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Original Research Article

Prevalence of depression and associated factors among rural elderly, residing in field practice area of a private medical college in South India: a cross sectional study

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ABSTRACT

Background: Ageing is inevitable and is associated with deterioration in health status. Aging process can affect the physical health and mental wellbeing can also be at stake. Depression is most common among these mental disorders with a prevalence ranging from 11.6% to 31.1% in India. It becomes important to assess the burden of mental health problems in the community especially in rural areas where the knowledge is less. This study aimed to estimate the prevalence of depression among the elderly population residing in rural field practice area of a Private Medical College and assess factors influencing the same.
Methods: A cross-sectional study was conducted among elderly (>60 years) residing in the 5 villages in the rural field practice area. Sample size was calculated, and 354 elders were recruited for the study by 2 stage sampling technique. Geriatric depression scale 30 was used to assess their depression status.
Results: Out of 354 elders 63.84% of them had no depression, 25.70% of them had mild and 10.45% had severe depression. Factors like illiteracy, widowers, elderly sleeping <6 hours and consumption of addictive >20 years where found to be positively associated with depression ($p<0.05$).
Conclusions: This study shows high prevalence of depression among the rural elderly people and is significantly associated with illiteracy and widowers.

Keywords: Depression, Elderly, GDS 30 Scale

INTRODUCTION

Ageing is inevitable for any human being. According to census 2011, the population count of people over 60 years of age in India accounted to 8% of the total population, as of 2016 it is 8.6% which is projected to increase to 20% by 2050.[1-3] Roughly, 66% to 73% of India's elderly live in rural areas and are illiterate and economically dependent on others.[4] Due to the ageing process, along with physical health, mental well-being can also be at stake. An active healthy mind is important for a healthy existence. Disorders of mental health like anxiety and depression can be corrected if intervened at right time, especially for the elderly community who already might have few physical health problems.

On an average 15% of elderly suffer from different presentations of mental disorder. Depression tops the list among these mental disorders with a prevalence of 11.6% to 31.1% in India against the worldwide prevalence of 4.7% to 16%.[5] Depression leads to loneliness, fear of death, increase in use of health care services, self-pity, impairment in daily activities, suicidal thoughts and so on.[6,7] Some elderly tend to consider mild symptoms of

depression as a natural consequence of ageing and tend to overlook those symptoms leading to major depressive syndrome. There are studies indicating neglection and under-treatment of elderly suffering from depression.[8]

In India with improved health care facilities, which promises longevity we can easily diagnose and treat this preventable disorder but economic and social factors like poverty and neglection from family possess a potential barrier to them. So it becomes important to assess the burden of mental health problems in the community, mainly in the rural areas where the knowledge about these disorders is less and also many considering it a social stigma if they are found to be suffering from any mental health issues. This study was carried out to assess the magnitude of depression among elderly and factors contributing to it in a rural area of Tamil Nadu.

METHODS

This cross-sectional study was conducted from September 2020 to November 2020 in the rural field practice area of a private Medical College. This study was cleared by Institutional Ethics Committee. 2 stage sampling technique was done to select study population.

Inclusion criteria

Elderly more than 60 years of age, residing in randomly selected 5 villages, coming under field practice area of a Private medical college were selected as study population.

Exclusion criteria

Critically ill patients, elderly who are not willing to give consent and elders not present during the day of survey.

Sample size calculation was done by using the formula $Z\alpha^2PQ/L^2$ where $Z\alpha$ is the normal variant, P denotes prevalence, Q denotes 1-Prevalence and L denotes precision. Prevalence has been taken as 22%, which was found to be the for prevalence of depression in India from the study conducted by Barua et al based on the calculation, a total of 354 was arrived as the sample size needed for the study.[5]

In stage I, From the 10 villages which comes under our rural field practice area, 5 villages were selected randomly by lots. In stage II, population count of elderly >60 years in the 5 selected villages was obtained from the data base of our rural health training centre. This formed the sampling frame for each of the 5 selected villages. Number of subjects to be sampled from each village was calculated by probability proportion to size (PPS). Finally using simple random sampling method, participants were selected from each village (Table 1).

House to house survey was conducted, after obtaining permission from the village head. A semi-structured questionnaire comprising of sociodemographic details, educational status, marital status, health status, along with a validated scale called Geriatric Depression Scale 30 (GDS-30) was used for data collection.[9] The final Data was entered in Microsoft excel and Statistical analysis done by SPSS software version 21.

RESULTS

Among 354 study participants 48.02% were males and 51.97% were females. The mean age of the study participants was 66.45±4.67 years. Majority of them 77.98% were aged between 60 to 70 years whereas 22.02% of them were aged more than 70 years. In this study, nearly half of the study subjects (46.32%) of them were illiterates. Majority of the study participants (27.96%) belonged to class IV of Modified BG Prasad Socio economic class (SES).

It was observed that 61.29% were living in a joint family, and 33.89% of the elderly people were living without spouse. History on addictive habits showed that, 45.48% of the study subjects were smokers for >20 years, 46.32% were alcoholics for >20 years, 81.07% chew tobacco for >20 years. Among the 354 elderly subjects for whom GDS-30 scale was deployed to assess depression, majority of them 63.84% scored between 0-9 indicating No-Depression, 25.70% scored between 10-19 indicating Mild-Depression and 10.45% of them scored between 20-30 indicating severe depression (Figure 1).

Table 1: Methodology of 2 stage sampling.

Village name	Total population of village	number of elderly > 60 years	PPS = N/X x (n1-n5)	Sample selected from each village by PPS
Namandi	2051	164	354/596 x 164	97
Hariharapakkam	1318	105	354/596 x 105	63
Vellakolam	1118	89	354/596 x 89	53
Arasankuppam	1376	110	354/596 x 110	65
Pillanthangal	1604	128	354/596 x 128	76
Total	7467	596		354

PPS: Probability proportion to size

Table 2: Associations between risk factors and depression.

Risk factors	No depression	Mild depression	Severe depression	X^2	P value
Gender					
Males	96 (27.11%)	48 (13.55%)	26 (7.34%)	10.934	0.004*
Females	130 (36.72%)	43 (12.14%)	11 (3.10%)		
Education					
Illiterate	38 (10.73%)	89 (25.14%)	36 (10.16%)	215.11	<0.001*
Primary school	86 (24.29%)	1 (0.28%)	1 (0.28%)		
Middle school	42 (11.86%)	1 (0.28%)	0%		
High school	50 (14.12%)	0%	0%		
Diploma holder	10 (2.82%)	0%	0%		
Marital status					
Married	226 (63.84%)	14 (3.95%)	2 (0.56%)	290.48	<0.001*
Widowed	0%	77 (21.75%)	35 (9.88%)		
Financial dependency					
Dependent	44 (12.42%)	46 (12.99%)	35 (9.88%)	91.01	<0.001*
Non dependent	182 (51.41%)	45 (12.71%)	2 (0.56%)		
Smoking					
Yes	88 (24.85%)	47 (13.27%)	26 (7.34%)	14.467	<0.001*
No	138 (38.98%)	44 (12.42%)	11 (3.10%)		
Alcohol					
Yes	91 (25.70%)	47 (13.27%)	26 (7.34%)	12.906	0.002*
No	135 (38.13%)	44 (12.42%)	11 (3.10%)		
Tobacco					
Yes	175 (49.43%)	78 (22.03%)	34 (9.60%)	6.051	0.049*
No	51 (14.40%)	13 (3.67%)	3 (0.84%)		
Hours of sleep					
<6 hours	0%	76 (21.46%)	35 (9.88%)	291.496	<0.001*
6 – 8 hours	182 (51.41%)	6 (1.69%)	1 (0.28%)		
>8 hours	44 (12.42%)	9 (2.54%)	1 (0.28%)		

*Indicates statistically significant values

Table 3: Logistic regression table.

Associated factors	Standard Deviation (SD)	Mean	Coefficients standard error	95.0% Confidence interval for B		Standardized coefficients Beta	Significance
				Lower Bound	Upper Bound		
Constant	0.48114	0.3616	0.760	-0.090	0.210		0.430
Age	0.415	0.78	0.024	-0.078	0.016	- 0.027	0.198
Gender	0.500	0.52	0.067	-0.098	0.165	0.035	0.615
SES	1.348	3.18	0.010	-0.017	0.022	0.006	0.831
Literacy	1.185	1.03	0.010	-0.089	-0.049	- 0.170	<0.001*
Family	0.488	0.39	0.041	-0.008	0.153	0.074	0.076
Married	0.466	0.32	0.031	0.680	0.803	0.717	<0.001*
Finance	0.479	0.35	0.035	-0.077	0.061	- 0.008	0.811
Smoking	0.499	0.45	0.107	-0.114	0.309	0.101	0.363
Alcohol	0.499	0.46	0.125	-0.236	0.256	0.010	0.938
Tobacco	0.392	0.81	0.046	0.003	0.183	0.076	0.044*
Sleep	0.737	0.62	0.015	0.034	0.091	0.096	<0.001*
Chronic illness	0.436	0.75	0.041	-0.150	0.014	- 0.062	0.102

*Indicates statistically significant values.

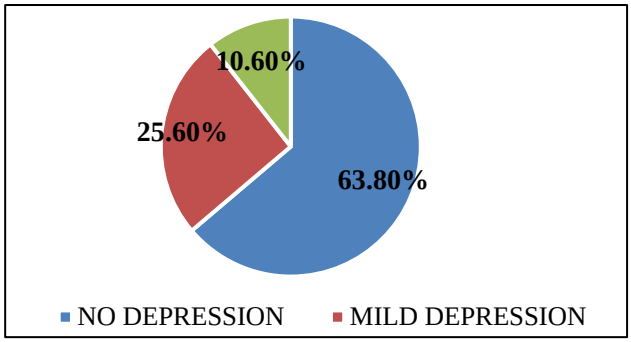

Figure 1: Prevalence of depression.

This study showed preponderance of depression among males which is 20.89% when compared to the females which is 15.24% (p=0.004), and people belonging to low socioeconomic status are found to be more depressed 30.77% compared to high socio economic status 5.08%. We also found there is inverse relationship between educational status of the patient and depression (i.e.) illiterates 35.30% are more depressed than literates 0.84% (p≤0.001).

Increased prevalence of depression was found among elderly living alone (widows / widowers) 31.63% when compared with those living with their spouse 4.51%. Factors like smoking for more than 20 years, chronic alcoholics, chronic tobacco chewers, chronic diseases like hypertension, diabetes mellitus, haemorrhoids are found to have positive association with depression when compared with their counterparts which is statistically significant (p<0.05) (Table 2).

Logistic regression showed strong association of depression with illiteracy (p<0.001), widowers (p<0.001), elders sleeping <6 hours (p<0.001) and elders chewing tobacco >20 years (p.0.044).

DISCUSSION

This cross sectional study on rural elderly portrays prevalence of depression as 36.2% which was close to the study results of Sinha et al, conducted among rural elderly of Kanchipuram district, which showed the prevalence of 42%.[10] Studies conducted by Sanjay et al, Nautiyal et al, Konda et al, in urban areas like Bengaluru, Dehradun city and Hyderabad showed prevalence of 36%, 42%, 23% respectively.[11-13] This shows that, irrespective of the study settings, depression is common among elderly and its prevalence is varied. International studies conducted by Østbye et al, Karl Peltzer et al, Cong et al and Steffens et al, showed varied prevalence ranging from 2.6% to 11.9%.[14-17]

In our study we have found preponderance of depression in males, which is statistically significant. This may be because in our study, majority of the males are living alone (i.e. they are widowers) and in this study we have also found strong association of depression among widowers. Radhakrishnan et al in their cross sectional study among rural elderly people of Salem district portrayed female gender as a potential risk factor for depression.[18] Same results were seen in others studies like study conducted by Sherina et al and Buvneshkumar et al.[3,19] Study results of Anita et al showed no association between gender and depression.[20]

Elderly belonging to low socioeconomic status are found to be more depressed compared with their counterpart in this study. The result is similar to the study results of Kamble et al and Ramachandran et al.[21,22] Studies have shown low social support, housing conditions and poor living standards contributes to depression in elderly. Though these variables were not looked into our study, our study subjects live in the same environment. An European Survey on aging conducted by Freeman et al showed that for increase in every unit of SES index, there was a significant decrease in the odds of depression.[23-25]

The results of this study showed that significant proportion of elders living alone (Widows / widowers) are found to be depressed when compared to those living with their spouse. Same results were seen in the study conducted by Vishal et al.[26] Even though results of the study conducted by Chauhan et al shows positive association between elderly living alone and depression it was not statistically significant.[27] Loneliness is one of the key factors associated with depression as shown in study conducted by Grover et al.[28]

This study shows inverse association between educational status of the study subjects and depression. Which means with increase in literacy there is a decrease in incidence of depression and it is statistically significant (p<0.0001). This finding is supported by studies conducted by Kamble et al and Reddy et al.[21,29]

Our study shows positive association between depression and financial dependency of the elderly people, chronic illness was also found to be a contributing factor for depression. Study conducted by Maulik et al exhibits same results like our study, stating that elderly dependent on others for their financial expenses and people suffering from chronic illness are significant risk factors for depression.[30] Significant association between addictive and depression is found in this study. Study conducted by Radhakrishnan et al also showed similar result.[18]

CONCLUSION

In our study there is 25.6% prevalence of mild depression and 10.6% of severe depression giving us the overall prevalence of 35.6%. This study also portrays significant association between Illiteracy, chronic smoking, chronic alcoholism, tobacco chewing, elderly suffering from chronic diseases and depression.

Recommendations

This type of depression among elderly can be reduced by encouraging them to participate in the social activities by forming elderly clubs and refreshment parks.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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