



Original Article:

Psychiatric Morbidity Among Elderly People Living in Old Age Homes and in the Community: A Comparative Study

Anil Kumar Mysore Nagaraj, Senior Resident, Department of Psychiatry,
Joseph Mathew, Final year MBBS,
Raveesh Bevinahalli Nanjgowda, Associate Professor and Head, Department of Psychiatry,
Sumanth Mallikarjuna Majgi, Assistant Professor, Department of Community Medicine,
Purushothama SM, Assistant Professor, Department of Physiology,
Mysore Medical College and Research Institute, Mysore- 570001, Karnataka, India.

Address for Correspondence:

Dr. Anil Kumar Mysore Nagaraj,
Senior Resident, Dept of Psychiatry,
Mysore Medical College & Research Institute,
Mysore- 570001,
Karnataka, India.
E-mail: nagarajakm24@gmail.com

Citation: Nagaraj AKM, Mathew J, Nanjgowda RB, Majgi SM, Purushothama SM. Psychiatric Morbidity Among Elderly People Living in Old Age Homes and in the Community: A Comparative Study. *Online J Health Allied Scs.* 2011;10(4):5

URL: <http://www.ojhas.org/issue40/2011-4-5.htm>

Open Access Archives: <http://cogprints.org/view/subjects/OJHAS.html> and <http://openmed.nic.in/view/subjects/ojhas.html>

Submitted: Nov 20, 2011; Accepted: Jan 4, 2012; Published: Jan 15, 2012

Abstract: Background: Disorders such as depression, anxiety, cognitive and psychotic disorders have a high prevalence among elderly. There is some preliminary evidence that life in old age homes is perceived by inmates as more supportive, though the issue is not well studied. **Aim:** This project is directed towards studying and comparing the psychiatric morbidity and quality of life of elderly people residing in two unique settings: community and old age homes. **Method:** It is a cross-sectional study where the elderly subjects, 50 each in both the groups, were selected by simple random sampling technique and assessed on Mini Mental Status Examination (MMSE), Informant Questionnaire on Cognitive Decline in Elderly (IQCODE), Brief Psychiatric Rating Scale (BPRS) and Quality of life visual analogue scale. **Result:** On comparison using suitable statistical analysis, there was no significant difference in the total scores on MMSE, IQCODE and quality of life scale across the groups. Depression was present in 22% of people in the community and 36% of old age home inmates. Psychosis was present in 26% of people in the community and 20% of old age home inmates. **Conclusion:** The psychiatric morbidity is high in elderly irrespective of the setting in which they live.

Key Words: Elderly people; Old age homes; Psychiatric morbidity; Cognitive disturbances; Quality of life.

Introduction:

Age is an important determinant of mental illness. The overall prevalence of mental and behavioural disorders tends to increase with age due to the normal ageing of the brain, deteriorating physical health and cerebral pathology.(1) Lack of family support and restricted personal autonomy are other important contributing factors. Psychiatric morbidity among elderly people is frequent, severe and diverse. Disorders such as depression, anxiety, cognitive and psychotic disorders have a high prevalence in this segment of the population.(2) Studies show that up to 20% being cared for in the community and about 37% being cared for at the primary level are suffering from depression.(3)

The Indian aged population is currently the second largest in the world and is projected to rise from 70 million, according to the National Census of 2001, to almost 324 million by the year 2050, with serious social, economic and public health consequences.(3) Global trends in the incidence and prevalence of geropsychiatric disorders are reflected in India too. Dube, in 1970, reported the prevalence of mental illnesses in the elderly to be 2.23%, Nandi and co-workers in 1975, as 33.3%, Ramachandran and co-authors in 1979, as 35% and Tiwari SC in 2000, found it to be much higher in the geriatric group (43.32%, compared to 4.66% in the non-geriatric group).(4-7) Sood and his team reported that the most common psychiatric morbidities in the Indian set up were Depression, Adjustment Disorders, Anxiety Disorders, Dementia and Delirium (Cognitive Disorders), Psychoses, Bipolar Disorders and Substance-related psychiatric illnesses.(8) Further, multiple factors are known to affect mental health in old age. Female sex, low education or illiteracy, being widow/widower/divorcee, medical comorbidities, poor socio-economic status and disability are all well established as playing significant role in psychiatric illnesses among elderly.(8,15-21) As the majority of elderly in India are illiterate, their living conditions depend upon their co-residence with children and/or their ability to work and earn an income beyond the officially designated age of retirement.(9) In this scenario, due to the increased physical and economic dependence, more and more elders are compelled to stay in old age homes. There is some preliminary evidence that life in old age homes is perceived by inmates as more supportive. Those in old age homes are psychologically better and experience less cognitive impairment.(22,23) However, this issue is not well studied and hence definitive evidence is lacking.

This project is directed towards studying and comparing the psychiatric morbidity and quality of life of elders residing in two unique settings; elders living in the community who still retained their family ties and those residing in homes for the aged, whose families or caregivers, for some reason, had enrolled them at the facility.

Materials and Methods

The study sample was selected from two of the largest old age homes (one private and the other philanthropic) and three different localities representative of the community where elderly people lived along with their family members. All the five locations are in urban Mysore

It is a cross-sectional study where the psychiatric morbidity and quality of life of elderly population in the two said living setups were compared. The study was conducted in two months, from 15th Jul 2010 to 15th Sep 2010. Subjects were selected by simple random sampling technique. In old age homes, the subject on every alternate bed of the dormitory was interviewed. When the candidate on a particular bed did not meet the criteria to be included in the study, the candidate on the next alternate bed was assessed. In case of community sample, every third house in the given locality was looked into for an elderly subject. If the candidate in a particular house was not found to be suitable for this study, the next third house was selected. Elderly people were defined as those aged 60 years or above.(10) All persons aged 60 years or above, who gave consent to participate and those with an informant were selected to participate in the study. The subjects having medical co-morbidities were also included in the study provided it is not-severe enough to prevent him/her from participating in the study. Persons aged less than 60 years, terminally ill patients, uncooperative persons, those without informants and those who did not give consent to take part in the study were excluded.

The total sample size was 100, of whom 50 resided in the community (denoted as G1) and 50 stayed in Homes for the Aged (referred to as G2). Each group included 25 males and 25 females. Clearance was obtained from the Institution Ethics Committee for carrying out this study. Elderly people were interviewed either at their respective residences or in the Homes for the Aged. The Authorities in charge of the Homes for the Aged where the study was to be conducted were contacted prior and permission obtained. In the community, a door-to-door survey was undertaken. Informed consent was taken from all participants who volunteered for the study. After obtaining consent, each person was interviewed on the socio-demographic data sheet. Then all those included in the study were subjected to evaluation by administering the four study questionnaires – Mini Mental Status Examination (MMSE) (11), Informant Questionnaire on Cognitive Decline in Elderly (IQCODE) (12), Brief Psychiatric Rating Scale (BPRS) (13) and a quality of life visual analog scale called Delighted Terrible Scale (DTS) (14) developed by Heinrichs and colleagues. The above mentioned instruments were used in this study to compare Cognitive deficits (MMSE and IQCODE), Psychiatric morbidity (BPRS) and the satisfaction an elderly subject reports in his life (Quality of Life). Those recording a score of 4 or more on the item of depressed mood were interviewed by ICD 10. All assessments of one subject were finished in a single session. The data was then analyzed.

Statistical Analysis: The Statistical Package for Social Sciences (SPSS 17.0) software for Windows was employed for the statistical analysis. Descriptive statistics was applied to calculate means. Cross Tabs were used for comparisons of age, education, marital status, medical co-morbidity. BPRS scores between the two groups and associations were tested for significance using Chi-square tests. T tests were used to compare the scores of MMSE and IQCODE and Pearson correlations were used to examine associations between these variables. Differences in MMSE scores by education level and in cognitive function by years of stay in old age homes were determined using one-way ANOVA and Tukey’s HSD post-hoc test. Mann Whitney U test was used to compare the Quality of Life variables between the two groups. A

correlation was plotted between the MMSE scores standardised for education and the IQCODE. Statistical significance was set at p<0.05 for all comparisons.

Results:

A comparison of variables on the socio-demographic sheet and on the different tools of assessment was done. The items on socio-demographic sheet that were compared are age, years of education, marital status, and medical co-morbidity. Most individuals (n=29) belonged to the 70-74 year category. The average age of the individuals living in the community and in old age homes was 72.96±7.63 and 72.70±7.62 years respectively. In both the groups, majority belonged to the group of 6-11 years of education. The age distribution, years of education and medical co-morbidities across the two groups were evenly matched. The comorbidities we looked into were the presence of some common chronic conditions like hypertension, diabetes mellitus, bronchial asthma/bronchitis, cerebrovascular disorders and others. For analysis, we further categorized it as the presence of nil, one, two, three or more co-morbidities. More people in the community were currently married and staying with the partner (n=30) compared to old age homes (n=18). This differed significantly. The details are shown in Table 1 and Figure 1.

Table 1: Comparison of Socio-demographic variables across the two groups

Socio-demographic variables	Chi square	p
Age	2.862	0.72
Education	4.614	0.20
Marital Status	10.714	0.01*
Medical co-morbidities	1.066	0.78

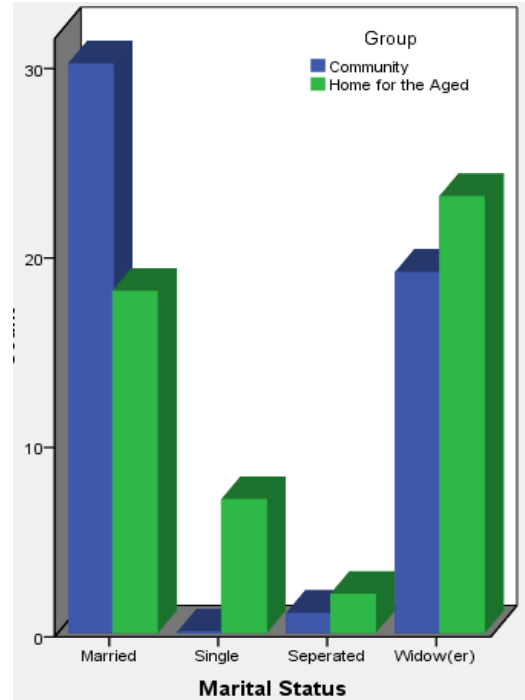


Figure 1: Comparison of Marital Status in the two Groups

The data on MMSE and IQCODE was normally distributed. The paired t test was used to compare the scores of groups on these questionnaires. There was no significant difference in the individual items as well as the total scores on both the questionnaires. Table 2 represents this comparison. There was no cognitive impairment recorded on MMSE in 34% of

people in both groups. Rest of them in both settings were classified as having mild or severe impairment based on their total score ie 18-23 and 0-17 respectively. The groups were evenly matched with respect to cognitive functioning. This is represented in Table 3. The scores on MMSE varied with education, higher the education, better the score. This is depicted in Figure 2. The groups were also evenly matched for their cognitive abilities on IQCODE, which is an objective assessment. Table 4 gives a comparison of this.

Table 2: Comparison of MMSE and IQCODE scores in the two Groups

Clinical Variables	Group		t	p
	G1 [n = 50] Mean ± SD	G2 [n = 50] Mean ± SD		
Total MMSE	22.78 ± 4.76	23.64 ± 4.92	-0.888	0.377
Average IQCODE	3.32 ± 0.28	3.40 ± 0.33	-1.274	0.206

G1: Community ; G2:Home for the Aged

Table 3: Cognitive Impairment based on MMSE score in the two Groups

Cognitive Impairment based on MMSE	Groups			Chi Square	P
	G1	G2	Total		
None	34	34	68	0.582	0.748
Mild	10	12	22		
Severe	6	4	10		
Total	50	50	100		

G1: Community ; G2:Home for the Aged

Table 4: Cognitive Impairment based on IQCODE score in the two Groups

Cognitive Impairment based on IQCODE	Groups			Chi Square	P
	G1	G2	Total		
Not Significant	32	27	59	1.033	0.309
Significant	18	23	41		
Total	50	50	100		

G1: Community ; G2:Home for the Aged

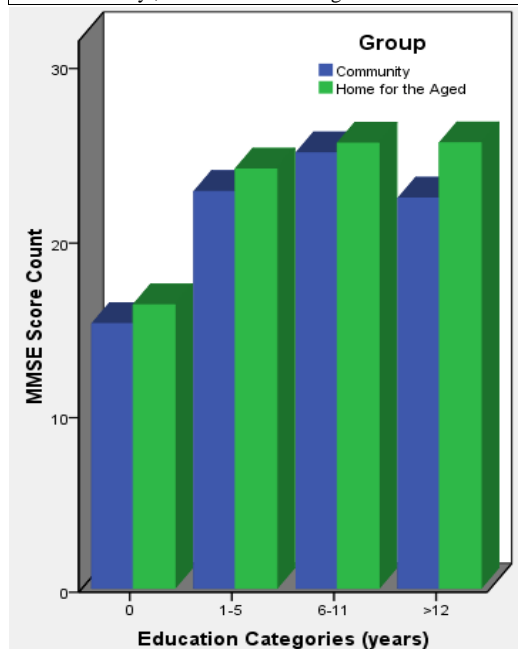


Figure 2: Variation of MMSE Scores with education across the groups

In BPRS, those who scored ≥ 4 on individual items were considered for comparison. Out of the 18 items of BPRS, three items differed significantly across the groups, when compared by Chi-square test. Motor retardation was the most common symptom in both groups ($n=21$ for G1 and $n=33$ for G2) and it differed significantly ($p=0.01$) favouring those in the community. Other items that were differing significantly were grandiosity ($n=8$ for G1 and $n=2$ for G2) ($p=0.046$) and emotional withdrawal ($n=11$ for G1 and $n=4$ for G2) ($p=0.05$), both favouring those staying in old age homes. The severity of grandiosity was moderate (score 4) in all cases and it did not require hospitalization. Depressive mood, somatic concern, anxiety and blunted affect were the other symptoms recorded frequently in both the groups. However, none of the other 15 items of BPRS reveal any significant statistical difference across the two groups. Those who scored at least 4 on items of depression were further evaluated on ICD 10. Twenty two percent of those in community were found to have mild to moderate depression as compared to 36% of old age home inmates. On comparison, it was not statistically significant ($p=0.063$). Further, 26% of elderly in community setting had psychosis as compared to 20% in old age homes, as assessed by the items for psychosis (conceptual disorganization, grandiosity, hostility, suspiciousness, hallucinatory behavior, unusual thought content, excitement) on BPRS. On comparison, there was no statistical significance ($p=0.24$). The quality of life was assessed on the visual analogue scale –Delighted Terrible Scale, by Mann Whitney U Test. The mean ranks were 51.69 for G1 and 49.31 for G2. On comparison, they were evenly matched ($p=0.676$).

Thus on comparing the total scores on MMSE, average scores on IQCODE and mean ranks of Delighted Terrible Scale, there was no significant difference. In BPRS, the three items namely emotional withdrawal, grandiosity and motor retardation varied significantly but rest of items did not differ. Though both groups revealed cognitive impairment, clinical depression and psychosis, there was no significant difference between them.

Discussion:

This is a cross-sectional study, in which we compared the psychiatric morbidity of elderly people in two setups: community and old age home. It is an established fact that among elderly, older the age, low education levels and past history of psychiatric illness are all the predictors of cognitive disorders. (15-18) Further female sex, medical comorbidity, poor social-economic status, widowed state, disability are some of the strong predictors of geriatric depression.(8,15,19-21) However there is no substantial evidence as to staying in community with one's own people has a positive impact on one's psychological status than staying in old age homes. On the contrary, the available scant literature favours residents of old age home.(22, 23) Thus the study was carried out on a hypothesis based on available literature.

Age is the vital variable in geriatric mental disorders. The two groups were evenly matched with respect to the age. In our study, marital status differed significantly across the two groups. More number of elderly were currently married and staying with their partners in the community setting. Marital status is an important favourable factor associated with geriatric depression. Many studies have revealed that depression in elderly is associated with widowed state or staying alone.(15,19) In our study, old age home inmates (38%) suffered depression more commonly than those in their own homes (22%). One of the factors associated with this could be that most of them stayed alone. Medical comorbidities also did not differ significantly in our study. Further, our study corroborated the earlier studies that

inferred higher the education, better the cognitive function.(7,15,17,19)

To evaluate the cognitive function, both objective (IQCODE) and subjective (MMSE) assessment tools were used. MMSE identified mild cognitive impairment in 20% of elderly living in community as compared to 24% in old age home inmates. Severe impairment was seen in 12% and 8% respectively. The IQCODE determined 36% of community dwelling elderly to have significant cognitive impairment. It was 46% in case of the old age home inmates. The cognitive impairment on both these instruments was not statistically significant across the groups. Recent studies suggest that over half of the residents of old age homes have some degree of dementia.(24,25) We did not determine dementia in those with cognitive decline, using diagnostic manuals. We have come across many studies that have used MMSE alone for assessment of cognitive impairment.(26-28) In a prospective study, over eight years, it was identified using MMSE that 53% of the elderly suffered minor cognitive decline and 16% major cognitive decline.(26) Though ours is a cross-sectional study, the rate of cognitive impairment detected is comparable to other studies.

Twenty nine percent of the total sample had depression. Twenty two percent of those in community were found to have mild to moderate depression as compared to 36% of old age home inmates. On comparison, it was not statistically significant. Many studies have found depression to be a common psychiatric morbidity in elderly.(6,8,29-31) Worldwide, a number of studies have estimated the prevalence of depression in non-demented elderly to be 40%.(32,33) Some community based studies have revealed that the point prevalence of depressive disorders among the geriatric population in India varies from 13% to 25%.(19,34) However cognitive impairment often co-exists with depression in elderly patients. Thus due to high prevalence of dementia and the difficulties in assessing mood in people with severe dementia, it is difficult to predict the exact prevalence of depression.(35) Further, 23% of the sample population was found to have psychosis. When classified under groups, 26% of those in community and 20% of those in old age homes had psychosis. This difference across the groups was not statistically significant. According to the existing literature, the overall prevalence of psychosis in the elderly living in community is about 5%. It ranges from 10 to 63% in nursing home populations.(36,37) In our study the presence of psychosis in community is 26% which is higher than that reported in other studies. However this is based on scores on BPRS and no diagnostic manual was used. Also for a community based study, the sample size could have been larger. We did not compare males and females for psychiatric morbidity as our primary objective was to compare the influence of two different settings for cognitive impairment and psychological well being. Also, we did not administer any diagnostic schedule to assess and diagnose other possible psychiatric disorders. However, for treatment purposes, a psychiatrist consultation was suggested to the authorities of old age homes and to the family members of elderly living in the community.

Ours is a cross-sectional community based study where subjects were recruited by simple random technique. The total sample size was 100, divided as 50 each from community and old age homes. The authors did not come across studies done in similar settings with similar methodology. However a relevant study that compared psychiatric morbidity of elderly in old age home and those visiting a hospital is also a cross-sectional study with a sample size of 92. People in old age home had a significantly better perception of social support and felt better than those living with their children's family.(23) Another recent study

undertaken to investigate the dependency and health status of a cohort of older people admitted to long term nursing and residential care compared the cognitive impairment of elderly in the two settings. It is a retrospective cohort study with a sample size of 205. In this study, again people in residential homes, despite having more disability were found to have lesser cognitive impairment.(22) Though the longitudinal studies are ideal for assessing the cognitive impairment in elderly, attrition is high due to various reasons including death. All in all, our results are comparable to these studies to the extent that staying in old age homes is at least as good as staying in their own homes.

Conclusion:

The psychiatric morbidity is high in elderly irrespective of the setting in which they live. Education and living with spouse are the factors associated with better psychological health. It could not be established from our study that living in old age home is associated with significantly better psychological well being and cognitive abilities than living in community with one's own family members.

Acknowledgements:

The authors sincerely and graciously express their gratitude to Indian Council of Medical Research, New Delhi, India, for funding this project under short term studentship Reg No 2010-01234.

References:

1. Ingle GK, Nath A. Geriatric Health in India: Concerns and Solutions. *Indian Journal of Community Medicine.* 2008;33(4):214-218.
2. Denning T, Bains J. Mental health services for residents of care homes. *Age and Ageing.* 2004;33:1-2.
3. World Health Organization. Burden of mental and behavioural disorders. The World Health Report 2001; Mental Health: new understanding, new hope. Geneva, Switzerland, 2001. pp 3-4, 19-45, Box 3.7.
4. Dube KC. A Study of prevalence and biosocial variation in mental illness in a rural and urban community in Uttar Pradesh, India. *Acta Psychiatr Scand.* 1970;48:18.
5. Nandi DN, Ajmani S, Ganguli A, Banerjee G, Boral GC, Ghosh A, Sankar S. Psychiatric disorders in a village community in West Bengal. *Indian J Psychiatry.* 1975;17:87.
6. Ramchandran, Menon SM, Ramamurthy B. Psychiatric disorders in subjects over fifty. *Indian J Psychiatry.* 1979;22:193-198.
7. Tiwari SC. Geriatric psychiatric morbidity in rural northern India: Implications for the future. *Int Psychogeriatr.* 2000;12: 35-48.
8. Sood A, Singh P, Gargi PD. Psychiatric morbidity in non-psychiatric geriatric inpatients. *Indian J Psychiatry.* 2006;48:56-61.
9. Irudaya Rajan S. Population Ageing and Health in India. Centre for Enquiry into Health and Allied Themes (CEHAT), 2006, Survey No. 2804 & 2805. PP 1-22.
10. ICMR. Mental Health and Ageing. *ICMR Bulletin.* 1991;21:49-54.
11. Folstein MF, Folstein SE, McHugh PR. Mini-Mental State: A practical method for grading the state of patients for the clinician. *J Psychiatric Res.* 1975;12:189-198.
12. Jorm AF. The Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE): A review. *International Psychogeriatrics.* 2004;16(3):1-19.
13. Overall JE, Gorham DR. Brief Psychiatric Rating Scale. *Psychol Rep.* 1962;10:799-812.
14. Heinrichs DW, Hanlon TE, Carpenter WT Jr. Quality of Life Scale: an Instrument for rating the

- Schizophrenia Deficit Syndrome. *Schizophrenia Bull.* 1984;10(3):338-398.
15. Nandi PS, Banerjee G, Mukherjee SP, et al. A study of psychiatric morbidity of elderly population of a rural community in West Bengal. *Indian J Psychiatry.* 1997;39:122-129.
 16. Buntinx, Kester A, Bergers J, Knottnerus JA. Is Depression in Elderly People followed by Dementia? A Retrospective Cohort Study based in General Practice. *Age and Ageing.* 1996;25:231-233.
 17. Berkman LF. The association between educational attainment and mental status examinations: of etiologic significance for senile dementias or not? *J Chronic Dis.* 1986;39:171-174.
 18. Cooper B, Holmes C. Previous psychiatric history as a risk factor for late-life dementia: a population-based case-control study. *Age and Ageing.* 1998;27:181-188.
 19. Ramachandran V, Sarada Menon M, Arunagiri S. Socio-cultural factors in late onset depression. *Indian J Psychiatry.* 1982;24:268-273.
 20. Harris T, Cook DG, Victor C, Rink E, Mann AH, Shah S, Dewilde S, Beighton C. Predictors of depressive symptoms in older people – a survey of two general practice populations. *Age and Ageing.* 2003;32(5):510–518.
 21. Bogner HR, Cary MS, Bruce ML, et al. The role of medical comorbidity in outcome of major depression in primary care: the PROSPECT study. *Am J Geriatr Psychiatry.* 2005;13:861–868.
 22. Rothera I, Jones R, Harwood R, Avery A, Waite J. Health status and assessed need for a cohort of older people admitted to nursing and residential homes. *Age and Ageing.* 2003;32:303–309
 23. Tiple P, Sharma SN, Srivastava AS. Psychiatric morbidity in geriatric people. *Indian J Psychiatry.* 2006;48:88-94.
 24. Matthews FE, Dening T. Prevalence of dementia in institutional care. *Lancet.* 2002;360:225–226.
 25. Macdonald AJD, Carpenter GI, Box O, Roberts A, Sahu S. Dementia and use of psychotropic medication in non-‘elderly mentally infirm’ nursing homes in South East England. *Age Ageing.* 2002;31:58–64.
 26. Yaffe K, Fiocco AJ, Lindquist K et al. Predictors of maintaining cognitive function in older adults: The Health ABC Study. *Neurology.* 2009;72:2029–2035.
 27. Tierney MC, Szalai JP, Dunn E, Geslani D, McDowell I. Prediction of probable Alzheimer disease in patients with symptoms suggestive of memory impairment. *Arch Fam Med.* 2000;9(6):527-532.
 28. Fratiglioni L, Jorm AF, Grut M, et al. Predicting dementia from the Mini-Mental State Examination in an elderly population: the role of education. *J Clin Epidemiol.* 1993;46:281-287.
 29. Tiwari SC, Srivastava S. Geropsychiatric Morbidity in rural Uttar Pradesh. *Indian J Psychiatry.* 1998;40:266-273.
 30. Uwakewe R. Psychiatric morbidity in elderly patients admitted to non-psychiatric wards in a general/teaching hospital in Nigeria. *Int J Geriatr Psychiatry.* 2000;15:346-354.
 31. Pereira YD, Estibeiro A, Dhume R, Fernandes J. Geriatric Patients attending tertiary care Psychiatric Hospital. *Indian J Psychiatry.* 2002;44(4):326-331.
 32. Mann AH, Graham N, Ashby D. Psychiatric illness in residential homes for the elderly: a survey in one London borough. *Age Ageing.* 1984;13:257–265.
 33. Mann AH, Schneider J, Mozley CG et al. Depression and the response of residential homes to physical health needs. *Int J Geriatric Psychiatry.* 2000;15:1105–1012.
 34. Nandi DN, Ajmany S, Ganguli H, Banerjee G, Boral GC, Ghosh A, et al. The Incidence of mental disorders in one year in a rural community in West Bengal. *Indian J Psychiatry.* 1976;18:79-87.
 35. Lichtenberg PA, Ross T, Millis SR, Manning CA. The relationship between depression and cognition in older adults: a cross-validation study. *J Gerontol B Psychol Sci Soc Sci.* 1995;50:P25-P32.
 36. Desai A, Grossberg G. Differential Diagnosis of Psychotic Disorders in the Elderly: In Cohen CI (Ed). *Schizophrenia into later life: Treatment, Research and Policy.* Washington, DC. American Psychiatric Publishing, INC.2003. pp 55-78.
 37. Zayas E, Grossberg T. The treatment of psychosis in late life. *J Clin Psychiatry.* 1998;59(Suppl 1):5-12