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Original Research Article

A study on prevalence of dementia among elderly population in rural health training centre field practice area of Nalgonda

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ABSTRACT

Background: Dementia is one of the major causes of disability and dependency among older people worldwide. Dementia has physical, psychological, social and economic impact. Worldwide prevalence of dementia in elderly population of more than 60 years is 5-8%. Prevalence of mild cognitive impairment in India is 14.89%. Present study aim was to estimate the prevalence of dementia and the risk factors associated with dementia among elderly population in rural field practice area of Nalgonda district.
Methods: A descriptive, community based cross-sectional study was conducted among 119 elderly population in the field practice area of Rural Health Training Centre by simple random sampling method, with the help of a pre-designed and pre-tested questionnaire. Data was analyzed using SPSS Version 19. MMSE (mini mental status examination) questionnaire was used to screen for dementia. Barthel index was used to assess the dependency status.
Results: Demographic profile of the study population of 119, males 65 (54.62%), females 54 (45.38%). Majority of their source of income were government service pension 30 (25.21%) and old age pension 70 (58.82%). 56 (47.06%) of elderly population living with family and 63 (52.94%) people were living individually. The study revealed the prevalence of cognitive impairment is 35.3%. Risk factors like middle age obesity, smoking, alcohol consumption, social isolation showed significant association with dementia.
Conclusions: Dementia can be prevented by early diagnosis and promoting physical health and treating behavioural and psychological symptoms. Risk of dementia can be reduced by following regular exercise, diet, quitting smoking and alcohol.

Keywords: Cognitive impairment, Dementia, Elderly, Prevalence, Rural

INTRODUCTION

Dementia is one of the major causes of disability and dependency among older people worldwide. The total number of people with dementia to reach 82 million in 2030 and 152 million in 2050. Elderly people aged above 60 years in India were increasing every year. Thus there will be significant rise in age related health conditions like dementia which is characterized by gradual decreasing memory and intellectual abilities. The WHO also estimated that 2/3rd of the patients with dementia will be from developing countries.[1,2]

Depression and dementia are the two important mental health problems that are encountered in elderly in India, while depression in old age is quite prevalent. Worldwide

prevalence of dementia in elderly population of more than 60 years is 5-8%. According to DSM IV or ICD-10, in India prevalence of dementia among elderly population in rural areas (0.8% to 5.5%) and urban areas (0.9% to 4.86%). Prevalence of mild cognitive impairment in India was 14.89%.[3]

Dementia is a mental disorder which is characterized by impairment in intellectual functioning without clouding of consciousness, characterized by failing memory, difficulty in calculation distractibility, alternation in mood and impaired judgment.[4] There is a growing realization that the care of older people with disabilities making enormous demands on their careers.[5] The traditional risk factors for dementia in India were advancing age, illiteracy, hypertension, diabetes, poor socio economic status, trauma, familial or genetic factors, nutritional factors and stroke.[3]

Alzheimer's disease is the most common form of dementia which contributes 60-70% of cases.[6] Clinic based studies on people diagnosed to have dementia have found that the mean age of presentation with dementia was about 66.3 years, one decade younger than the developed countries. The prevalence of young onset dementia (dementia less than 65 years) was much more in India than in the developed world (49.9% versus 7-30%).[3]

The current study was aimed to estimate the prevalence of Dementia among elderly population in rural field practice area of Nalgonda District and to assess the risk factors associated with dementia among elderly population.

METHODS

The community chosen for the study was rural health training centre (RHTC) field practice area of Nalgonda District. It covers a population of approximately 30600, which consists of 15228 males and 15401 females in 10280 families. The rural health centre located in Cherlapally provides primary health care services to the population in the rural field practice area. Centre maintains a well-established medical record system, having health data of all families as family folders.

A community based cross sectional study was conducted for a period of three months from June to August in the year 2019. Study area included 4 villages out of 11 villages under the surveillance of RHTC, Nalgonda District.

The total surveyed population is 350 of which the final sample obtained was 119 elderly people of more than 60 years of age.

Inclusion criteria

People who were willing to participate and residing in the rural field practice area for at least one year.

Exclusion criteria

People who were not willing to participate, mentally not cooperative patients and age below 60 years were excluded from the study.

Assessment criteria

History and clinical examination

A detailed history was taken and physical examination was performed after taking the verbal consent from patients as per the proforma prepared for this purpose.

MMSE

The mini-mental state examination (MMSE), developed originally by the Indo-US Cross National Dementia Epidemiology Study was used as a screening test for cognitive impairment, scoring pattern was followed to assess the degree of dementia.[7]

Interviews from patients/care-giver

Information about elderly social or occupational functioning, daily activity and presence of any risk factor was obtained from patients/caregiver according to the proforma prepared.

Activities of daily living

Information regarding normal routine work of elderly people was assessed by Barthel index.[8] This was highly informative and closely related to mild cognitive impairment.

Sampling technique

The total surveyed population was 350, of which the final sample obtained was 119 elderly people of more than 60 years of age. study population were selected among 4 villages out of 11 villages under field practice area followed by (30+30+30+29) people in each village were selected by simple random sampling based on the availability of family folders at RHTC field practice area.

Study tool

A pre-tested, semi structured questionnaire was used to collect the data. MMSE (mini mental status examination) Questionnaire was used as screening test for dementia **(**cognitive impairment), which consists of 11 questions for each question the maximum score was 5 for an objective assessment of cognitive deficits. Assessment of behavioural problems was carried out through clinical interview of the patient by the primary caregiver. The primary caregiver was defined as the caregiver who had been in contact with the patient at least three times a week. And the status of daily activity among elderly population was assessed by using Barthel index. The

main aim was to establish degree of independence from any help, physical or verbal, however minor and for whatever reason.

Statistical analysis

Data was analysed using SPSS version 19. The data was estimated in proportions and frequencies presented in the form of charts and tables. Chi square test was used to assess statistical significance ($p<0.05$).

Ethical considerations

Approval from Institutional Ethics Committee of KIMS and study population consent were obtained.

RESULTS

The survey identified 350 elderly people aged 60 years and above. Of these, 119 study population sample was obtained and were screened using MMSE. The socio-demographic characteristics of the sample are given in the Table 1.

Table 1: Socio demographic characteristics of the sample (n=119).

Characteristics	Frequency (N)	Percentage (%)
Gender		
Male	65	54.62
Female	54	45.38
Age group (years)		
60-65	29	24.37
66-70	31	26.05
71-75	25	21.01
76-80	13	10.92
>80	21	17.65
Educational status		
Illiterate	49	41.18
Primary	30	25.21
Secondary	21	17.65
SSC and above	19	15.97
Occupation		
House wife	33	27.73
Farmer	36	30.25
Labourer	13	10.92
Currently not working	19	15.97
Others	18	15.13
Socio-economic status[9]		
Class I-III	19	15.97
Class IV	55	46.22
Class V	45	37.81
Status of activity of daily life (Barthel Index)		
Dependent	59	49.57
Independent	60	50.43

Total study population was 119 out of which 65 (54.62%) were males and 54 (46%) were females. Majority of their source of income were pension 30 (25.21%) and old age pension 70 (58.82%). Among 119 elderly population, 56 (47.06%) people were living with family and 63 (52.94%) people were living individually without family as shown in the Figure 1.

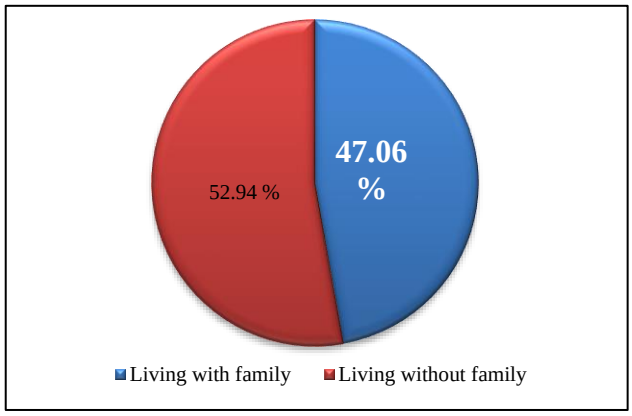

Figure 1: Type of living in elderly population.

Education of the study population shows majority were illiterate n=49 (41.18%). Of the total population in relation to their occupational status majority were farmers n=36 (30.25%), house wives n=33 (27.73%). Majority of the study population belongs to socio-economic class IV were 55 (46.22%) and class V were 45 (37.81%). The status of daily activity among elderly population when assessed by using Barthel index shows 49.57% were dependent and 50.43% were independent.

Dementia is termed as cognitive impairment which is measured by using MMSE grading study tool. Of the total 119 study participants, on MMSE grading, 77 (64.7%) were having normal cognition, 15 (12.6%) having mild cognition impairment, 15 (12.6%) having moderate cognition impairment and (10.1%) with severe cognition impairment which were shown in the Table 2.

Table 2: Prevalence of dementia according to MMSE grading.

Type of impairment	Frequency (N)	Percentage (%)
Normal cognition (G5 and G4)	77	64.7
Mild cognition impairment (G3)	15	12.6
Moderate cognition impairment (G2 and G1)	15	12.6
Severe cognition impairment (G0)	12	10.1
Total	119	100

Total prevalence of dementia was found to be 35.3% i.e. by combining mild, moderate and severe cognitive

impairment in a rural community of cherlapally village, shown in the Figure 2.

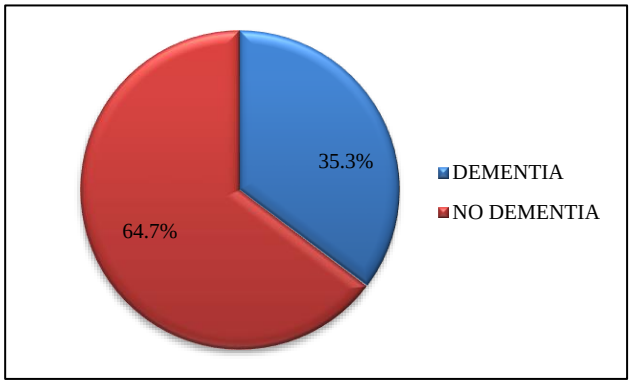

Figure 2: Prevalence of dementia among the study population

This study showed prevalence of dementia among elderly population according to age; of which highest was noted among aged 81 years and above (61.90%). It indicates as age increases incidence of dementia increases, shown in the Figure 3.

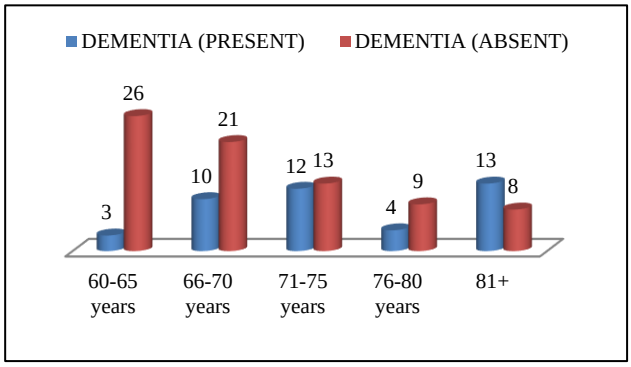

Figure 3: Prevalence of dementia in study subject according to age.

Table 3: Risk factors association with dementia.

Risk factors	Dementia		P value
	Present (%)	Absent (%)	
Middle age obesity			
Yes	35 (53.85)	30 (46.15)	0.002
No	14 (25.93)	40 (74.07)	
Smoking			
Yes	50 (72.46)	19 (27.54)	0.012
No	25 (50)	25 (50)	
Alcohol consumption			
Yes	61 (88.41)	8 (11.59)	0.0001
No	25 (50)	25 (50)	
Social isolation			
Yes	40 (60.61)	26 (39.39)	0.004
No	18 (31.58)	35 (68.42)	

Dementia showed positive association with the risk factors such as middle age obesity, smoking, alcohol consumption and social isolation which were statistically significant ($p<0.05$) indicates that there were high chances of incidence of early dementia with above risk factors, which were depicted in the Table 3.

And some of the behavioral practices such as regular exercise, disciplined life style, sound sleep showed statistical significant association ($p<0.05$) in order to prevent early dementia, shown in the Table 4.

Table 4: Association with behavioural practices in relation to dementia.

Behavioural practices	Dementia		P value
	Present (%)	Absent (%)	
Regular exercise			
Yes	19 (27.54)	50 (72.46)	0.012
No	25 (50)	25 (50)	
Disciplined lifestyle			
Yes	30 (46.15)	35 (53.85)	0.002
No	40 (74.07)	14 (25.93)	
Sound sleep			
Yes	30 (46.15)	35 (53.85)	0.002
No	40 (74.07)	14 (25.93)	

DISCUSSION

Investigations have documented for the different prevalence rates for dementia in community surveys in India and in the West.[5] The reported prevalence has been lower in India (1.36-3.50%) compared with the West (5.9-9.4%).[4]

The prevalence rate of dementia was 35.3% in our study and was well within the range of prevalence rates reported from other studies conducted in India i.e. Tiwari et al; Shaji et al; Chandra et al and Vas et al.[10-12] Prince reviewed seven published prevalence surveys from the developing world and reported that the prevalence of dementia ranged from 13 per 1000 to 53 per 1000 for all those aged 60 years and above.[13]

Mild cognitive impairment in this study was 12.6% but where as in the study by Tiwari et al. the prevalence was 5.4% among the elderly population.[10] The prevalence of dementia in rural community of Kerala study by Shaji et al showed 31.9% and in our study done in rural community of Nalgonda district, Telangana showed 35.3%.[11]

In Pinto et al study, it has been observed that increased cognitive impairment was associated with more activity disturbances, hallucinations, agitation and sleep disturbance however delusions, affective disturbances, anxieties and phobias improved with worsening of cognitive status.[14] In our study it was observed that middle age obesity, smoking, alcohol consumption and

social isolation had significant association leading to dementia. Regular exercise, discipline life style and adequate sleep behavioural practices showed statistical significance that can prevent early dementia.

With improvement in health care and decreasing death rate, these prevalence figures are bound to increase further. In developing nations such as India, where there is a dearth of facilities such as day care centres or long term residential institutions for people with dementia, the problem of adequate management of patients with dementia is further compounded by the presence of these behavioural problems.

One of the limitations of this study is cross sectional study and also involved small sample and generalization of the present study findings in the population is not advisable. But, this study will give some insight about the gravity of dementia among elderly population and factors association with dementia will give some clue to the current practitioners as well as policy makers.

CONCLUSION

Present study was undertaken to know the prevalence of dementia among elderly population in rural population of Nalgonda district, Telangana. To assess the association with the risk factors that leads to dementia, and also to see the association among the behavioural practices if followed that can prevent early dementia. Our study showed statistical significant association between dementia and few risk factors like middle age obesity, smoking, alcohol consumption and social isolation, behavioural practices like regular exercise, disciplined life style and sound sleep showed significant association in preventing early dementia. In our study prevalence of dementia was 35.3%, (mild 12.6%, moderate 12.6% and severe 10.1%) of which most of the subjects had mild to moderate dementia and were farmers aged more than 70 years showed significant association with risk factors. Illiteracy, age, social isolation, sleep and lack of behavioural practices were the most important risk factor for poor cognitive impairment leading to early dementia.

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Conflict of interest: None declared
Ethical approval: Approval from Institutional Ethics Committee of KIMS

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