**Original Research Article**

# Prevalence of Hypertension and Diabetes among the rural Elderly in South India

## Surendranath Borra[1*], Vani Madhavi Kommula[2] and M. Sai Jyothirmai[3]

[1]Department of Surgery, KIMS, Amalapuram, East Godavari District, Andhra Pradesh, India
[2]Department of Community Medicine, KIMS, Amalapuram, East Godavari District, Andhra Pradesh, India
[3]Final MBBS student, KIMS, Amalapuram, East Godavari District, Andhra Pradesh, India

*\*Corresponding author*

**A B S T R A C T**

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| **K e y w o r d s**<br><br>Hypertension,<br>Diabetes,<br>Rural area,<br>Elderly people | The World population is ageing rapidly, although old age is not a disease itself, the elderly are vulnerable to chronic diseases. These chronic illnesses lead to impairments and disabilities. The aim of the study is to study the prevalence of hypertension and diabetes among the elderly people in the rural area. Study design: Cross sectional study. Setting: Rural field practice area of Konaseema Institute of Medical Sciences (KIMS), Andhra Pradesh, India. Subjects: 100 subjects (50 male and 50 female) of age $\geq$ 60 years. Study variables: Age, educational status, marital status, economic dependence, diabetes, hypertension. Statistical analysis: It was done using Epi-info version 7.0. Majority (68%) were in the age group of 60–69 years, 58% were illiterate, 27% were widowed, 62% were economically fully dependent on their children. 24% were having diabetes and 32% were having hypertension. Prevalence of hypertension and diabetes are increasing in the developing countries. There is a need for screening of elderly for chronic diseases. |

## Introduction

The World population is ageing rapidly because of advancement medicare, improvement in living conditions and the general quality of life and effective measures for birth control could be attributed to this emerging global phenomenon (Balamurugan and Ramathirtham, 2012).

According to 2011 census in India 76,622,321 are 60 years and above constituting 7.5% of the total population. Although old age is not a disease itself, the elderly are vulnerable to chronic diseases. These chronic illnesses lead to impairments and disabilities (Chandrakanth Lahariya *et al.,* 2012).

The physiological decline in ageing refers to the physical changes an individual experiences because of the decline in the normal functioning of the body resulting in

poor mobility, vision, hearing, inability to eat and digest food properly, a decline in memory, the inability to control certain physiological functions and various chronic conditions. Change in socio- economic status adversely affects the individual's way of life after retirement. The economic loss is due to a change from salary to pension or unemployment leading to economic dependency on children or relatives.

A feeling of low self worth may be felt due to the loss of earning power and social recognition (Lena *et al.,* 2009). Majority of the elderly in rural India live with no social security (Umajoshi and Sheetal Mehta, 2013).

Problem of aging is more in rural areas due to rural urban migration of youth in search of education employment leaving behind the elders in villages. Several community based investigations have served to emphasize that hypertension is rapidly emerging as a major public health problem also in developing countries (Fuentes *et al.,* 2000). Prevalence of diabetes is also increasing and undiagnosed diabetes is associated with increased risk of all-cause mortality (Wild *et al.,* 2005). In our area only a few of these studies included elderly people. Therefore keeping this in mind the present study was done in order to know the prevalence of hypertension and diabetes among the elderly in our catchment area.

**Material and Methods**

The present study is a community based cross sectional study carried at two randomly selected revenue villages in the rural field practice area of Konaseema Institute of Medical Sciences (KIMS), Andhra Pradesh, India. By using convenient sampling method 100 subjects (50 male and 50 female) ≥ 60 years who are residing in the selected villages, who were available at

the time of visit, who were willing to participate were included in the study. Approval from the Institutional Ethics Committee was taken prior to the study initiation and written consent was taken from the participants after explaining the objectives and procedure of the study. Pretested semi structured questionnaire was used to collect the data regarding demographic profile.

Blood pressure was recorded using OMERON 705 automatic BP recording machine, it was classified according to JNC-VII hypertension criteria or treatment with antihypertensive drugs. A fasting blood was collected at home by a staff phlebotomist diabetes was classified according to ADA criteria. The data was processed and statistical analysis was done using Epi-info version 7.0.

**Result and Discussion**

The study participants were 50 male and 50 female of age equal to are more than 60 years. Majority (68%) were in the age group of 60 − 69 years. Marital status determines ones position within the family a well as the status in the society. In our study 72% of the participants were married and 27% were widowed, in contrast to this a study by Lena *et al.* (2009) reported 79.8% were widow / widower.

In our study 58% were illiterate and there is a lot of difference between male and female educational status. Among the males 38% were illiterate where as among females 78% were illiterate and it is found statistically significant. In contrast to this Padda *et al.* (1998) reported 38.6% illiteracy at Amritsar. The difference between male and female educational status was mainly because of the rural area in those days they used to give least importance to the education of the females in the rural areas.

**Table.1** Socio demographic profile of the participants

| Variables | | Male (%) N = 50 | Female (%) N = 50 | |
|---|---|---|---|---|
| **Age** | 60-69 | 35 (70) | 33 (66) | $\chi^2 = 0.2134$ P = 0.8988 |
| | 70-79 | 11 (22) | 12 (24) | |
| | ≥80 | 4 (8) | 5 (10) | |
| **Marital Status** | Married | 39 (78) | 33 (66) | $\chi^2 = 3.3148$ P = 0.1906 |
| | Widowed | 10 (20) | 17 (34) | |
| | Unmarried | 1 (2) | 0 (0) | |
| **Educational Status** | Illiterate | 19 (38) | 39 (78) | $\chi^2 = 21.468$ P = 0.0003 |
| | Primary | 12 (24) | 9 (18) | |
| | Secondary | 12 (24) | 2 (4) | |
| | Intermediate | 4 (8) | 0 (0) | |
| | Degree and above | 3 (6) | 0 (0) | |
| **Economic Dependence** | Fully Dependant | 25 (50) | 37 (74) | $\chi^2 = 29.2713$ P = 0.0000 |
| | Independent | 24 (48) | 2 (4) | |
| | Partially Dependent | 1 (2) | 11 (22) | |

**Table.2** Hypertension among the participants

| Hypertension | Male Number (%) | Female Number (%) | Total |
|---|---|---|---|
| Yes | 19 (38.00%) | 13 (26.00%) | 32 |
| No | 31(62.00%) | 37 (74.00%) | 68 |

$\chi^2 = 1.6379$      P = 0.1041

**Table.3** Diabetes among the participants

| Diabetes | Male Number (%) | Female Number (%) | Total |
|---|---|---|---|
| Yes | 13 (26.00%) | 11 (22.00%) | 24 |
| No | 37 (74.00%) | 39 (78.00%) | 76 |

$\chi^2 = 0.2171$      P = 0.3245

In our study 62% were economically fully dependent on their children, among the males 24% were economically independent where as among females only 4% were economically independent and it is found statistically significant (Table – 1). In another study by Bhaskaraiah *et al.* (2013) stated that 54% were fully dependent on their children followed by 27.67% were independent.

In our study 32% were having hypertension among the males 38% were having hypertension where as among the females 26% were hypertensives (Table 2). Saxena *et al.* (2012) reported almost similar results. In contrast to the Lena *et al.* (2009) reported 59.1% of the participants were hypertensives. Naushad Alam *et al.* (2015) in an urban slum area of Chhattisgarh observed the overall prevalence of

hypertension 50% and more among the females (55.49%).

In our study 24% were having diabetes among the males 26% and among the females 22% were having diabetes (Table 3). In contrast to the Nilesh Agarwal *et al.* (2011) reported diabetes in 6.9% of the participants. Genetic factors and food habits and lack of physical activity may be responsible for such a high prevalence of diabetes among the elderly in our area. Special focus is needed regarding the literacy of the rural people and aged population should be brought under an economic security plan. There is a need for screening of elderly for chronic diseases. Geriatric departments should be initiated at all levels of health care and adhoc programmes for rural elderly to be initiated along with public private partnership.

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## References

Balamurugan, J., Ramathirtham, G. 2012. Health problem of the aged people. *Int. J. Res. Soc. Sci.,* 2(3): 139–150.

Bhaskaraiah, M., Murugaiah, K. 2013. Utilisation of health services by rural elderly: A study in Chittoor District of Andhra Pradesh. Help age India. *Res. Dev. J.,* 19(1): 28–39.

Chandrakanth Lahariya, Jyoti Khandekar, Shishir K. Pradhan. 2012. Effect of impairment and disability on health related quality of life elderly a community based study from urban India. *Indian J. Commun. Med.,* 37(4): 223–226.

Fuentes, R., Ilmaniemi, N., Laurikainen, E., Tuomilehto, J., Nissinen, A. 2000. Hypertension in developing economies: a review of population-based studies carried out from 1980 to 1998. *J. Hypertens.,* 18: 521–529.

Lena, A., Ashok, K., Padma, M., Kamath, V., Kamath, A. 2009. Health and social problems of the elderly: A cross-sectional study in Udupi Taluk, Karnataka. *Indian J. Commun. Med.,* 34(2): 131–134.

Md. Naushad Alam, Gopal Prasad Soni, Kamlesh Kumar Jain, 2015. Prevalence and determinants of hypertension in elderly population of Raipur city, Chhattisgarh. *Int. J. Res. Med. Sci.,* 3(3): 568–573.

Nilesh Agarwal, Kalaivani, M., Sanjeev K. Gupta, Puneet Misra, Anand, K., Chandrakant S. Pandav. 2011. Association of blindness and hearing impairment with mortality in a cohort of elderly persons in a rural area. Indian J. Commun. Med., 36(3): 208–212.

Padda, A.S., Mohan, V., Singh, J. 1998. Health profile of aged persons in urban and rural field practice areas of Medical College Amritsar. *Indian J. Commun. Med.,* 23: 72–76.

Saxena, V., Kandpal, S.D., Goel, D., Bansal, S. 2012. Health status of elderly - A community based study. *Indian J. Commun. Health,* 24(4): 269–274.

Umajoshi, Ms. Sheetal Mehta, 2013. How do the elderly perceive a day care centre for themselves. *Int. J. Sci. Res.,* 2(2): 386–389.

Wild, S.H., Smith, F.B., Lee, A.J., Fowkes, F.G. 2005. Criteria for previously undiagnosed diabetes and risk of mortality: 15-year follow-up of the Edinburgh Artery Study cohort. *Diabet. Med.,* 22: 490–496.