parenthesis indicate percentages. ** Statistically significant association.

DISCUSSION

Normal ageing is complicated by the development of a variety of psychiatric illnesses, the most prevalent among them being depression. This fact was supported by the present study. The proportion of depression among elderly patients attending rural primary health care setting in this study was found to be 32 %. Similar findings were reported by Sathyanath SM et al i.e. 36.5%[15] whereas Bodhare TN et al reported it as 45%.[15,16] The possible explanation for this variation could be attributed to differences in the screening instruments used and social and cultural factors.

Depression was higher among illiterates compared to literates in this study. Similar findings were reported by Stanley P et al and Sidik MS et al.[5,17] These observations strengthen the fact that poor educational background is an important risk factor for depression.

In the presence of obesity, depression increases the risk of health complications and these two conditions form a potentially lethal combination. The present study observed that depression was higher among non obese compared to overweight/obese, even though findings were not statistically significant. Similar findings were reported by Mezuk B et al and a longitudinal study conducted by WHO (SAGE study) in six countries including India.[18,19] The probable reason for this could be higher number of frail elderly patients in the present study and also the parameters BMI and waist circumference are not sufficient in finding the association between depression and obesity. Contrary to these finding, Ariyo AA et al., reported statistically significant association between obesity and depression. [20] Hence, there is need to accumulate further evidence in this regard by adopting other methods for assessing body composition in addition to the parameters BMI and waist circumference among Indian elderly patients.

The proportion of depression among elderly not having a separate living room was higher when compared to those having a separate living room. Similar findings were reported by Choi NG et al.[21] The probable reason for this could be availability of separate living room lead to increased privacy and autonomy which in turn lead to improved mental well-being. Currently there is dearth of research in this regard and hence more studies are needed in this direction which is essential to formulate elderly friendly housing standards.

The strengths of this study are application of validated Kannada version of geriatric depression scale (GDS - 15) specific to elderly and data being collected by a single investigator from all the study subjects which eliminated the interviewer bias. Another important strength was the extension of study from the clinic to the family environment of the elderly for the assessment of socio-economic status and housing condition. The present study is limited by its small sample size (as the study was clinic based and absolute precision was taken).

The current study has shown every third elderly patient attending rural primary health care setting is being detected with depression. The reasons for under reporting of depression by elderly patients could be masking of mental morbidity by somatic symptoms, stigma associated with psychiatric illness and perception of depression as a part of normal ageing. The reasons for under recognition could be busy nature of the out-patient department and also limitations in training to primary care doctors in mental health. The current study

emphasizes that it is essential and feasible to employ screening of depression in elderly patients attending rural primary care settings similar opinion can be found in the study by Brahmbhatt KR et al.[22] This provides a good opportunity for primary care doctor to give equal importance for both medical and mental health component in treating elderly patients. In this context, a well-trained primary care doctor and health team will definitely be able to recognize, treat and at the same time create awareness regarding adverse health effects of depression among elderly patients.[23]

India is a pioneer country in health service planning with a focus on primary health care and eleventh five year plan of the government of India incorporated the concept of geriatric psychiatry in its re-strategized national mental health programme (NMHP).[24] In this context, the current preliminary study will be a precursor for the future studies and call for large sampled, multicentric, in-depth studies on depression among elderly patients attending rural primary health care setting by using validated screening instruments. Importance should be given to explore the influence of obesity and housing conditions on depression. The evidence from such studies should be utilized to develop effective health care policies and programmes to improve the quality of life of elderly population in near future.

CONCLUSION

The present study found that around one third of elderly patients attending rural primary health care setting were suffering from depression. Illiteracy and lack of separate living room were found to have a significant association with depression among elderly patients which calls for in-depth studies and subsequent action in near future.

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