

**Original article****Co-relation between depression, cognition and activities of daily livings in normal elderly people living in old age homes and communities of Kanpur, U.P.****V. Sethi^a, S. Gupta^b, S. Parvez^b**^aDepartment of physiotherapy, saaii college of medical science and technology, Kanpur, india.^bSaaii college of medical science and technology, india.

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ABSTRACT

Depression is less prevalent among older adults than younger adults but can have serious consequences³. Geriatric depression is associated with an increased rate of medical comorbidities, and an increase in premature death¹⁵The need to focus on activities of daily living as a fundamental outcomes is well justified as persons who are disabled in activities of daily living function cannot successfully live alone⁷.Methodology: A survey was conducted by taking 200 elderly subjects including males and females. Two groups were taken having 100 subjects in each group one from OLD age homes of Kanpur and other from communities of Kanpur and Scales like MMSE, GDS and BARTHEL INDEX OF DAILY LIVINGS were used to get the scores for cognition, depression and ADL's level and thereby a correlation was found out among all of these variables.Results: Results of the study shows that there is a strong correlation among GDS and MMSE scores, whereas moderate correlation among Barthel index and GDS scores and mild correlation was found between Barthel index and MMSE scores which shows that depression and cognition are strongly correlated.Empirical evidence indicates that behavioral therapy, cognitive behavioral therapy, cognitive bibliotherapy, problem solving therapy, brief psychodynamic therapy, and life review/reminiscence therapy are effective but too infrequently used with older adults¹⁵.Therefore these regimes may further be added in rehab setups to cope up depression in elderly people living in community and old age homes of Kanpur.

1. Introduction

Aging is characterized by loss of function and prevalence of chronic diseases and older adults are among the most sedentary (physically inactive) segment of society. In many respects the increased life expectancy now appears to be exceeding our ability to maintain function and functional independence 1

Aging in place, meaning the ability of individuals to remain in their home in the community, is a consistent wish and expectation of middle aged and older people. In 2002, the prevalence of dementia among individuals aged and 71 and over was 13.9% and comprised 3.4 million individuals in the United States. It is estimated that about 73% of all older adults with dementia are cared for in their own home. There is relationship between home environments and disability- related outcomes for older adults 2

1.1. Problems in elderly

1.1.1. Depression

Depression is less prevalent among older adults than younger adults but can have serious consequences. Depressed older adults are less likely to endorse affective symptoms and more likely to display cognitive changes somatic symptoms and loss of interest than are younger adult risk factor leading to the development of late life depression likely comprise complex interactions among genetic vulnerabilities, cognitive diathesis, age-associated neurological changes and stressful events3.

Major depression is the number one cause of disability world wide the life time prevalence of major depression in the united states is 16.6% but is as high as 19.8 for those in more recent birth cohorts. Depression, known as a “life course” disorder, usually has its first onset in mid – adolescence, and recurs every five to seven years in 80% of individuals. Most people with major depression do not obtain evidence based treatments; approximately one-third do not improve. Depression is associated with substantial impairment both during and after the episode Depression affects both the individuals and the nation, with a loss of \$77.4 billion dollars/year in the United States alone attributed to depression 4

1.1.2. Cognition

Cognition is defined as the mental processes of perception, memory, and information processing, which allows the individual to acquire knowledge, solve problems, and plan for the future. It comprises the mental processes required for everyday living and should not be confused with intelligence. Cognitive dysfunction is thus impairment of these processes. It is usually expressed by patients in terms of failure to perform simple cognitive tasks, for example to move to another room and, on arrival, to have forgotten the reason for the move or to be unable to complete mental tasks, such as crosswords5

1.1.3. Activities of daily livings

Physical disability is defined by long term limitations in major activities of daily life. There are various measures of this limitation including limitation of daily activities such as feeding, washing, dressing, transferring in and out of a chair or bed, and getting to and using a toilet, all of which can be categorized as limitations to self care activities of daily living. Mobility limitations are also used to measure disability and these can be self –reported limitations to various walking tasks. The disability MESH terms will include “activity of daily living “and disabled persons” and the disability keywords will comprise ‘disable*’, ‘disability*’, limit*’ and ‘impair* where* indicates an open endings to the world. Our outcomes measure of interest will be disability defined by limitation in one or more activity of daily living o in mobility6

The need to focus on activities of daily living as a fundamental outcomes is well justified as persons who are disabled in activities of daily living function cannot successfully live alone Disability was defined as experienced difficulty in performing activities in any domain of life7

As literature shows that due to depression, cognition and activities of daily livings are affected in elderly persons so hereby our aim is to find out the co - relation among depression, cognition and activities of daily living in normal elderly people living in community and old age home.

1.2. Aim of study

To findout the co-relation among depression, cognition and activities of daily livings in normal elderly people living in communities and old age homes of Kanpur, U.P.

1.3. Review of literature

Ramon Daniels etal in their study interventions to prevent disability in frail community-dwelling elderly: a systematic review have concluded that a systematic review was conducted to assess the content, the methodological quality and the effectiveness of interventions studies for the preventions of disability in community-dwelling physically frail older persons which shows that There is some indication that long lasting high-intensive exercise programs for moderate physically frail older persons can have an effect on disability outcomes.⁷

Dilip V. Jeste etal had done a study in 2010 titled as "Successful cognitive and emotional aging" (World Psychiatry.2010 June; 9(2):78-84.) and have concluded that depression is associated with lower rates of exercise and worse nutrition, greater social isolation and diminished engagement in productive activity, and negative outlook on the future and the self. Inflammation and stress related biological processes are implicated as a shared pathway to both depressive symptoms and cognitive impairment in older people.⁸

Gulfizar Sozeri Varma etal. gave review in 2012 titled as "Depression in elderly: clinical features and risk factors" (Aging Dis. 2012 December; 3(6): 465-471.) and have concluded that elderlies accept the depressive symptoms and cognitive losses as a normal process of aging and express hem as an expected outcome and they do not even express depressive symptoms at all. They can behave timidly and do not tell their problems if not asked explicitly.⁹

Ankur Barua etal. Have done a study in 2011 titled as "Prevalence of depressive disorders n the elderly" (Ann Saudi Med. 2011 Nov-Dec; 31(6):620-624.) and have concluded that it has to be borne in mind that a major depressive disorders has a significant impact on cognition. Patients with cortical dementia have normal speech volume, but their language is impaired by a transcortical sensory aphasia-like syndrome. Patients with depression can be hypophonic, but will have normal language.¹⁰

Kala M.Mehta etal. have done a study in 2003 given as "Additive Effects of Cognitive Function and Depressive Symptoms on Mortality in Elderly Community-Living Adults" (J Gerontol A Biol Sci Med Sci. 2003 May; 58(5): M461-M467.) and have concluded that cognition function, more depressive symptoms are associated with increased mortality, and in participants with low, middle and high depressive symptom counts, poor cognitive function is associated with higher levels of mortality.¹¹

H.J Woodford etal. Had given a review on "Cognitive assessment in the elderly: a review of clinical methods" (QJM: An International Journal of Medicine volume 100, issue 8 Pp.469-484.) and had concluded that cognitive assessment is a valuable clinical skill. It facilitates the diagnosis of disorders that impair thinking, and allows for more accurate estimates of functional ability to be made. Cognition also predicts mortality during hospital admissions.¹²

Yung-Chieh Yen etal. had done a study in 2011 and titled as "Depressive Symptoms Impair Everyday Problem-Solving Ability through Cognitive Abilities in Late Life" (Am J Geriatr Psychiatry.2011 February; 19(2):142-150.) and had concluded that depression or cognition impairment may independently or jointly contribute to the development if late-life daily functioning disability, yet the relationship between depression and cognitive impairments remain uncertain. Functional system impairment in major depression patients may further cause functional disability.

2. Materials and methods

2.1. Design

This study is a survey type of study which intends to find correlation in depression, cognition and ADL's in elderly subjects living in communities and old age homes of Kanpur, U.P.

2.2. Sample

A sample of 200 elderly i.e.100 from communities and 100 from old age homes of sixty & above years of age(including males & females) were taken by convenient sampling method.

The subjects were collected through various old age homes which includes vaikunth dham old age home, ishwarprem ashram, swaraj ashram and nearby communities located in Kanpur.

All subjects signed consent forms and were ready to take part in the study. The subjects were given the instructions regarding the procedure & the subjects who fulfilled the inclusion criteria & were ready to actively participate, were selected.

2.3. Inclusion criteria

Normal elderly male & female with age of ≥ 60 years.

Able to understand verbal instructions in Hindi and English and completed 8-10 years of formal education.

Subjects with stable medication.

2.4. Exclusion criteria

Any neurological problems such as Parkinsonism, stroke, cerebellar disorder, balance disorder, myopathy, myelopathy which can influence psychological status of the subjects.

Any cardiovascular or orthopedic problems which affects their day to day routine activity and Significant hearing & vision problem.

Uncontrolled hypertension.

Any speech deficit interfering the survey.

Unstable seizure/ disorder affecting psychological status of subjects.

Smoking and alcohol intake.

2.5. Procedure

Subjects were introduced to the study followed by the signing of consent forms , general assessment regarding of socio-demographic data(name, gender, age), education level, past medical history, personal history, family history were gathered in the participants assessment form.

The total 200 numbers of subject's data was collected, 100 for group a (community) & group b (old age home) including both males and females.

The subjects were assigned a number to maintain the confidentiality of the subjects& then the scale was used to assess the scores i.e., geriatric depression scale (GDS) ,Minimental status examination (MMSE), BARTHEL INDEX was used to check the level of depression, memory and activities of daily living & the scores were entered in data collection form.

3. Results

After assessing the demographic details the correlation among all the three variables i.e. Barhel index of daily livings, MMSE and GDS were found by using Karl Pearson correlation coefficient.

SPSS version 12.0 was used for data analysis and in this study the p value of ≤ 0.05 has been considered as statistically significant.

Table 1

Shows Correlation among BARTHEL INDEX in elderly people living in community and old age home.

Groups	Correlation coefficient	P value
Old age home	0.028	0.780
Community		

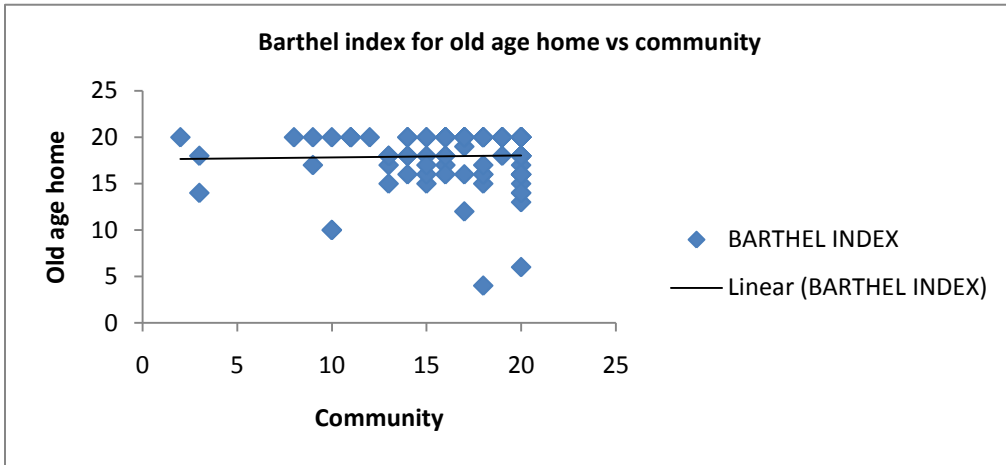


Chart 1. Showing correlation for ADL via Barthel index for OLD age home and community.

Table 2
 correlation between both groups for mmse score.

Groups	Correlation coefficient	P value
Old age home	-0.082	0.419
Community		

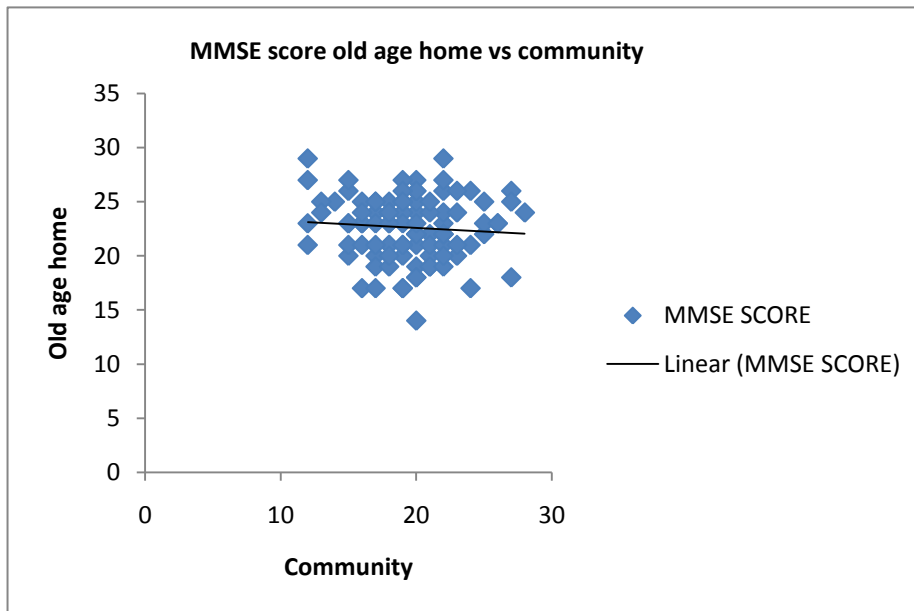


Chart 2. Showing correlation between MMSE score old age home vs community.

Table 3

Correlation between barthel index and gds score.

Variables	Correlation coefficient	P value
BARTHEL INDEX GDS SCORE	-0.2	0.004**

Table 4

Correlation between barthel index and MMSE score.

Variables	Correlation coefficient	P value
Barthel index MMSE score	0.141	0.047***

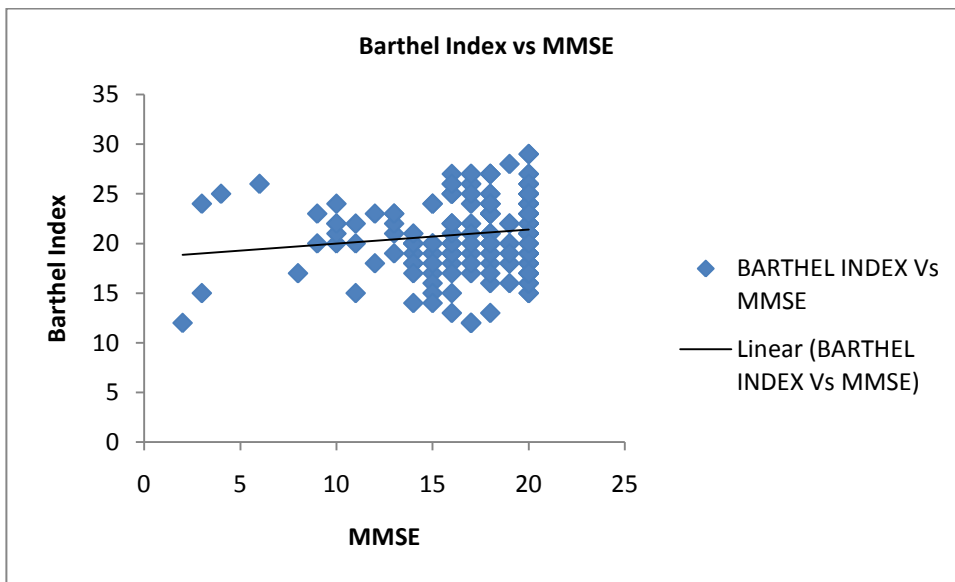


Chart 3. Showing correlation between Barthel index and MMSE.

Table 5

Correlation between gds and MMSE score

Variables	Correlation coefficient	P value
GDS MMSE score	-0.231	0.001*

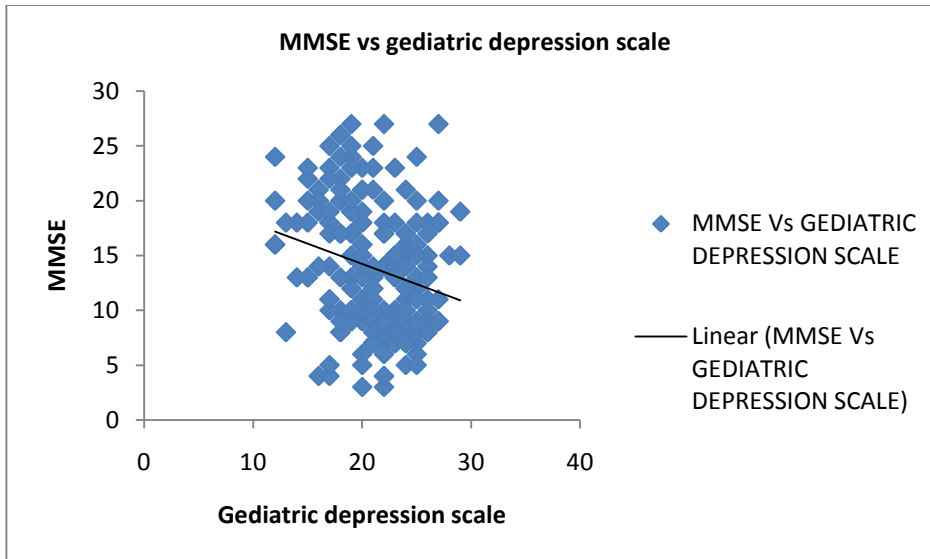


Chart 4. Showing correlation between MMSE and GDS.

- *Strong correlation
- **Moderate correlation
- ***Mild correlation

4. Discussion

There is an evidence to suggest that cognitive or motor- cognitive methods positively affects physical functioning, such as postural control, walking abilities and general functions of upper and lower extremities, respectively¹¹ which supports the findings of our study which shows that there is a positive correlation among cognition and activities of daily livings.¹⁴

There is substantial consensus regarding broad categories of risk factors for late life depression, which include most prominently neurological vulnerability, physical illness and disability, and stressful life events such as bereavement and care giving. Age related increases in psychological vulnerabilities; offset the increasing prevalence of certain risk factors in late life ¹⁵ which shows that depletion in cognition and ADL's in late life may be a positive risk factor for depression which is found to be positively correlated in our study.¹⁵

The possible cause of depression may be the factors comprise complex interactions of genetic vulnerabilities, cognitive diathesis, and age-associated neurobiological changes with the particular types of stressful events that occur more often in late life¹⁵

One of the studies founded that there is no consistent relationship between mood states, either alone or in relation to cognitive status and the subsequent development of dementia. Those individuals whose cognitive functions were highly correlated with their mood state were no likely to develop dementia than other participants. Those t persistently depressed mood, thus low mood state was occurring in the context of important medical comorbidities and this may result in a spurious correlation between depression and dementia.¹⁶

Future research that aims to examine the relation between improvements in cognitive skills and the translation to better performance on selected physical tasks may take the relation between the cognitive and physical skills in to account.

5. Conclusion

Depression in late life is treatable, even among older adults with dementia. Empirical evidence indicates that behavioral therapy, cognitive behavioral therapy, cognitive bibliotherapy, problem solving therapy, brief psychodynamic therapy, and life review/reminiscence therapy are effective but too infrequently used with older

adults¹⁵. Therefore these regimes may further be added in rehab setups to cope up depression in elderly people living in community and old age homes of Kanpur.

Cognitive rehabilitation interventions have been developed to ameliorate cognitive problems experienced by older adults, it is the interventions that combine a cognitive with a physical rehabilitation task, e.g. strength and balance exercises together with cognitive exercises or performing dual tasking exercises¹⁴ thereby reducing the cost of medication and money.

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