ORIGINAL RESEARCH ARTICLE

Unveiling the Silent Struggle: Depression and Healthcare Utilization Among the Elderly in Rural South India

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ABSTRACT

Background: Depression is one of the mental health issues that has a significant worldwide impact. Findings: Majority of the cases of depression are either underdiagnosed or misdiagnosed as most of the time the symptoms are masked by cognitive decline due to ageing. The study was conducted to estimate the prevalence of depression among the elderly and to identify the sociodemographic and health-related factors associated with geriatric depression.

Methodology: Using the Simple Random Sampling technique, 2000 elderly individuals participated in this cross-sectional analytical study. Depression was evaluated using the Geriatric Depression Scale (GDS 15). The enter method was used to do a multivariate binomial logistic regression analysis.

Results: According to GDS-15, depression affected 40.1% of the elderly population. Age (61–80) years, financial dependence on family and presence of chronic comorbidity were the variables in multivariate binomial logistic regression analysis that were significantly linked to geriatric depression. About 42.5% visit the health facility only when sick and majority 60.6% preferred government health facility.

Conclusion: Reducing the growing prevalence of late-life mental health problems in aging populations requires improving economic stability, addressing social causes, and encouraging regular screening for depression in older persons.

Keywords: Old age, Mental health, Health seeking, Depression

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INTRODUCTION

Ageing is a developmental process and a country is called as a graying nation if the population of those more than 60 years of age reaches 7% as per United Nations.[1] Advancements in health care, increasing life expectancy and epidemiological transition resulted in the increase in proportion of elderly population.[2] As per World Health Organisation the elderly population will rise to 22% globally by 2050 compared to 12.2% in 2024. Currently in India, elderly accounts to 10.5% (148 million) in 2022 and projected to escalate to 19% (324 million) by 2050.[3]

Growing elderly population is associated with increase in the burden of diseases due to deterioration of health due to ageing. During this period of transition, elderly population has to face the challenge of maintaining their physical health, mental health and social wellbeing.[4] Burden of mental health problems are growing with age and factors like economic dependence, chronic illness, social isolation, disability, disrespect and disability augment the risk for developing mental health problems among the elderly.[5]

Among the mental health problems depression emerges as a disease with huge global burden. Annually across the globe around 8 Lakh elderly population commit suicide as per 2015 report and disability due to depression is the top contributor globally accounting to 97.5%.[6] Depression prevalence varies between 10-20% across cultures worldwide and more so in recourse-limited settings.[7] Depression also adds to the poor prognosis of chronic diseases, decreased quality of life and further intensifies disability.[8]

India being a developing nation with about 65% of population residing in rural area is not adequately equipped to effectively deal with the mounting burden of mental health problems.[9] In India depression among elderly varies between 13% to 25% across community based studies and among the elderly visiting primary health care setting 22% to 65% identified as having depression.[10] Majority of the cases of depression are either underdiagnosed or misdiagnosed as most of the time the symptoms are masked by cognitive decline due to ageing.[11] Hence identifying the symptoms at the earlier stage and treating them completely plays a pivotal role. Doctors at the primary health care setup can contribute significantly in identifying depression and reducing the morbidity, mortality and health care costs associated with it.[10]

Eventhough the Government of India (GOI) has taken tremendous efforts to provide comprehensive health care services at the primary care level; health care utilization rates are more in private health sector compared to the public sector. Utilisation of public and private health care services is 32.5% and 62.2% respectively in rural areas of India as per the National Sample Survey report. Appropriate health care infrastructure is not available to combat the expanding elderly population for healthy ageing.[12] Necessary steps have to be taken to overcome this challenge and health seeking behaviour of the elderly population have to be improved by creating adequate awareness about the available health care services, treatment options, health insurance and pension schemes that can be utilized by the elderly in India.[13]

The southern Indian states are dealing with a sharp increase in the senior population as a result of the demographic shift. In 2021, Kerala had the most percentage of senior people (16.5%), and by 2036, it is expected to rise to 22.8%. Tamilnadu is just behind, with 13.7% in 2021 and 20.8% by 2036.[14] According to studies conducted in Tamil Nadu, the prevalence of depression among the elderly ranges from 17% to 67.5%. Higher incidence was seen in rural regions; this might be because of things like less access to social assistance and healthcare than in metropolitan areas.[15] Few research has been carried out in south India, despite the fact that depression affects the elderly there. In order to enhance preventative and intervention measures, this study is to evaluate the prevalence of depression, its factors, and the health-seeking behavior of the elderly in rural Tamil Nadu.

METHODOLOGY

Study design and study setting: Elderly individuals (> 60 years) living in the rural region of S Paaparapatti in the Salem district of Tamil Nadu were the subjects of this cross-sectional analytical study.

Sample size and sample recruitment process: Using the formula N = Z2άpq / [L] 2 (where Z = 1.96, p - 52.4 q - 47.6%, L - 2.62 (5% of p), 20% non-response rate), the sample size was determined based on a prior study conducted in Kerala in 2021 by Thomas AM et al. The prevalence of geriatric depression was taken as 52.4%. The final sample size was rounded to 1675.[11] However, 2000 study samples were collected in order to increase the power of the study. List of households in the village constituted the sampling frame for the study and samples were chosen using the simple random sampling technique, which uses a computer-generated random number. Study participants above 60 years were approached by study investigator and individuals who had cognitive impairment or not able to communicate due to illness were excluded. Study was carried out for the period of 12 months from April 2024 to March 2025.

Study tool: Data was collected using a semi-structured questionnaire using interview method by the study investigators who were trained for this. Questions were explained by the study investigators in local Tamil language and the study participant's responses were recorded. The components of the questionnaire include sociodemographic characteristics, GDS-15 Item questions and questions related to health seeking behaviour. Geriatric Depression Scale (15 item) was used to assess the depression among the elderly population.[10] GDS-15 score of 0 to 4 is considered normal, individuals with score of 5 to 8 is

considered having mild depression, those with score 9 to 11 have moderate depression and those with score 12 to 15 is considered having severe depression. [16] Cronbach's Alpha was used to evaluate internal consistency and face validity of the local language questionnaire. A score of 0.80 was obtained for this questionnaire.

Statistical data analysis: Frequency, percentage, mean and standard deviation were used to represent study variables. Chi-Square test was used to test the association for univariate analysis and p value < 0.05 was considered as statistical significance. Multivariate binomial logistic regression analysis was done using enter method.

Ethical clearance and informed consent: Study was carried out after approval from Institutional Ethics Committee (Ref ID: VMKVMC&H/IEC/25/002). Informed consent was obtained from all the participants before questionnaire administration. For illiterate participants verbal consent with witness was obtained instead of informed consent.

RESULTS

In this study, there were no missed or incomplete data and all the 2000 study participants responses were included in the final analysis. Among the study participants, 67.7% (1353) of them belonged to 61 – 80 years of age and 53. 2% (1064) were males. Nearly 47.3% (947) were illiterates and 61.2% (1224) belonged to nuclear family. More than half of the study samples 57.2% (1144) were financially dependent on the family and 45.6% (911) were from lower socioeconomic status (Table 1).

As per Geriatric Depression Scale (GDS-15), 40.1% (803) of the elderly population were having depression. Based on the scores, 26.2% (523) had mild depression, 11.2% (222) had moderate depression and 2.7% (54) had severe depression in this study (Table 2).

In the current study, 61.5% (1230) had a health problem in the last 12 months and 46.3% (926) were suffering from any chronic comorbidity (Table 3). About 42.5% (850) of them visit the health facility only when sick and majority 60.6% (1211) preferred government health facility whenever sick. Nearly 47.1% (941) had their preferred health facility at a distance of 1-5 kms and 61.3% (1225) had never faced any difficulty in getting medications from the health care facility. Some challenges quoted by the study participants in seeking health care were long waiting hours (19.3%), high cost of health care services (14.9%) and lack of proper transport facility (11.6%). About 27.2% use tobacco in any form and 14.5% were alcohol users (Table 3).

As per the univariate analysis, variables significantly associated with geriatric depression include age (61 – 80) Years (p value - < 0.0001, OR – 1.76), Female gender (p value - 0.007, OR – 1.36), financial dependence on family (p value - < 0.0001, OR – 5.36) and presence of associated chronic comorbidity (p value - < 0.0001, OR – 12.20). Other variables like education, marital status, socioeconomic status, tobacco use and alcohol use were not statistically significant (Table 4).

Based on the multivariate binomial logistic regression analysis using enter method (Table 5), variables that were significantly associated with geriatric depression were age (61 – 80) Years (p value - 0.021, AOR – 1.36), financial dependence on family (p value - 0.011, AOR – 1.45) and presence of associated chronic comorbidity (p value - 0.001, AOR – 2.57).

Table 1: Sociodemographic characteristics among the study participants (N = 2000)

Variable	Participants (%)
Age	
61 – 80 Years	1353 (67.7)
> 80 Years	647 (32.3)
Sex	
Male	1064 (53.2)
female	936 (46.8)
Education	
Illiterate	947 (47.3)
Primary School	680 (34)
Middle School	235 (11.7)
High School	67 (3.4)
>High School	71 (3.6)
Family type	
Nuclear Family	1224 (61.2)
Joint Family	698 (34.9)
Three Generation Family	78 (3.9)
Marital Status	
Married	1275 (63.8)
Single	124 (6.2)
Divorced	80 (4)
Widower	521 (26)
Source of income	
Family support	1144 (57.2)
Savings	301 (15.1)
Pension	458 (22.9)
Salary for current work	97 (4.8)
Socioeconomic status	
Lower class	911 (45.6)
Upper lower class	423 (21,1)
Lower middle class	345 (17.2)
Upper middle class	211 (10.6)
Upper class	110 (5.5)

Table 2: Prevalence and grading of geriatric depression among the study participants (N = 2000)

Variable	Participants (%)
Geriatric Depression Present	
Yes	803 (40.1)
No	1197 (59.9)
Mean GDS Score	3.7±1.2
Grading of Geriatric Depression	
Normal (Score 0 to 4)	1197 (59.9)
Mild Depression (Score 5 to 8)	523 (26.2)
Moderate Depression (Score 9 to 11)	222 (11.2)
Severe Depression (Score 12 to 15)	54 (2.7)

Table 3: Health seeking behaviour among the study participants (N= 2000)

Variable	Participants (%)
Affected by any health problem in the last 12 months	
Yes	1230 (61.5)
No	770 (38.5)
Suffering from any chronic comorbidity	
Yes	926 (46.3)
No	1074 (53.7)
Presence of chronic comorbidity (N – 926)	
Yes	714 (77.1)
No	212 (22.9)
Frequency of visit to a health facility	
Never	172 (8.7)
Only when sick	850 (42.5)
Yearly once	40 (2)
Once in every 3-6 months	295 (14.8)
Once a month	643 (32.2)
Type of health care preferred when ill	
Traditional healers#	113 (5.6)
Government health facility	1211 (60.6)
Private health facility	676 (33.8)
Distance of preferred health care facility from home	
< 1 Km	785 (39.3)
1-5 Kms	941 (47.1)
6-10 Kms	211 (10.6)
> 10 Kms	63 (3.2)
Challenges faced while seeking health care	
Long waiting hours	386 (19.3)
Lack of knowledge about available health services	289 (14.5)
Lack of proper transport facility	231 (11.6)
High cost of health care services	297 (14.9)
None	797 (39.9)
Faced difficulty in getting medicine from health facility	
Yes	373 (19.7)
No	1225 (61.3)

DISCUSSION

In this study, 67.7% belonged to 61 - 80 years of age, 32.3% were above 80 Years of age and mean age was 68.58±7.2 Years. Similar findings were noted in studies by Sanjay TV et al[10], Thomas AM et al[11], Kumari R et al[17], Behera P et al[18], Buvneshkumar M et al[19], Pilania M et al[20] and Kumar D et al[21]. Male preponderance was seen in the current study and similarly was seen in studies by Vincent V et al[22], Nekar MS et al[23] and Thilak SA et al[24]. On the contrary female preponderance was seen in other studies.[10,11,18,25,26] More than half 57.2% were financially dependent on the family in this study. Similarly, 72%, 63.6%, 67.2% of the study participants were financially dependent in studies by Thomas AM et al[11], Buvneshkumar M et al[19] and Thilak SA et al[24] respectively.

Geriatric depression prevalence was 40.1% and 26.2%had mild depression, 11.2% had moderate depression and 2.7% had severe depression. Similar to our study geriatric depression prevalence was 32%, 35.5%, 40.7% respectively in studies by Sanjay TV et al[10], Buvneshkumar M et al[19] and Sahni B et al[27] Prevalence of geriatric depression was comparatively low in studies by Sengupta P et al[28] (8.9%), Behera P et al[18] (11.4%), Pilania M et al[20] (14.4%) and Rathod MS et al[29] (16.75%). Whereas higher prevalence compared to our study was reported in studies by Thomas AM et al[11] (52.5%), Mishra S et al[4] (53.3%), Bincy K et al[25] (67.5), Nekar MS et al[23] (68.5%), Kumar D et al[21] (72%), Thilak SA et al[24] (72.4%), Goyal A et al[26] (77%) and Vincent V et al[22] (77.6%).

Table 4: Association between geriatric depression and selected variables

Variable	Geriatric depression		P value	Odds ratio (95% CI)
	Yes (803)	No (1197)		
Age				
61-80 Years	602 (75)	753 (62.9)	**< 0.0001***	1.76 (1.44 – 2.15)
> 80 Years	201 (25)	444 (37.1)		Ref
Sex				
Female	413 (51.4)	523 (43.7)	**0.007***	1.36 (1.14 – 1,63)
Male	390 (48.6)	674 (56.3)		Ref
Marital status				
Single / Divorcee / Widower	287 (35.7)	438 (36.6)	0.698	0.96 (0.80 – 1.16)
Married	516 (64.3)	759 (63.4)		Ref
Family type				
Nuclear	487 (60.6)	737 (61.6)	0.678	0.96 (0.80 – 1.16)
Joint / Three generation	316 (39.4)	460 (38.4)		Ref
Financially dependent on family members				
Yes	610 (76)	444 (37.1)	**< 0.0001***	5.36 (4.38 – 6.54)
No	193 (24)	753 (62.9)		Ref
Socioeconomic status				
Lower class	526 (65.5)	808 (67.5)	0.352	0.91 (0.75 – 1.10)
Middle / Upper class	277 (34.5)	389 (32.5)		Ref
Associated Chronic Comorbidity				
Yes	638 (79.5)	288 (24.1)	**< 0.0001***	12.20 (9.82 – 15.15)
No	165 (20.5)	909 (75.9)		Ref
Tobacco use				
Yes	200 (24.9)	344 (28.7)	0.062	0.82 (0.67 – 1.01)
No	603 (75.1)	855 (71.4)		Ref
Alcohol use				
Yes	106 (13.2)	184 (15.4)	0.176	0.83 (0.64 – 1.06)
No	697 (86.8)	1013 (84.6)		Ref

Table 5: Binomial logistic regression analysis findings

Variable	Geriatric depression		
	P value	AOR	95% CI
Age (61-80 years)	**0.021**	1.36	1.11–1.50
Female gender	0.156	0.87	0.56-1.15
Financially dependent on family	**0.011**	1.45	1.28-1.65
Presence of chronic comorbidity	**0.001**	2.57	1.77-3.61

AOR- Adjusted Odds Ratio

Enter method was used for multivariate analysis. Model was found to be statistically significant (Cox and Snell R2 – 0.347, Nagelkerke R2 – 0.512).

This difference in the prevalence of depression among the elderly can be attributed to the variations in the study setting, genetic makeup, environmental characteristics, cultural factors, lifestyle habits and health seeking behaviour.

In this study, 27.2% use tobacco in any form, 14.5% were alcohol users and 46.3% were suffering from any chronic comorbidity. Nekar MS et al[23] study reported that about 29.7% were tobacco users, 6.6% were alcohol users and 53.1% had any form of chronic comorbidity. In studies by Kumari R et al[17] and Thilak P et al[24] respectively 52.2% and 93% had any chronic comorbidity.

In this study, variables that were significantly associated with geriatric depression were age (61 – 80) Years, financial dependence on family and presence of associated chronic comorbidity. Age was significantly associated with depression among elderly in studies by Thomas AM et al[11], Kumar D et al[21], Thilak P et al[24], Bincy K et al[25], Sengupta P et al[28], Rathod MS et al[29]. Similar to our study, financial dependence and presence of chronic comorbidities were significantly associated with geriatric depression in studies by Buvneshkumar M et al[19] and Thilak P et al[24]. In studies by Behera P et al[18], Pilania M et al[20], Vincent V et al[22], Bincy K et al[25]. presence of chronic comorbidity was associated with depression. Female gender was significantly associated with geriatric depression in other studies by Mishra S et al[4], Thomas AM et al[11], Buvneshkumar M et al[19], Pilania M et al[20], Bincy K et al[25] and Sengupta P et al[28] but, gender was not significantly associated with geriatric depression in the current study this might be due to unequal gender distribution, stigma among females in revealing mental health symptoms, strong family support in the study area, cultural beliefs and unknown confounders. [4, 11,19,20,25,28]

About 61.5% had a health problem in the last 12 months and 76.9% were on regular treatment for their chronic illness. About 60.6% preferred government health facility and long waiting hours (19.3%), high cost of health care services (14.9%) and lack of proper transport facility (11.6%) were quoted as challenges faced in this study. In Bhat S et al[30] study, 76,7% had some illness in the past year, 65.3% had chronic comorbidity, 32% visited heath facility once a month, 56.6% visited a private health facility, 17.3% had health insurance and 52% quoted that income plays a role in their health seeking behaviour. Gnanasabai G et al[31] study reported that 64.8% suffered from chronic illness, 81.1% were on regular treatment, 51.6% preferred government hospital, 37% private hospital and the reasons quoted for not seeking treatment were financial [problems (21%), hospital was too far (8%) and 30.2% considered it as minor illness.[31] Patle RA et al[32] 48% chose allopathic practioners, 32% had health insurance, 14% were self-medicating and 9.6% were preferring traditional treatment. Hakmaosa A et al[33] 72% regular treatment for chronic illness, 51.5% preferred government hospital, 98% were on allopathic treatment and among the challenges faced I n seeking health 63.2% quoted financial reasons, 27.4% quoted treatment facility was far and 36.8% considered as minor illness. Kumar D et al[34] study 85% had atleast one health problem, 34.1% were hypertensive, 57.6% preferred allopathic treatment, 74% were taking regular treatment for their illness and 61.7% preferred government health facility and 17.4% preferred private practioners and 20.9% self-medicate.

Strengths and Limitations

Strengths of this current study include large sample size (2000), use of validated GDS-15 for local context, data collection by trained investigators and focus on an understudied rural population.

Limitations of this study include recall bias in reporting the mental health symptoms, generalizability of the results as it is a single centre study done in rural Tamilnadu, lack of qualitative data on health-seeking barriers and lack of longitudinal data to infer causality.

Conclusion

This cross-sectional study underscores the substantial burden of geriatric depression among the elderly population, with a prevalence rate of 40.1%, Multivariate logistic regression analysis identified increasing age (61–80 years), financial dependence on family members, and the presence of chronic comorbid conditions as independent predictors of depression. Findings of this study also imply that a policy can be implemented in screening of the elderly population using GDS-15 at the primary health care level to curb this menace. About 42.5% visit the health facility only when sick and majority 60.6% preferred government health facility compared to private health facility. Cultural stigma and traditional beliefs in rural Tamil Nadu may lead to underreporting of depressive symptoms and reduced health-seeking behavior. This may contribute to the observed prevalence and calls for culturally sensitive community-based mental health interventions.

The study also reveals critical insights into the health-seeking behavior of the elderly. However, sys-

temic barriers such as long waiting times, high cost of services, and inadequate transportation infrastructure were frequently cited challenges. These observations highlight the need for targeted policy interventions to improve accessibility, continuity of care, and integration of geriatric mental health services within primary healthcare. Enhancing economic security, addressing social determinants, and fostering routine screening for depression among older adults are essential for reducing the rising burden of late-life mental health disorders in aging populations.

Data availability statement: The data will be made available upon reasonable request to the Corresponding author. Kindly mail your requests to vijay.doc09@gmail.com.

Author contribution: KK contributed to the study conception, design, data collection, and manuscript preparation. **LAM** was involved in the study conception, data interpretation, and manuscript preparation. **VM** contributed to the conception and design of the study, data collection, analysis and interpretation, as well as manuscript preparation. **SS** was responsible for data analysis and interpretation. **PPG** and **SRD** contributed to data collection and manuscript preparation. All authors reviewed and approved the final version of the manuscript.

No use of generative AI tools: This article was prepared without the use of generative AI tools for content creation, analysis, or data generation. All findings and interpretations are based solely on the authors' independent work and expertise.

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