Research Article

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A CROSS-SECTIONAL STUDY ON THE PREVALENCE OF DEPRESSION AMONG GERIATRIC POPULATION REPORTING AT AYOTHIDOSS PANDITHAR HOSPITAL, NATIONAL INSTITUTE OF SIDDHA, CHENNAI, INDIA

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ABSTRACT

Objective: To estimate the prevalence of depression in geriatric population -Using The Geriatric Depression Scale (GDS). To estimate the factors influencing depression in geriatric population – Using Instrumental Activities of Daily Living Scale (IADLs), Multidimensional Scale for perceived social support (MSPSS). Study Design: This cross-sectional study was conducted at the Ayothidoss Pandithar Hospital, National Institute of Siddha, Chennai. A total of 300 individuals aged ≥60 years were selected using systematic random sampling from a pool of 500 screened patients. Depression was assessed using the 30-item Geriatric Depression Scale (GDS). Functional ability and social support were evaluated using the Instrumental Activities of Daily Living (IADL) scale and the Multidimensional Scale of Perceived Social Support (MSPSS), respectively. Associations with depression were examined using the χ^2 test, with $P < .05$ considered statistically significant. Result: Among 300 participants (mean age, 70.66 years), the prevalence of depression was 43.3%, including 32.3% with mild and 11.0% with severe symptoms. Depression was significantly associated with older age ($P < .001$), male gender ($P < .001$), low income ($P = .001$), presence of comorbidities ($P < .001$), and lower IADL and MSPSS scores (both $P < .001$). No significant associations were observed with marital status or educational level. Conclusion: Depression is prevalent in nearly half of the elderly population studied, with several modifiable social and health-related determinants. These findings underscore the need for early screening and integrated mental health interventions, particularly in traditional healthcare settings. Incorporating Siddha-based holistic therapies alongside psychosocial support could enhance geriatric mental health and promote healthy aging.

Keywords: Geriatric depression, Siddha medicine, social support, functional disability, Geriatric Depression Scale, Instrumental Activities of Daily Living Scale, Multidimensional Scale for Perceived Social Support

INTRODUCTION

Depression is a prevalent and debilitating mental health condition that affects a substantial proportion of the global elderly population. As the demographic shift toward an aging society accelerates, particularly in low- and middle-income countries, the burden of geriatric depression is becoming an increasingly urgent public health concern[1]. According to global estimates, individuals aged 60 years and older are projected to surpass two billion by 2050, necessitating targeted strategies to address the unique health challenges of aging, including mental well-being [2].

In older adults, depression is often underrecognized due to its atypical presentation and frequent overlap with chronic medical conditions. Symptoms may be misattributed to normal aging or overlooked in the context of cognitive decline, physical disability, or social withdrawal [3]. Compounding this, stigma and limited access to mental health care further impede diagnosis and treatment in this population. Risk factors commonly associated with geriatric depression include chronic illness, functional impairment, financial instability, lack of social support, and living alone [4].

The traditional Siddha system of medicine, rooted in South India, offers a holistic approach to health through interventions such as Kayakalpam, Yogam, Varmam, and herbal therapies, which may support emotional and psychological balance during aging [5]. Despite these promising integrative approaches, there is limited empirical data evaluating the prevalence of depression and its associated factors in geriatric populations receiving care in Siddha medical settings.

This study aimed to estimate the prevalence of depression among older adults attending the outpatient department of a Siddha hospital and to explore the sociodemographic, functional, and psychosocial factors associated with depressive symptoms. By identifying key correlates of depression within this unique healthcare context, the findings may inform more culturally relevant and comprehensive models of geriatric mental health care.

MATERIALS AND METHODS

An observational study was planned to conduct and to assess depression in geriatric population reporting at OPD of Ayothidoss Pandithar Hospital (APH), NIS. Before starting the study, approval was obtained from Institutional Research Review Board (IRRB) following by Institutional Ethical Committee (IEC) with IEC NO. NIS/24/IEC/2023/MP/43. This study was prospectively registered in CTRI. The registration number is (CTRI/2023/09/057777). Then this observational study was carried out by screening 500 Geriatric patients visiting OPD of APH, NIS by using randomized sampling (Systematic random sampling) method. Among them, 300 patients within the age limit of 60 years and above of both sexes were included for the study .Exclusion were made for individuals with speech and hearing disorders and those unwilling to consent .Data collection encompassed the GDS, which is a self-reported, basic screening measure of depression in the elderly. Instrumental Activities of Daily Living Scale (IADLs), and the Multidimensional Scale for Perceived Social Support (MSPSS), ensuring a comprehensive analysis of factors affecting depression in the elderly. Before enrolling into study, informed consent was obtained from each study participants after explaining the nature and duration of the study. Assurance was given to the individual that the assessment report will be kept confidential.

After the collection of data, it was entered in MS Excel software. Descriptive analysis was made and necessary tables generated to understand the profile of the patients included in the study. The data was analyzed using SPSS software, Pearson's Chi-square test. Chi square test was used to analyze the significance between Depression and several factors associated with it. The level of significance kept was 0.05.

A total of 500 geriatric patients were screened at the outpatient department, from which 300 eligible individuals were enrolled using systematic random sampling. This sample size was considered adequate to detect statistically significant associations between depression and key sociodemographic, functional, and psychosocial variables [6].

Procedure

Data were collected via face-to-face interviews using the Geriatric Depression Scale (GDS), Lawton's Instrumental Activities of Daily Living (IADL) scale, and the Multidimensional Scale of Perceived Social Support (MSPSS). Trained personnel administered questionnaires, reading them aloud when necessary. Data were entered into Microsoft Excel and analyzed using SPSS software, with significance set at $P < 0.05$

Questionnaires

Three validated tools were used to assess depression, functional status, and perceived social support among the elderly participants.

Geriatric Depression Scale (GDS)

Depressive symptoms were evaluated using the 30-item Geriatric Depression Scale (GDS) [7], a self-report screening tool designed specifically for older adults. Each question is answered in a "yes" or "no" format, with scores ranging from 0 to 30. A score of 0–9 was considered normal, 10–19 indicated mild depression, and 20–30 indicated severe depression. For participants with limited literacy, questions were read aloud by trained personnel [8].

Instrumental Activities Of Daily Living (IADL) Scale

Functional independence was assessed using the Lawton IADL Scale, which measures the ability to perform complex daily tasks such as managing finances, medication, transportation, and housekeeping. The scale includes 8 items for women and 5 for men, with higher scores reflecting greater independence [9].

Multidimensional Scale Of Perceived Social Support (MDPSS)

Perceived social support was measured using the 12-item MSPSS, which assesses support from family, friends, and significant others. Each item is rated on a 7-point Likert scale, with total scores indicating low, moderate, or high perceived support. This tool has demonstrated strong reliability and validity across diverse populations [10].

Data Analysis

Data were entered into Microsoft Excel and analyzed using R software version 4.3.3. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic and clinical characteristics. The prevalence of depression was assessed based on GDS scores. Associations between depression and independent variables such as age, gender, income, education, comorbidities, IADL scores, and MSPSS levels were examined using Pearson's chi-square test. Statistical significance was determined at a P value $< .05$. The results were presented in tabular form for clarity and to highlight significant patterns and trends within the study population.

RESULTS

Demographic Characteristics of the Study Population

The study included 300 elderly participants, with a mean age of 70.66 (±7.23) years (Table 1). The majority (n = 149, 49.7%) were aged 60–69 years, followed by 94 (31.3%) aged 70–79 years, and 57 (19%) aged >=80 years old.

Among the participants, 173 (57.7%) were male, and 127 (42.3%) were female. Most participants were not engaged in any occupation (n = 253, 84.3%), while only 47 (15.7%) reported being employed at the time of the study.

Regarding marital status, 221 (73.7%) were married, while 57 (19.0%) were widowed, and 11 each (3.7%) were either divorced or never married. Urban residents formed the majority of the cohort (n = 235, 78.3%), with 65 (21.7%) residing in rural areas.

In terms of monthly income, a significant portion (n = 184, 61.3%) reported having no income. Others reported income levels of less than ₹1000 (n = 12, 4.0%), ₹1000–₹2000 (n = 20, 6.7%), ₹2000–₹3000 (n = 50, 16.7%), and above ₹3000 (n = 34, 11.3%).

Educational attainment varied, with 168 participants (56.0%) reporting "professional" levels of education. Others included those educated up to middle school (n = 36, 12.0%), primary level (n = 23, 7.7%), high school (n = 25, 8.3%), diploma holders (n = 28, 9.3%), and graduates/postgraduates (n = 20, 6.7%).

Family structure also differed with 169 (56.3%) participants living in joint families and 131 (43.7%) in nuclear families. A total of 173 participants (57.6%) reported having one or more comorbid medical conditions, whereas 127 (42.4%) reported none.

These demographic insights provide critical context for interpreting the prevalence and correlates of depression in the study population.

In this study, among 300 geriatric individuals, most of the depressive individuals belonged to the age group of 60-69 years 54 (41.54%). Mean age of depressive individual-70.66 years (Chart 1). In this study, among 130 depressive individuals, 94(72%) were male and 36(28%) were female and among 170 non depressive individuals 91 (54%) were male and 79 (46%) were female (chart 2). Among the 300 geriatric individuals, 120(70.59%) non depressive individuals were working and 50 (29.41%) were not working. 40(30.77%) depressive individuals were working and 90 (69.23%) were not working (Chart 3). Among the 300 geriatric individuals, 124(72.94%) non depressive individuals were from joint family and 36(21.18%) were from nuclear family. 45(34.62%) depressive individuals were from joint family and 85(65.38%) were from joint family (Chart 4). In this study, among 300 geriatric individuals 128(%) non depressive individuals were married and 7(%) were unmarried. 92(%) depressive individuals were married and 4(%) were unmarried. 30(%) non depressive individuals were widowed and 27(%) depressive individuals were widowed. 5(%) non depressive individuals were divorced and 6(%) depressive individuals were divorced (Chart 5). In this study, among 300 geriatric individuals most of the depressive individuals had comorbidities 102(78%) where as in non depressive individuals 71(42%) had comorbidities (Chart 6). In this study, among 300 geriatric individuals, 90(69.23%) depressive individuals were from poor/ no income category, 28(21.54%) were from middle class and 12(9.23%) were from upper class (Chart 7). In this present study among 300 elderly individuals, 130 (43.3%) were depressed and 170 (56.7%) were non depressed. Out of the 130 depressive senior citizens in the sample, 97 (32.3%) has mild depression while severe depression was observed in 33 (11%) of the total sample (Chart 8). In this study among 130 depressive individuals 40(30.77%) of them in need of <50% dependency, 26(20%) of them in need of 50-60% dependency and 64(49.23%) of them in need of >=75% dependency in doing daily activities. In this study among 130 depressive individuals, the percentage of elderly with low social support were 70.8% (92) and medium support were19.23% (25) and high support were 10%(13) (Chart 9).

Prevalence of Depression

Based on the 30-item Geriatric Depression Scale (GDS) (Table 2). 130 participants (43.3%) exhibited depressive symptoms. Among these, 97 individuals (32.3%) had mild depression (GDS score 10–19), and 33 (11.0%) had severe depression (GDS score 20–30). The remaining 170 participants (56.7%) had normal GDS scores (<10)

Association With Sociodemographic Variables

A significant association was found between age and depression (P < .001). Participants aged 70 years and older showed a higher prevalence of depressive symptoms compared to younger groups. Male participants demonstrated a significantly higher prevalence of depression than females (P < .001). Additionally, income level was strongly associated with depression (P = .001), with higher depression rates observed among participants reporting no income or earning less than ₹3000 per month (Table 2).

Marital status was not significantly associated with depression (P = .307); however, depressive symptoms were more common among widowed, divorced, or unmarried participants compared to those who were currently married. Educational qualification and domicile (urban vs rural) were not statistically significant contributors to depression status.

Functional Status and Depression

A strong association was observed between functional dependency (Table 2). and depression (P < .001). All 170 participants with normal IADL scores were classified as non-depressed. In contrast, the 130 participants with various levels of dependency constituted the entire group with mild or severe depression. Increasing dependency on daily activities was positively correlated with the severity of depressive symptoms.

Perceived Social Support

The Multidimensional Scale of Perceived Social Support (MSPSS) showed a significant relationship (Table 2). with depression status (P < .001). Among non-depressed participants, 100% reported normal or high levels of perceived social support. Conversely, 130 participants with depression reported predominantly low support (70.8%), followed by moderate (8.3%) and high (4.3%) levels. None of the depressed individuals reported normal MSPSS scores.

Comorbid Conditions

Depression was significantly more prevalent in participants with comorbid chronic illnesses (n = 173, 57.6%) compared to those without comorbidities (P < .001). Among participants with comorbid conditions, 74 (42.8%) had mild depression and 28 (16.2%) had severe depression.

Family Structure

The type of family also showed a statistically significant relationship with depression (P < .001). Participants from nuclear families were more likely to exhibit depressive symptoms (n = 85, 65.4%) than those from joint families, suggesting that social isolation may be a contributing factor.

DISCUSSION

This cross-sectional study assessed the prevalence and determinants of depression among the geriatric population attending a Siddha outpatient department in Chennai. The findings highlight a considerable burden of depressive symptoms, with 43.3% of participants showing some level of depression. Notably, 32.3% had mild symptoms and 11.0% had severe symptoms, as measured by the Geriatric Depression Scale (GDS). These findings align with previous Indian and global studies reporting depression prevalence rates among older adults ranging from 25% to 45%, suggesting a consistent and widespread mental health concern in this age group.

Gender and Age Disparities

In contrast to some Western studies that report higher depression rates in elderly females, our results indicated a significantly higher prevalence of depression among male participants (P < .001). This may reflect sociocultural differences in gender roles within Indian society, where women are more often engaged in household and caregiving responsibilities, potentially offering emotional and social buffers against isolation and depressive symptoms. Increasing age was also associated with higher depression rates, with individuals aged 70 years and above showing elevated scores [11]. This is likely due to cumulative effects of age-related morbidity, loss of independence, and diminished social roles.

Income and Employment

Financial insecurity was a significant contributor to depressive symptoms, with the highest depression rates observed among participants reporting no income or incomes below ₹3000 per month (P = .001). Unemployment or retirement without pension may exacerbate a sense of helplessness and decrease one's perceived value or productivity. This aligns with global evidence linking low socioeconomic status to late-life depression due to reduced access to healthcare, poor living conditions, and social marginalization[12].

Table 1: Demographic Characteristics of the Study Population (N = 300)

Variable	Category	n	%
Age Group (years)	60–69	149	49.70%
	70–79	94	31.30%
	≥80	57	19.00%
Gender	Male	173	57.70%
	Female	127	42.30%
Occupation	Working	47	15.70%
	Not Working	253	84.30%
Marital Status	Married	221	73.70%
	Widowed	57	19.00%
	Divorced	11	3.70%
	Unmarried	11	3.70%
Domicile	Urban	235	78.30%
	Rural	65	21.70%
Monthly Income (INR)	No Income	184	61.30%
	< ₹1000	12	4.00%
	₹1000–₹2000	20	6.70%
	₹2000–₹3000	50	16.70%
	> ₹3000	34	11.30%
Education Level	Primary	23	7.70%
	Middle School	36	12.00%
	High School	25	8.30%
	Diploma	28	9.30%
	Graduate/Postgraduate	20	6.70%
	Professional/Other	168	56.00%
Family Type	Joint Family	169	56.30%
	Nuclear Family	131	43.70%
Comorbidities	Present	173	57.60%
	Absent	127	42.40%

Table 2: Summary of Statistical Analysis of Scale Scores and their association with Depression (N = 300)

Scale	Category	n	%	χ^2 Value	P Value
Geriatric Depression Scale (GDS)	No Depression	170	56.70%	–	–
	Mild Depression	97	32.30%	–	–
	Severe Depression	33	11.00%	–	–
Instrumental Activities of Daily Living (IADL)	Independent (Normal)	170	56.70%	303.963	< .001
	<50% Dependent	40	13.30%	–	–
	50–60% Dependent	26	8.70%	–	–
	75% Dependent	64	21.30%	–	–
Multidimensional Scale of Perceived Social Support (MSPSS)	Normal Support	170	56.70%	300.198	< .001
	Low Support	92	30.70%	–	–
	Medium Support	25	8.30%	–	–
	High Support	13	4.30%	–	–

Note: Chi-square (χ^2) and P values indicate the level of association between the respective scale categories and depression status. GDS scores served as the primary outcome variable, so χ^2 and P values are shown for the influencing scales (IADL and MSPSS).

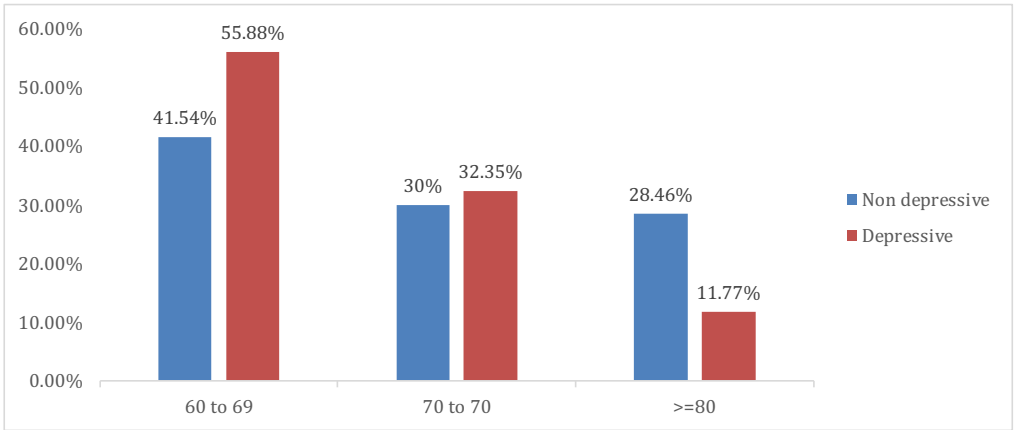
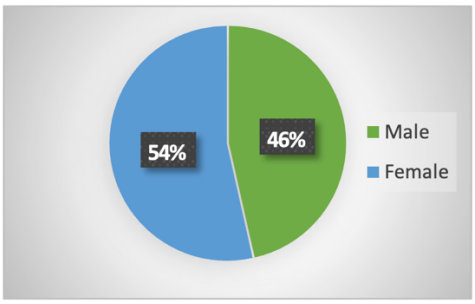
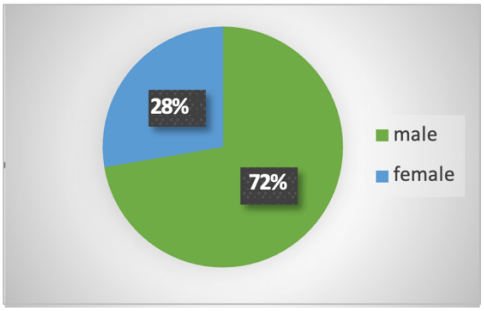


Chart 1: Individuals belonged to the age group





Non-depressive **Depressive**

Chart 2: Individuals belonged to the sex group

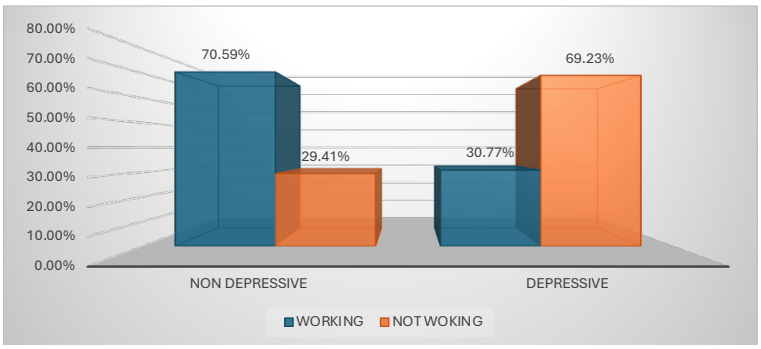


Chart 3: Individuals belonged to the occupation group

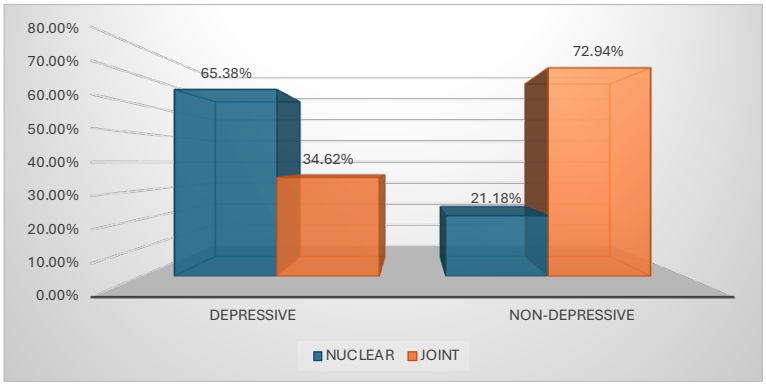


Chart 4: Individuals belonged to the family type

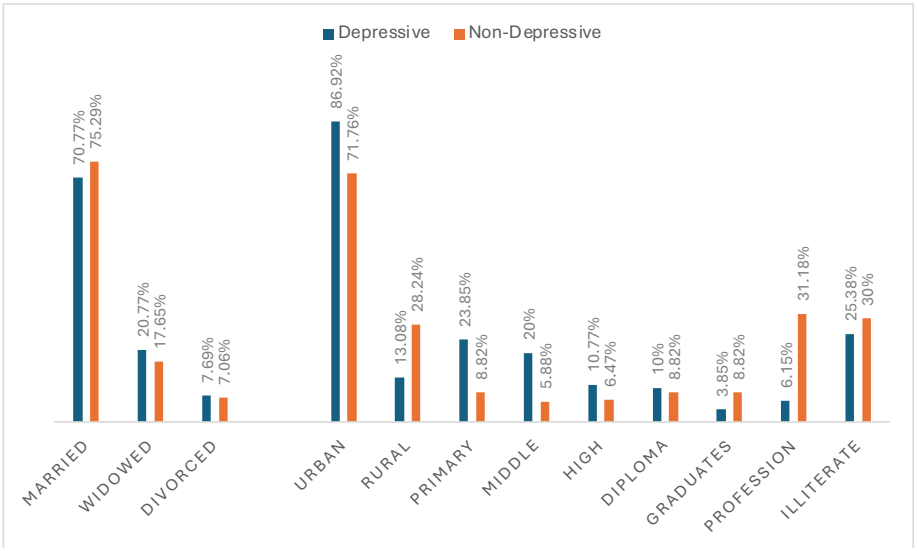
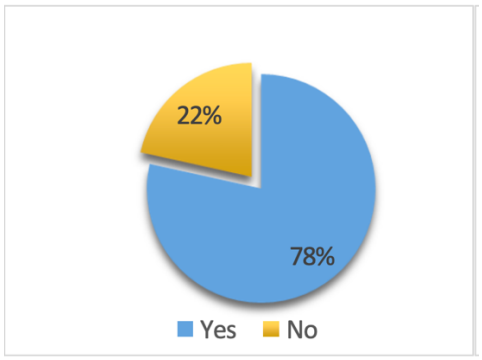
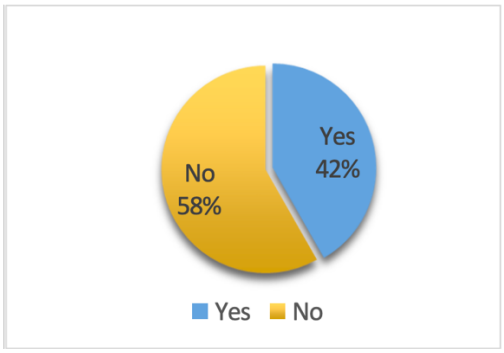


Chart 5: Marital status, domicile and educational status



Comorbidity in depressive



Comorbidity in non-depressive

Chart 6: Individuals belonged to comorbidities

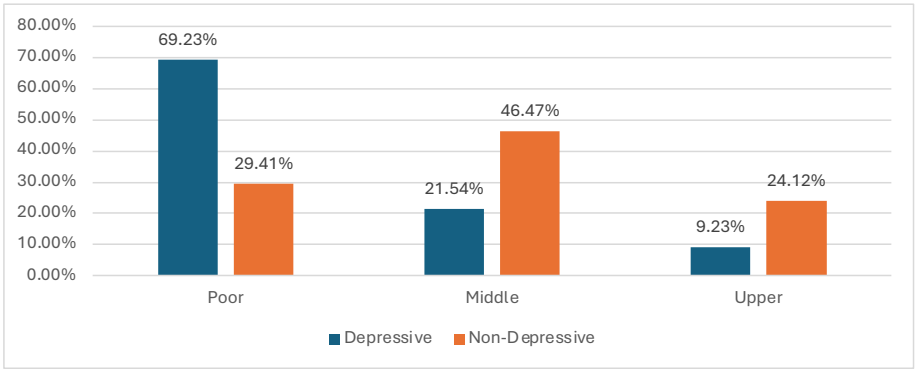


Chart 7: Economic Status

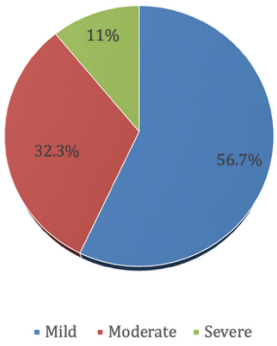


Chart 8: Geriatric depression scale (GDS)

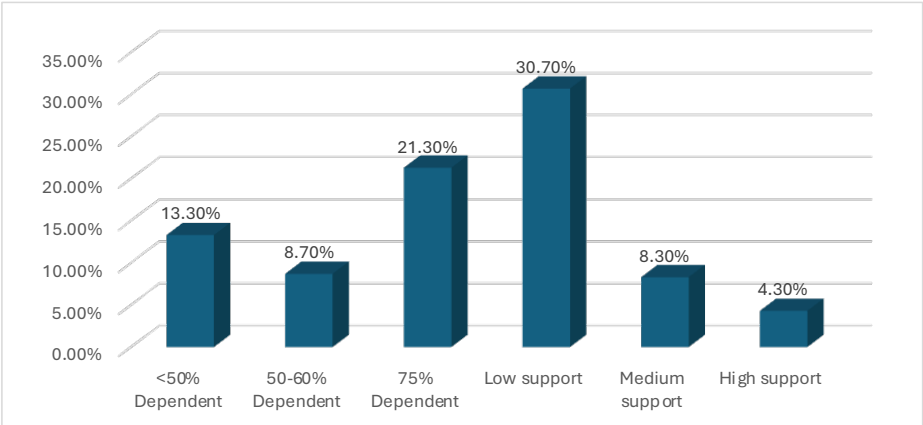


Chart 9: Comparison of IADL AND MDPSS

Functional Status and Depression

Functional dependence, as measured by the Lawton Instrumental Activities of Daily Living (IADL) scale, was strongly associated with depression ($P < .001$). Notably, all participants who were functionally independent reported no depression, while those with mild to severe dependency accounted for all cases of depression. This finding supports prior literature suggesting that loss of autonomy in daily tasks such as medication management, transportation, and financial decisions contributes significantly to psychological distress. Functional decline can lead to feelings of inadequacy, frustration, and loss of dignity, especially in individuals accustomed to being self-sufficient [13].

Role of Social Support

Perceived social support, measured using the Multidimensional Scale of Perceived Social Support (MSPSS), showed a highly significant inverse relationship with depression ($P < .001$). Among participants with depressive symptoms, 70.8% reported low levels of perceived support[13]. This supports a well-documented body of evidence indicating that social isolation, loneliness, and lack of emotional connectivity are key predictors of depression in late life. Joint family settings were found to offer a protective effect, whereas nuclear family arrangements showed higher depression prevalence, underscoring the importance of shared responsibilities and social bonding [14].

Comorbidities and Depression

Medical comorbidities were also significantly associated with depression ($P < .001$). Chronic illnesses, such as diabetes, cardiovascular disease, and arthritis, may contribute directly to biological changes affecting mood or indirectly by reducing physical capacity and increasing dependency [15]. Comorbidities may also heighten the fear of future disability, increase financial strain, and lead to polypharmacy all of which are known contributors to psychological stress in older adults.

Unexpected Observations

Interestingly, this study did not find a statistically significant association between depression and educational level or marital status. While education has traditionally been linked to better mental health outcomes due to improved health literacy and coping skills, these findings may reflect a limitation of educational categorization or cultural differences in how educational attainment influences psychological health in this context. Similarly, although widowed or divorced participants showed higher rates of depression descriptively, this relationship did not reach statistical significance, possibly due to the relatively small numbers in those subgroups.

Integration of Traditional Siddha Care

The context of the study, conducted in a Siddha medical hospital, is noteworthy. Siddha medicine offers a unique integrative approach to health, emphasizing physical, emotional, and spiritual balance [16]. While the present study did not test the efficacy of Siddha interventions, it underscores the need to integrate traditional practices such as Kayakalpam, Yogam, Varmam, and herbal therapies into broader geriatric mental health strategies. These therapies may offer culturally acceptable, low-cost, and holistic options for elderly individuals who may be reluctant to seek conventional psychiatric care due to stigma or accessibility issues [17].

CONCLUSION

This cross-sectional study revealed a high prevalence of depression (43.3%) among the geriatric population attending a Siddha hospital in South India. Depression was significantly associated with advanced age, male gender, low income, functional dependency, poor perceived social support, and the presence of chronic comorbidities.

These findings underscore the multifactorial nature of depression in later life and highlight the critical need for early screening and comprehensive geriatric mental health strategies [18]. Integrating Siddha-based holistic therapies with psychosocial and functional support could enhance the emotional well-being of older adults and promote healthy aging. Future research should explore the effectiveness of traditional Siddha interventions in managing depression among the elderly.

Strengths and Limitations

A major strength of this study is the use of standardized, validated tools (GDS, IADL, MSPSS) administered systematically in a real-world clinical setting. It provides crucial insights into the mental health needs of older adults within a traditional healthcare framework. However, the cross-sectional design limits causal inference. Self-reported data may introduce reporting bias, particularly among participants with low literacy or cognitive decline. Furthermore, the study was conducted at a single institution, which may limit generalizability to broader populations.

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