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Original Article

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Prevalence of Depression among the Geriatric Age Group Population of Rural Central India and Study of Dependency as a Risk Factor

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ABSTRACT

Introduction: Depression in the elderly has disastrous implications that not only lowers quality of life, but it also has an impact on the prognosis of other chronic conditions, exacerbating disability. As estimated by WHO, depression occurs in 7% of the general elderly population and the same in India is 9.3%. This study was undertaken to know the prevalence of depression among the geriatric age group with Dependency as risk factor in villages of our field practice area.
Methodology: It's a Cross sectional study of 251 geriatric population. The selection of villages was done through Simple random sampling and all the villagers of age above 60 years were included in the study. The identification of depression was carried out using the Geriatric Depression Scale (GDS). The dependency was calculated using the Barthel Index
Results: From our study it is found that the prevalence of depression and dependency among the geriatric population in our study area is 43% and 29% respectively. The Barthel score among depressed were also less(median (IQR) Barthel score: depressed - 65(50,85) ; not depressed -70(60,89); p value - <0.001). Nearly 80% of the females who were categorized as dependent were depressed (p value – 0.006). Multivariate logistic regression for depression upon Barthel score, age and gender shown significance OR for Barthel score but later after adjusting for other two factors, the AOR was not significant.
Conclusion: The study makes us understand the importance of analysing the dependency status while screening for the mental health status of the elderly person. This also gives us the idea to include the same in the interventions those are carried for improving the quality of life of elderly

Key Words: *Geriatric, depression, dependency, GDS, Barthel index*

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INTRODUCTION

At the biological level, ageing is caused by the build-up of numerous types of cellular and molecular damage over time. As a result, physical and mental abilities gradually deteriorate, disease risk increases, and eventually, death occurs. These changes are not linear nor consistent, and they only tangentially correspond to an individual's age expressed in years. Age-related diversity is not a coincidence[1]. Aside from biological changes, ageing is frequently linked to other life transitions including retirement, moving to a more suitable home, and losing friends and companions. Depression is one of the major mental disorders in the world. It's known that about 280 million people per month are affected by depression episodes [2]. Depression affects one in 15 adults per year that is 6 .7%. about one in six people experience depression once in a lifetime[3]. Women are affected and the most common age is mid-20[4]. Even the heritability of depression is quite high that approximately 40% chances are there if the disease persists in the first-degree relatives [5]

Depression accounts to about 4.4% of the total DALY (Disability Adjusted Life Index) of the world and it is expected to be the second leading cause of disease burden in 2020 to 2030 [6].

Geriatric depression has become a major health concern as the world's population ages. Depression is well-known for creating suicidal thoughts, decreased work efficiency, and increased medical costs, all of which have significant socioeconomic consequences.

Depression in the elderly can show in a variety of ways and can be difficult to identify. It has disastrous implications and considerably contributes to sorrow throughout this stage of life. It's linked to a higher risk of morbidity, as well as poor physical, cognitive, and social functioning and self-neglect. Depression not only lowers quality of life, but it also

has an impact on the prognosis of other chronic conditions, exacerbating disability[7]. As a result, suicidal and non-suicidal mortality rates are much greater among elderly people with depression. The early detection and treatment of depression can help to enhance one's quality of life[8–11].

The geriatric population expansion and making the community and health system ready for the future perspective is much needed. This research is a small step towards understanding the importance of dependency assessment during the depression screening among the elderly population.

Objectives

Among the geriatric age group population living in the rural villages under the rural health training centre located in central India,

- To find out the prevalence of depression
- To find out the relationship between depression and the patients being dependent on their family members.

Methodology

This is a Cross sectional study involving Villages in the central India under a Rural health training centre of our medical college. Considering this Rural health training centre (RHTC) covers around 1 lakh population of Community Health centre (CHC), the results could be generalized for rural villages of central India. This RHTC covers around 11 villages, but efforts were made to cover study participants from all villages under the CHC.

Villagers above the age of 60 years were selected randomly. The sample size was calculated with the prevalence of 15.17 % depression among the geriatric age group[12] that accounts for 198 for the 95% confidence interval. Participants who have underlying other psychiatric diseases and symptoms was excluded from the study. Our final number of participants was 251.

The data was collected using two questionnaires through kobo Collect data collection app, in which one is for identifying depression in the individual and other was to identify the dependency

- The identification of depression was carried out using the popular Geriatric Depression Scale (GDS)**
- The dependency for the individuals was calculated using the Barthel Index **

Data analysis

The analysis was done using R software version 4.2.2 [13]. The cut off value for GDS was taken as more than 5. The Barthel index score of less than 60 was taken as dependency.

For all the test of significance P value <0.05 was considered significant. All continuous variables were done with student t test, and categorical variables with chi square test of significance. Comparison of two median of Barthel scores was tested with Wilcoxson rank sum test. The multivariate logistic regression model was run for the depression score with dependency score, Age, Gender as explanatory variables.

Ethical consideration

Approval from the institutional ethics committee was taken before the beginning of the study (ref.no. MGIMS/IEC/COMMED/332/2022). Written informed consent was obtained from the participants before the enrolment in the study. Privacy and confidentiality were maintained for all information captured. People identified with depression through GDS was counselled by our psychosocial worker and further referred to the psychiatrist of the tertiary centre if required.

Results

From our study it is found that the prevalence of depression among the geriatric population in our study area is 43.4% (Figure 1). Among the depressed individuals about 52.3% were males. The mean age among the depressed participants was 70. The dependency prevalence among our study population accounts to about 25.9% which was calculated using Barthel index (Figure 2). The median Barthel score among the depressed and non-depressed participants were 65 and 70 respectively (p value <0.001*). That shows that there is a definite difference among the groups in terms of Barthel score. But about 35 % of the individual who were identified as dependent (Barthel score <60) were found to be depressed though not significant. (Table 1)

Analysis based on gender among the depression and dependent individuals was done to know gender differences. About 80% of the females who were categorised as dependent were depressed and around 30% of dependent males were depressed (Figure 2). This shows there is significant effect of dependency among females by table 2 (p value – 0.006*)

Multivariate logistic regression model was used to find the significance of the Barthel score, age and gender over depression. Four different models were run, one for each factors individually as predictor variables and the last model for Barthel score adjusted for age and gender. All variables had AOR non-significant and the unadjusted OR for Barthel

index was significant (p value – 0.04). By regression analysis we could not find a significant association between the predictor and explanatory variables. (Table 3).

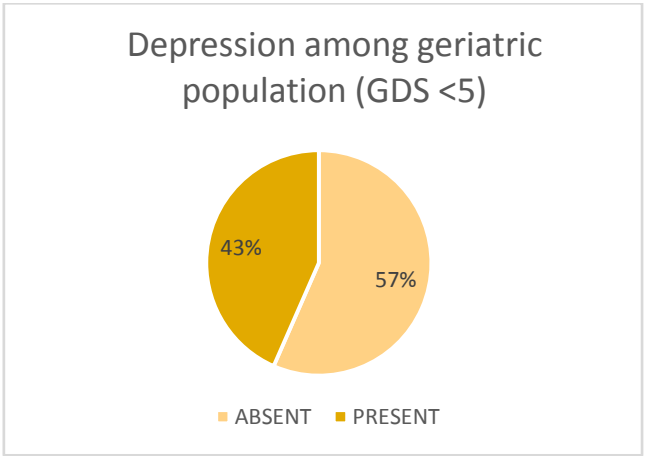

Figure 1: Estimated prevalence of depression among Geriatric age group

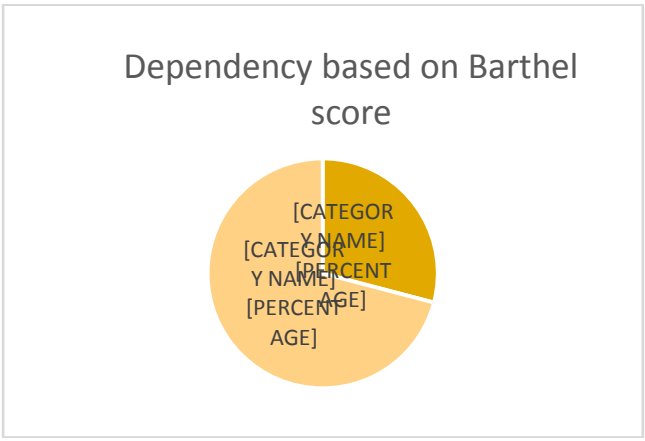

Figure 2 – Dependency based on Barthel score*(score < 60)*

Table 1 – characteristics based on depression

Characteristic	**Depression according to GDS scale**		**P value**
	ABSENT, N = 142[1]	**PRESENT**, N = 109[1]	
AGE	68 (6)	70 (7)	0.815[a]
GENDER			
Female	63 (44%)	52 (48%)	0.690 [a]
Male	79 (56%)	57 (52%)	
Barthel score	70(60,89)	65(50,85)	<0.001[b]
Dependency	35 (25%)	38 (35%)	0.103 [a]

[1] Mean (SD); n (%); Median (IQR), * p value <0.05 is significant, a – chi square test,
b -Wilcoxon Rank Sum test

Table 2 Gender based differences among the depressed and dependent

	Dependent (N)		not dependent(N)		Total (N)	P value
depression	Female	male	female	male		
present	17	16	35	41	109	0.006*
absent	5	27	58	52	142	
*Significant p vale <0.05, Chi. Square test						

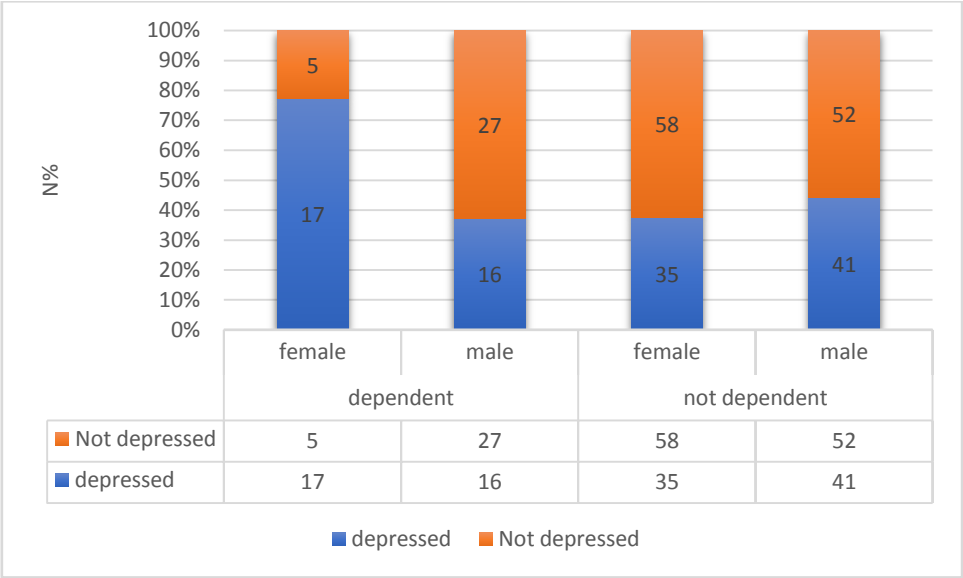

Figure 3 Gender based differences among the depressed and dependent

Table 3 - Multiple logistic regression for depression

Variables	Estimate	OR(95% CI)	p value	AOR (95% Cl)	p value
Barthel index	-0.01	0.98(0.97-0.99)	0.04*	0.988 (0.97 - 1.00)	0.06
Age	0.03	1.03 (0.99-1.08)	0.06	1.034 (0.992 - 1.07)	0.1
Gender	-0.33	0.87 (0.57-1.44)	0.5	0.714 (0.42 - 1.21)	0.21
*p value< 0.05 considered significant					

DISCUSSION

Wecould understand that though we are not getting a significant result upon regression analysis between depression versus Barthel score, age, gender, we should consider that most of the females who are dependent were categorised with depression according to the GDS. And also, there are many factors which confounds with both dependency and depression. Considering the expansion of geriatric population globally, there is need for interventions focusing on active aging for making the individuals being independent in their latter part of the life.

A study of Dependency, abuse, and depression by gender in widowed elderly had results showing Dependency indirectly impacted sadness in older male widowers by verbally abusing them. While reliance caused emotional abuse indirectly and depression directly in female widowed senior individuals[14]. This goes on line with our results of dependent females having more risk of depression

A prospective study identified 902 new medical diagnoses of depression over a median follow-up of 10.1 years, The multivariable-adjusted hazard ratios for depression were 1.85 for people with higher baseline tension versus low baseline dependence levels. We could have more focused upon baseline tension but we can consider that dependency as a mark of baseline tension as well[15].

In our research we couldn't include the chronic disease status of the participant, but in a way, we wish to justify that elderly having chronic conditions are dependent over their family in medical, physical and economic way. There are many literature that explains this. There were clear associations between depression and some chronic illnesses in old age. Stroke, hearing or vision loss, cardiac disease, and chronic lung disease were among these chronic illnesses that were risk factors for increased depression, but it should be further explored to determine whether or not arthritis, high blood pressure, and diabetes were as well[16–21].

In an India based study, Depression appears to affect older people more frequently who are not employed, come from a low socioeconomic background, and do not receive a pension, as 38.6% of those who did not receive a pension were depressed. Those who were economically reliant (20%) had higher rates of moderate to severe depression than those who were financially independent[22].

Also, Between the depressed and non-depressed groups in a study, there were substantial differences in the motivations, obstacles, and levels of felt stress for engaging in health-promoting activities. It is crucial to encourage primary care physicians to conduct screening exams for late-life depression and to advise patients who have Metabolic syndrome symptoms and concurrent depressive symptoms about available treatment therapies[23].

From the study from Andhra Pradesh, India it can be noted that 24.62 percent were totally dependent on family members or others, while 24.43 percent were moderately dependent. 68 percent of the economically disadvantaged were depressed. Economic uncertainty is one of the leading causes of psychological diseases such as depression, a multipronged strategy is urgently needed, not only in the form of government help, but also in the form of raising awareness among caregivers about supportive care[24].

In the study from Tamil Nadu, India the prevalence of depression among the elderly was shown to be high. Early identification of depression is aided by screening the elderly for depression at the primary care level. This points to the necessity for community-based treatments to effectively manage chronic disease in older persons. The multivariable logistic regression model found that depression was associated with older persons over the age of 80, female sex, widowhood, living with children, lack of family support, and being physically dependent. People with diabetes, as well as those who have a history of falling, are more likely to be depressed[25].

All these studies suggest economical, physical and psychological dependencies contribute to the depression among elderly

LIMITATIONS

Though GDS is a screening scale, we couldn't consider it a diagnosis and further measures should have taken for clinical diagnosis of the participants.

CONCLUSION

There are opportunities in the National program for Health and Care for Elderly existing plans to include geriatric age groups and their family members empowerment. Dependency in all forms (physical, medical, social, functional and psychological) would be treated as modifiable risk factors and future researches would work on the interventions for the same.

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Conflict of Interest and Financial Disclosure statements for each author.

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REFERENCES

1. Ageing and health [Internet]. [cited 2022 Dec 22]. Available from: https://www.who.int/en/news-room/fact-sheets/detail/ageing-and-health
2. Depression [Internet]. [cited 2022 Dec 21]. Available from: https://www.who.int/news-room/fact-sheets/detail/depression
3. Psychiatry.org - What Is Depression? [Internet]. [cited 2022 Dec 21]. Available from: https://www.psychiatry.org/patients-families/depression/what-is-depression
4. NIMH » Depression in Women: 5 Things You Should Know [Internet]. [cited 2022 Dec 21]. Available from: https://www.nimh.nih.gov/health/publications/depression-in-women
5. Guffanti G, Gameroff MJ, Warner V, Talati A, Glatt CE, Wickramaratne P, et al(2016). Heritability of major depressive and comorbid anxiety disorders in multi-generational families at high risk for depression. Am J Med Genet B Neuropsychiatr Genet [Internet]. [cited 2022 Dec 21];171(8):1072–9. Available from: https://pubmed.ncbi.nlm.nih.gov/27452917/
6. Friedrich MJ(2017). Depression Is the Leading Cause of Disability Around the World. JAMA; 317(15):1517.
7. Depression and Its Effect on Your Life [Internet]. [cited 2022 Dec 22]. Available from: https://www.rtor.org/2020/03/18/depression-and-its-effect-on-your-life/
8. Waly Y, Hussain M, Shelig M, Al-Hindawi A, Al-Sabti A, al Farsi Y(2022). The Relationship Between Specific Age-Related Chronic Conditions of Comorbidity and Depression Scores Among Men in an Elderly Population: A Cross-Sectional Study. Cureus [Internet]. [cited 2022 Dec 22];14(8):e28000. Available from: http://www.ncbi.nlm.nih.gov/pubmed/36134114
9. Small GW(1998). Treatment of geriatric depression. Depress Anxiety; 8(SUPPL. 1):32–42.
10. Rothschild AJ(1996). The diagnosis and treatment of late-life depression. Journal of Clinical Psychiatry; 57(SUPPL. 5):5–11.

11. Park H, Sim J, Oh J, Lee J, Lee C, Kim Y, et al(2022). The Association between New-Onset Depressive Symptoms and Participating in Medical Check-Ups among Elderly Individuals. Int J Environ Res Public Health; 19(18).
12. Goswami S, Deshmukh PR(2021). The prevalence of depression among the elderly people living in rural Wardha. Ind Psychiatry J [Internet]. [cited 2022 Sep 14];30(1):90. Available from: /pmc/articles/PMC8395543/
13. R Core Team (2022). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.
14. Soo O, Ja S, et al(2007). Leisure Activities, Cognitive Function and Depression in Female Elderly. Korean Journal of Adult Nursing;19(3):436–46.
15. Lahortiga-Ramos F, Unzueta CR, Zazpe I, Santiago S, Molero P, Sánchez-Villegas A, et al(2018). Self-perceived level of competitiveness, tension and dependency and depression risk in the SUN cohort. BMC Psychiatry [Internet]. [cited 2022 Dec 22];18(1):1–11. Available from: https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-018-1804-x
16. Chang-Quan H, Xue-Mei Z, Bi-Rong D, Zhen-Chan L, Ji-Rong Y, Qing-Xiu L(2009). Health status and risk for depression among the elderly: A meta-analysis of published literature. Age Ageing;39(1):23–30.
17. Zhao KX, Huang CQ, Xiao Q, Gao Y, Liu QX, Wang ZR, et al(2012). Age and risk for depression among the elderly: A meta-analysis of the published literature. CNS Spectr;17(3):142–54.
18. Wu Y, Jin S, Guo J, Zhu Y, Chen L, Huang Y(2022). The Economic Burden Associated with Depressive Symptoms among Middle-Aged and Elderly People with Chronic Diseases in China. Int J Environ Res Public Health;19(19).
19. Kasa AS, Lee SC, Chang HC [Rita](2022). Prevalence and factors associated with depression among older adults in the case of a low-income country, Ethiopia: a systematic review and meta-analysis. BMC Psychiatry; 22(1).
20. Bisschop MI, Kriegsman DMW, Deeg DJH, Beekman ATF, van Tilburg W(2004). The longitudinal relation between chronic diseases and depression in older persons in the community: The Longitudinal Aging Study Amsterdam. J Clin Epidemiol; 57(2):187–94.
21. Huang CQ, Dong BR, Lu ZC, Yue JR, Liu QX(2010). Chronic diseases and risk for depression in old age: a meta-analysis of published literature. Ageing Res Rev [Internet]. [cited 2022 Dec 22];9(2):131–41. Available from: https://pubmed.ncbi.nlm.nih.gov/19524072/
22. EBSCOhost | 112509628 | Economic Dependency and Depression in Elderly. [Internet]. [cited 2022 Dec 21]. Available from: https://web.p.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=22314261&AN=112509628&h=PfyHp4RMv2EW10C6ZnC3r2PkAtQncBJ6XaWco%2b9dzLD8NtFEdljPIEEowKHv7pmkCj%2bNBWaAuRAHl0xZ8zNsig%3d%3d&crl=c&resultNs=AdminWebAuth&resultLocal=ErrCrlNoProfile&crlhashurl=login.aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d22314261%26AN%3d112509628
23. Rusowicz J, Serweta A, Juszko K, Idzikowski W, Gajda R, Szczepańska-Gieracha J(2022). Factors Associated with Undertaking Health-Promoting Activities by Older Women at High Risk of Metabolic Syndrome. Int J Environ Res Public Health [Internet]. [cited 2022 Dec 22];19(23). Available from: https://pubmed.ncbi.nlm.nih.gov/36498030/
24. Udayar SE, J DP, Kumar Konduru R, Patil SD, Professor A, Graduate P, et al(2014). A Study of Economic Dependency and Its Relation to Depression among Elderly People in Rural Area of Chittoor District, Andhra Pradesh. International Journal of Health Sciences & Research (www.ijhsr.org) [Internet];4:12. Available from: www.ijhsr.org
25. Bincy K, Logaraj M, Ramraj B(2021). Depression and its associated factors among the older adults in rural, Tamilnadu, India. Clin Epidemiol Glob Health. Apr 1;10.