

Prevalence of depression amongst the Elderly population in old age homes of Mangalore city

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ABSTRACT

Context: Depression is a silent killer. The people living in the old age homes (OAHs) appear to be overtly neglected by the community and depression is easily overlooked in such individuals especially in elderly people with comorbidities. Its early detection and treatment are imperative to improve quality of life. **Aim:** To find the prevalence of depression and the socio-demographic factors associated with depression among the elderly of OAHs. **Materials and Methods:** A Cross-sectional study in geriatric population of OAHs around Mangalore city was conducted over a duration of 5 months. About 142 elderly above the age of 60 years participated in the study. The study tools used were Geriatric Depression Scale-15 (GDS-15), Activities of Daily Living Scale (Katz index) and socio-demographic questionnaire. **Statistical Analysis Used:** The results were expressed in percentages and proportions. Univariate logistic regression analysis was done to find out the associated sociodemographic factors. Means and standard deviation of the GDS-15 and KATZ index scores were calculated and correlation was assessed between both the scores. **Results:** The overall prevalence of depression was 47.8% by using the GDS. The GDS score and Katz score were found to have a significant negative correlation. ($r = -0.245$ $P = 0.003$). Less social interaction amongst the peers was found to be associated with depression. **Conclusions:** The prevalence of depression in this study population was moderately high. Spending time with other residents was protective and functionally able people were less likely to have depression.

Keywords: GDS, geriatric depression, OAHs

Introduction

Depression, a silent killer of the modern era, is predicted to become the second-most important cause of morbidity throughout the world by the year 2020 by WHO.^[1] There are more than 264 million people across the spectrum of age suffering from depression.^[2] The prevalence of depressive disorders according to a worldwide meta-analysis of 74 studies was found to be between 4.7-16%. These studies included 487,275 elderly individuals in which the geriatric depression in the Indian population was comparatively higher (21.9%).^[3]

Modernization of society has torn apart family values and has led to decreased family support. Generation gap and lifestyle changes are creating feelings of isolation and insecurity among elderly people. Additionally, with the increase in longevity, the households are getting smaller and congested causing financial constraints and stress in joint families and this leads to old age home settlement. Most OAHs in India lack good facilities and do not offer recreational activities, counseling or caregivers. This affects the mental health of the residents and leads to a feeling of helplessness which is a major contributing factor to depression in the elderly.^[4,5]

Though depression is the commonest psychiatric disorder in the elderly, it is often undiagnosed and under-treated. In the absence of treatment, there will be significant clinical and social implications in the lives of the elderly and also a decrease in the quality of life due to the chronic or recurrent nature of depression.^[6,7]

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Depression in the elderly can be associated with declined functional activity, a higher likelihood of co-morbid conditions like diabetes, hypertension, coronary heart diseases, reduced recovery from comorbid diseases, premature death due to suicide, and other reasons.^[8,9] Improving health of the elderly will make them independent and help them grow older with grace and dignity.

Hence this study was conducted to find out the prevalence of depression in the geriatric population residing in the OAHs of Mangalore city and to find out the associated sociodemographic and functional activity determinants.

Materials and Methods

We conducted a cross-sectional study to assess the prevalence of depression in the geriatric community living in the OAHs of Mangalore city, Mangalore Taluk, Dakshina Kannada District, Karnataka. The district lies between 12°27' and 13°58' North Latitude and 74°35' and 74°00' East longitude on the west coast of Southern India. The geographic area of the district is about 4,859 square km. The total population of the district is 20,89,649 as per the 2011 census.^[10]

The line listing of all the OAHs in Mangalore city and universal sampling was used to identify the study participants. The study duration was from June 2015 to November 2015 and included 142 elderly out of which 113 were females and 29 were males. Individuals in the age group of 60 years and above living in OAHs who consented for the study were included in the research. Individuals who were in a comatose condition, physically disabled, or could not speak or comprehend were excluded from the study. The study was started after obtaining the ethics approval from the Institution's Ethics Committee vide no. FMMC/FMIEC/2347/2015 dated 14.07.2015 and due permissions from the offices of the OAHs. The study was in accordance with the Helsinki Declaration of 1975, as revised in 2000. Written informed consent was taken from all the study participants before interviewing them. The study tool consisted of three sections: a. Sociodemographic Profile. b. Geriatric Depression Scale-15 (GDS-15) c. Activities of Daily Living Scale (Katz index)

The Sociodemographic profile included the variable viz, age, sex, marital status, educational status of the subject and his/her spouse, type of family, number of children, past occupation, along with their source of income (if any). GDS scale contains 15 questions with dichotomous responses yes and no. The GDS score can range from 0-15. We used the score ≥ 5 on the GDS scale to classify as depressed.

KATZ index of independence in activities of daily living is calculated by adding the ability of the individual to perform basic activities like bathing, dressing, toileting, transferring, maintaining continence, and feeding. The KATZ index ranges from 0-6; a score of 6 indicates the full function, 4 indicates

moderate impairment, and 2 or less indicates severe functional impairment.

The data so collected was entered in MS Office Excel 2010 and imported into SPSS 23. The results were expressed in mean and standard deviations, percentages, and proportions. Univariate logistic regression analysis was done using independent variables which could be the predictors of depression such as sex, marital status, educational status of spouse, presence of living children, health insurance, etc.,. The dependent variable was dichotomized as depression present = 1 and depression absent = 0 in SPSS. Correlation was also calculated between Katz index, stay duration in months in OAHs, and GDS score after testing the assumption of normality using Kolmogorov Smirnov and Shapiro Wilk tests. For all statistical tests, P value < 0.05 was considered as statistically significant.

Result

In the present study, the majority of the participants were females [Table 1]. There was a predominance in the study participants belonging to 61-70 years of age and the mean age of the study population was 65 years. Most of them were unmarried,

Table 1: Distribution of depression with socio-demographic variables

Characteristics of study participants		Depression Present		Depression Absent	
		n	(%)*	n	(%)
		Age	61-70	37	(54.4)
	71-80	17	(25.0)	15	(20.3)
	81-90	13	(19.1)	14	(18.9)
	> 90	1	(1.5)	3	(4.1)
Sex	Male	12	(17.6)	17	(23.0)
	Female	56	(82.4)	57	(77.0)
Marital status	Married	7	(10.3)	18	(24.3)
	Unmarried	33	(48.5)	35	(47.3)
	Widow/Widower	20	(29.4)	13	(17.6)
	Divorced/Separated	8	(11.8)	8	(10.8)
Family	Nuclear	49	(72.1)	50	(67.6)
	Joint	19	(27.9)	21	(28.4)
	Three generation	0	(.0)	3	(4.1)
Education	Illiterate	22	(32.4)	17	(23.0)
	Primary	11	(16.2)	9	(12.2)
	Middle	18	(26.5)	28	(37.8)
	Highschool	10	(14.7)	11	(14.9)
	Pre-university and above	7	(10.3)	9	(12.2)
Source of income	Pension	19	(41.3)	30	(47.6)
	From Children	6	(13.0)	12	(19.0)
	Others	21	(45.7)	21	(33.3)
Spending time in interacting with others	Yes	43	(63.2)	61	(82.4)
	No	25	(36.8)	13	(17.6)
Health insurance	Yes	2	(2.9)	3	(4.1)
	No	66	(97.1)	71	(95.9)
Katz index	Fully functional	54	(79.4)	67	(90.5)
	Impairment	14	(20.6)	7	(9.5)

*% denoted column percentages

belonged to nuclear families, and had completed education up to middle school [Table 1]. They spent their leisure time interacting with other individuals residing in the OAHs.

The overall prevalence of depression was 47.8% by using the Geriatric depression scale (GDS). This statistic included 23.2% of the elderly who were suggestive of depression and 24.6% who had depression. Female study participants had a higher crude prevalence of depression compared to male study participants [Table 1]. Unmarried elderly had a proportionately higher prevalence of depression followed by widow/widowers [Table 1]. Age, sex, educational status, type of family, source of income, presence of health insurance, and functional status did not have any association with depression.

The odds of depression were lesser in the study participants who were spending their maximum leisure time interacting with others [Table 2].

The mean scores of GDS and Katz were found to be 5.89 and 5.27 respectively [Table 3]. The GDS score and Katz score were found to have a significantly small negative correlation. ($r = -0.245$ $P = 0.003$) [Table 4].

Discussion

In modern society, depression has become an important issue. Being one of the common psychological conditions saddled with disappointments and losses, it is one of the commonest psychological problem in old age. Its early diagnosis is quintessential as it is a major health hazard with poor outcomes.^[11]

The study was conducted to assess the prevalence of depression in a group of elderly people residing in the OAHs of Mangalore city. Further, this study aimed to explore the predictors of depression and thereby paving the way for the development of preventive programmatic activities.

The prevalence of depression in elderly people living in the OAHs of Mangalore city was found to be 47.8%. In a similar study, Achappa S *et al.*, found the prevalence of depression to be 50.5%.^[12] Mullick *et al.* and Patel M *et al.* observed a higher prevalence of depression i.e., 54% and 56% in old age people respectively and even higher prevalence 62% was observed by Grover *et al.*^[13-15] Comparatively lower prevalence of depression was reported by Konda PR *et al.* although in a different study setting.^[16]

The reason for the prevalence of depression being higher in OAHs might be because of lack of family support, reduced

Table 2: Univariate logistic regression analysis of depression with sociodemographic variables

Characteristics of study participants	Depression		Odds ratio (95 CI)	P
	n	(%)**		
Age	61-70 (reference)	37	26.1	
	71-80	17	12.0	2.64 (0.26-26.52)
	81-90	13	9.2	3.4 (0.32-36.27)
	> 90	1	0.7	2.79 (0.26-30.27)
Sex	Male	12	8.5	0.72 (0.32-1.64)
	Female (reference)	56	39.4	
Marital status	Married (reference)	7	4.9	
	Unmarried	33	23.2	0.39 (0.11-1.45)
	Widow/Widower	20	14.1	0.94 (0.32-2.80)
	Divorced/Separated	8	5.6	1.54 (0.46-5.13)
Family	Nuclear (reference)	49	34.5	
	Joint	19	13.4	1.58 (0.00)
	Three generation	0	0.0	1.46 (0.00)
Education	Illiterate (reference)	22	15.5	
	Primary	11	7.7	0.94 (0.32-2.79)
	Middle	18	12.7	0.50 (0.21-1.18)
	Highschool	10	7.0	0.70 (0.24-2.04)
	Pre-university and above	7	4.9	0.60 (0.19-1.94)
Source of income	Pension (reference)	19	17.4	
	From Children	6	5.5	0.63 (0.28-1.46)
	Others	21	19.3	0.50 (0.16-1.54)
Spending time	Yes	43	30.3	0.37 (0.17-0.80)
	No (reference)	25	17.6	
Health insurance	Yes	2	1.4	0.72 (0.12-4.43)
	No (reference)	66	46.5	
Katz index	Fully functional	54	38	2.481 (0.94-6.58)
	Impairment	14	9.9	

** (%) denotes percentage with study population as the denominator

Table 3: Descriptive Statistics of GDS score, KATZ Index score and Stay duration in old age home

Variable	Mean	Std. Deviation
GDS score	5.89	4.506
Stay duration	2.37	0.759
Katz score	5.27	1.651

Table 4: Correlation between GDS score and the stay duration in the old age home (in months and KATZ index score

	Pearson Correlation	Significance
Stay duration	-0.13	0.86
Katz Index Score	-0.245	0.003

interaction with other inmates, social, economic, and other health problems. In our study the major factor associated with depression was decreased social interaction with other residents in OAHs. The other socio-demographic determinants did not have any bearing in Depression in the elderly. Even Sengupta and Benjamin did not observe any relationship between geriatric depression and marital status, educational status, whereas Mullick *et al.* found that elderly having financial dependency, lower educational status, single marital status, chronic diseases, lower ADL and higher age were more depressed. Even Patel M observed sociodemographic factors like area of residence, gender, marital status and educational qualifications were predictors of depression in the older people. Sharma *et al.* also found other determinants of depression in the elderly like low income, tobacco consumption, stressful events in the past one-year, multiple chronic diseases and lacking positive approach.^[13,14,17,18]

The present study showed that there was a significant negative correlation between Katz index scores and GDS scores, underlying the fact that people with lower functional ability scores were having GDS scores suggestive of depression. Mullick *et al.* also observed similar findings, wherein depression was more frequent in the elderly with lower functional activities.^[13] The primary care physicians are the pillars of health care for the elderly. The primary care physicians as a part of outreach services, could play a significant role in preventive and promotive services for the elderly in OAHs, thereby ensuring adequate functional ability scores of the elderly. This could pave the path of lower GDS scores for the elderly and overall improvement in the mental status of the elderly.

There was no significant correlation between the duration of stay in the OAHs with depression. Narkhede *et al.* found depression to be more in inmates who stayed for longer duration in the OAHs.^[19]

Conclusion

The prevalence of depression in the elderly residing in OAHs was moderately high in our study. The institutionalized elderly irrespective of the duration of stay in the OAHs were likely to

have depression if they were having lesser social interactions with their peers and lower functional ability scores.

Limitations

One of the limitations of the study is that the population assessed was the geriatric population in OAHs and due to lack of family support the prevalence of depression could be slightly higher. Another limitation is that being a cross-sectional study, the cause and effect relationship could not be determined as this would require a longitudinal study. Despite these limitations, we strongly feel that due to paucity of literature on the subject of depression in the institutionalized elderly population, our study helped in generating hypotheses for epidemiological investigations on a large scale across the country addressing these limitations.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Key Messages

Prevalence of depression in older persons in the OAHs of Mangalore was relatively higher. The study explored the predictors of depression in the elderly residing in OAHs and thereby paving the way for the development of preventive programs.

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Conflicts of interest

There are no conflicts of interest.

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