

## THE PATTERN OF THE DISTRIBUTION OF AGED POPULATION IN RURAL KARNATAKA : A SPATIAL ANALYSIS

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### ABSTRACT

*According to 2001 census the total aged population of Karnataka was 40,62,022, which is 7.7 per cent of the total population. Of them 28,89,594 (71 per cent) were in rural areas and the remaining 11,72,428 (29 per cent) in urban areas. This indicates that majority of the aged population are concentrated in rural areas of the State. Hence it is appropriate to analyse the spatial pattern of the distribution of aged population in Karnataka and essential to study the regional variation in the distribution of rural aged population in the State; which might give a suggestion to the planners to provide good and necessary policies and programmes. The present paper covers the whole State and analysis is made at district and village levels. The data are analysed at different levels based on the secondary data collected from census and at village level based on the primary data collected by field investigation carried out at the micro level for which 13 sample villages were selected. The sample consisted of 1201 elderly people, among them 592 were males and 609 females. From both the district and village level analysis it was found that Tumkur, Hassan, Dakshina Kannada and Davangere have more than 6.5 per cent of the elder population.*

### Introduction

Population ageing is one of the most significant phenomena of the 20<sup>th</sup> century, which has affected most part of the world including India; Karnataka is not an exception for this. According to 2001 census, it is the sixth most populous State in terms of proportion of aged population in India after Kerala (10.5 per cent), Himachal Pradesh and

Punjab (9 per cent), Tamil Nadu (8.8 per cent), Maharashtra (8.7 per cent), Goa and Pondicherry (8.3 per cent) Karnataka has 7.7 per cent of the old age population, which is above the national average of 7.6 per cent.

In 2001, the State's total aged population to total population was 40,62,022, which is 7.7 per cent of the total population. Of them 28,89,594 (71 per cent) were in rural areas

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and the remaining 11,72,428 (29 per cent) in urban areas. This indicates that majority of the aged population were concentrated in rural areas. This may be due to more out-migration of the young people towards the city, decreasing birth and death rates etc. Another significant point is that the proportion of females among aged population was more (males 7.7 per cent and females 8.8 per cent), because of high life expectancy (males 63.1 and females 66.7 years) of females.

Karnataka has thus witnessed tremendous differences in the distribution of old age population between rural and urban Karnataka. However, these differences are not uniform among all the districts, some districts of the State have high proportion of rural old age population, while the others have less or moderate proportion depending on the regional socio-economic and demographic structure. It is because of this that it is essential to study the regional variation of rural aged population distribution in the State; it helps to find out the extent of concentration, which might give a suggestion to the planners and policy makers to provide good and necessary policies and programmes.

The aged population is defined as those who are 60 years and above, which is normally adopted in most of the studies. There are many scholars from different disciplines who have focused on the concept of population ageing at different levels. Leela Gulati (1993) has conducted a study on population ageing and women in Kerala State. The study examines the ageing of the female population in the State of Kerala in the light of current and future demographic trends as well as the social and economic implication of this process. Bhim P. Subedi (1996) made a study of the geo-demographic context of population ageing in Nepal, during the period from 1952 to 1991 based on the census and vital statistics. He revealed that the process of ageing of

population is mainly determined by the trend of fertility, mortality and migration. Daksha C. Barai (1997) emphasised the impact of population change on older age groups in India since 1901 to 1991 and examined the demographic causes (CBR, CDR, life expectancy), consequences (dependency, sex ratio, labour force) and related issues. D.P. Singh and Princy Yesudian (2007) made a study on, after age 60 in India from 1951 to 2001, using secondary data collected from decennial census and NSSO. The study examines the spatial pattern of population ageing, both in rural and urban areas in India in the light of present and past demographic trends, as well as the social and economical implication of this process.

All these studies have concentrated on broad analysis of the process of population ageing (growth, pattern, causes and consequences) at macro level taking states and countries as a unit of the study.

The present study is an attempt to focus only on the rural aged population distribution in Karnataka State taking district as a unit of analysis.

*Objectives of the Study* : The study attempts to examine the spatial distribution pattern of rural aged population in Karnataka State at district level, to compare this pattern of population ageing with that at the village level.

*Study Area* : Karnataka State lies in the south-western part of the peninsular India. The State extends for about 750 kms from north to south and about 400 kms from east to west. Karnataka's total land area is 1.91.791 sq kms. It accounts for 5.83 per cent of the total area of the country (32.88 lakh sq kms) and ranks eight among the major States of India in terms of size. As per the 2001 census, the State's population was 5.27 crores out of whom 2.68 crores were males and 2.58 crores females.

Among different States of India, Karnataka occupies ninth place with regard to population. In 2001 the State has 27 districts, 176 Taluks, 745 Hoblis, and 254 Town-cities.

### **Methodology**

The paper covers Karnataka as a whole. District and villages form the units of analysis. The data were analysed at different levels based both on the secondary data collected from census office and the primary data, which are collected by field investigations carried out at the micro level taking 13 sample villages in 2002. The sample consisted of 1201 elderly people among whom 592 were males and 609 females.

The selection of sample villages was made through random sample on the basis of socio, economic, cultural and geographical factors and the data were analysed using different statistical and choropleth techniques.

### **Discussion**

The proportion of aged population is a fundamental issue and its disparity is of prime concern in the analysis of population ageing. The geographer's task is to analyse the diversity of phenomena in different spatial units. In this context, the present investigation

aims at analysing the spatial pattern of rural aged population distribution.

*Spatial Pattern of Aged Population Distribution – A District Level Analysis:* In 2001, the rural aged population of the State amounted to about 8.2 per cent of the total rural population. But this is 8.8 per cent for females and 7.7 per cent for males. The distribution of rural aged population is uneven when the district-wise figures are noticed (Table 1). Largest proportion of aged population was recorded in Udupi district (11 per cent), while lowest proportion was noticed in Raichur (6 per cent).

The most striking feature of the distribution of rural aged population is its high concentration in the south and coastal regions of the State and less concentration of aged population in few districts in the north-east and central part of Karnataka, which is apparent from map 1. It of course needs further investigation to find out the reasons. On the basis of distribution of aged population, the State could be divided into three regions (Table 2).

1. Areas of high proportion < 9 per cent
2. Areas of medium proportion 7-9 per cent
3. Areas of low proportion >7 per cent

**Table 1 : Proportion of Rural Aged Population Distribution (2001)**

Districts	% of total rural aged population to total rural population	% of rural male aged population to total rural male population	% of rural female aged population to total rural female population
Belgaum	8.2	7.5	8.9
Bagalkote	7.4	6.5	8.4
Bijapura	8.2	7.6	9
Gulbarga	7.4	6.6	8.2
Bidar	8.5	8.1	9
Raichur	6	5.2	6.9
Koppal	6.4	5.3	7.5
Gadag	7.9	6.7	9.1
Dharwadh	7.7	7.1	8.4
Uttar Kannada	8.1	7.5	8.7
Haveri	7.2	6.6	7.9
Bellary	6.5	5.7	7.4
Chitradurga	8.7	8.5	8.9
Davangere	7.8	7.3	8.5
Shimogha	7.6	7.1	8.1
Udupi	11	10.1	11.3
Chikkamagaluru	8.3	8.1	8.5
Tumkur	9.7	9.4	10
Kolar	9.1	9	9.3
Bangalore Urban	7	6.8	7.2
Bangalore Rural	9.6	9.3	10
Mandya	9.6	8.8	10.4
Hassan	9.2	8.5	9.8
Dakshina Kannada	8.4	8	8.8
Kodagu	7.9	7.5	8.2
Mysore	8.5	8	9
Chamarajanagara	9.1	8.7	9.4
Karnataka	8.2	7.7	8.8

Source : Census of India 2001.

**Table 2 : Proportion of Aged Population and No. of Districts**

Proportion	Total Population	Male Population	Female Population
Rural aged population	No. of Districts	No. of Districts	No. of Districts
High (< 9%)	7 (26)	3(11.1)	8 (29.6)
Medium (7% – 9%)	16(59)	16(59.2)	18(66.6)
Less (> 7%)	4(15)	8(29.6)	1(3.7)
Total districts	27(100)	27(100)	27(100)

Source : Compiled by the author.

Figures in parentheses indicate per cent to total No. of districts.

*Areas of High Proportion:* The area of high proportion stretches over seven districts covering 26 per cent of the total districts where the proportion of the aged population exceed 9 per cent and six of these districts are located in the southern part of the State, they are Tumkur (9.7 per cent), Kolar (9.1 per cent), Bangalore rural (9.6 per cent), Mandya (9.6 per cent), Hassan (9.2 per cent), Chamarajanagara (9.1 per cent) and one district namely Udupi (11 per cent) is located in the coastal area. The high proportion of aged population in these areas may be due to higher demographic development in terms of fertility, mortality, life expectancy, literacy, sex ratio, urbanisation etc. which was revealed by Mohan Kumar's study, (M.D. Mohan Kumar. 2007).

Further, the area of higher proportion of female aged population stretches over eight districts and that of male proportion over three districts. This again is found in the southern and coastal Karnataka. It shows that area of high proportion of aged population is little larger for females (29.6 per cent) than for males.

*Areas of Moderate Proportion :* The percentage of aged population between 7– 9 per cent represents the medium proportion. The medium proportion of rural aged

population has been found in 16 districts; covering 59 per cent of the total districts. These districts are mainly concentrated in north, few districts in coastal and south Karnataka.

Medium proportion of male aged population is noticed in 16 districts, covering 59.2 per cent and that of females in 18 (66.6 per cent). It means that area of medium proportion of female aged population is also larger than its male counterpart.

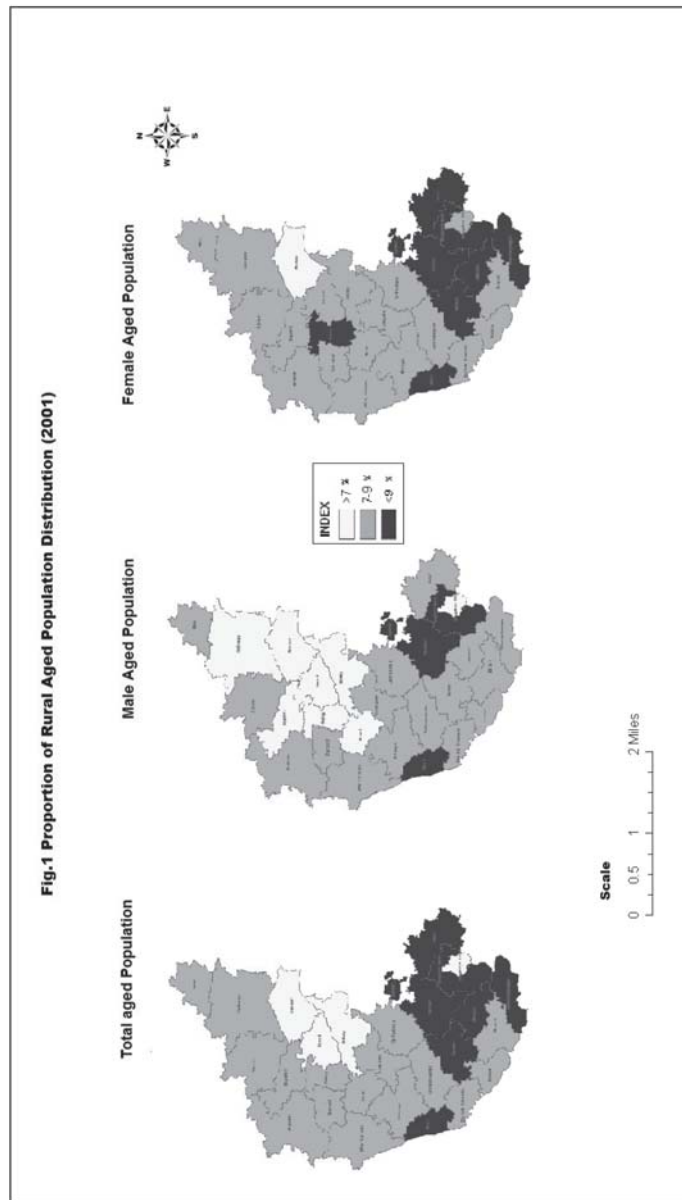
*Areas of Low Proportion :* In four districts namely, Raichur, Koppal, Bellary, and Bangalore (Urban), the proportion of aged population does not exceed 7 per cent and three districts of them are located in the north-eastern region, where young population is more because of higher fertility rate and another district is Bangalore Urban, which receives more in – migrants of relatively younger age groups resulting in the high proportion of younger population than the aged population.

Lower proportion of male aged is concentrated in eight districts namely, Bagalkote, Gulbarga, Raichur, Koppal, Gadag, Haveri, Bellary and Bangalore Urban. Among these, except Bangalore Urban remaining seven districts are located in the north Karnataka. However, there is only one district

i.e. Raichur 6.9 per cent, which shows the lower concentration of aged females also.

high proportion of aged population, 59 per cent of the districts have moderate proportion and only 15 per cent of the districts have lower proportion of aged population (Table 2).

The analysis thus indicates that around 26 per cent of the districts in the State have

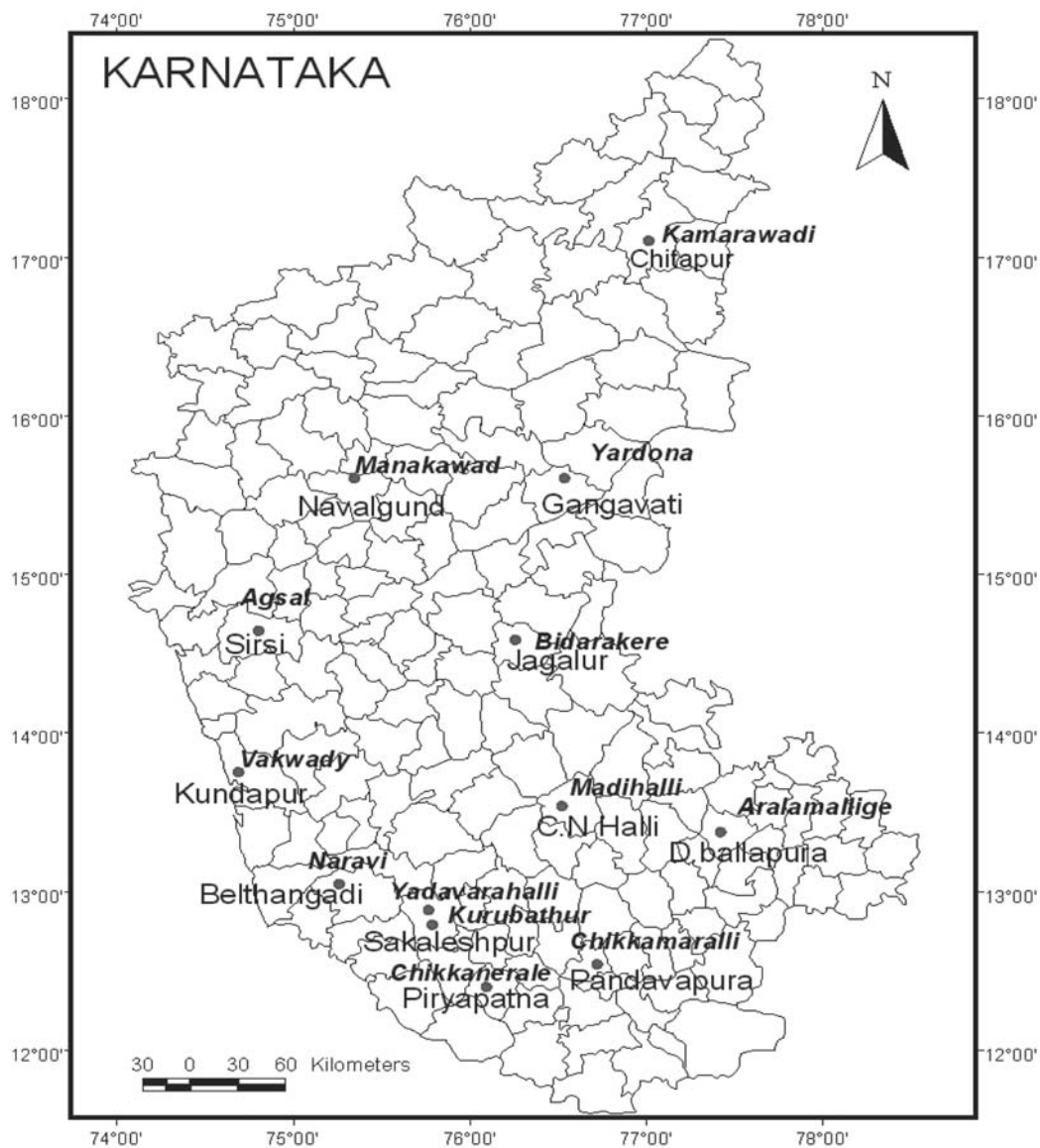


**Village Level Analysis**

In this section, it is attempted to compare the pattern of population ageing at village level with that of the district. For this purpose

data collected for B.N.Shivalingappa's UGC project (2007) are utilised. The analysis is based on 13 sample villages spread over the entire State representing different geographical, social and economic features.

**Fig. 2 : Location of Selected Sample Villages and Taluks in Karnataka**



**Table 3 : Sample Villages - Some Socio-economic Characteristics**

Village name	Taluk & District	Population 2002	No. of house-holds	Geographical Region	Irrigational Type	Literacy rate	Working population	Non-working population
Chikkanerale	Periyapatna Mysore	895	187	Southern maidan semi maidan	Dry	62.4	32.96	67.04
Chikkamaralli	Pandavapura Mandya	1500	332	Southern maidan	Canal	57.7	44	56
Aralamallige	D.Ballapura Bangalore rural	1869	456	Southern maidan	Tank	71.1	43.23	56.77
Madihalli	C.N.Halli Tumkur	663	159	Southern maidan	Dry	79.3	39.22	60.78
Bidarakere	Jagalur Davangere	2800	605	Southern maidan	Dry	67.7	41.54	58.46
Manakawad	Navalgunda Dharwad	1991	389	Northern maidan	Dry	62.6	47.21	52.79
Yardona	Gangavati Koppal	6676	1277	Northern maidan	Canal	47.5	45.54	54.46
Kamarawadi	Chitapura Gulbarga	1484	278	Northern maidan	Dry	44.6	39.82	60.18
Kurubathur	Sakleshpura Hassan	459	101	Western ghats	Rainfall	80.1	53.45	47.54
Yadavarahalli	Sakleshpur Hassan	329	79	Western ghats	Rainfall	68.6	44.38	55.62
Agsal	Uttara Kannada	894	168	Western ghats	Rainfall	77	45.64	54.36
Naravi	Belthangadi D.Kannada	3524	722	Coastal foothills of western ghats	Rainfall	69.8	45.91	54.09
Vakwadi	Kundapura Udupi	2357	412	Coastal foothills of western ghats	Rainfall	71.8	33.05	66.95

Source : Field Survey (2002).



Table 4 : Sample Villages - Age - Sex Composition

Villages	Age - Sex Composition											
	Total			0-14			15-59			60+		
	Tot	Male	Fem	Tot	Male	Fem	Tot	Male	Fem	Tot	Male	Fem
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Chikkanerale	895	432 (48)	463 (52)	276 (31)	137 (32)	139 (30)	583 (65)	275 (64)	308 (66)	36 (4)	19 (4.4)	17 (3.7)
Chikkamaralli	1500	733 (49)	767 (51)	429 (29)	211 (30)	218 (28)	986 (66)	489 (67)	497 (65)	85 (5.6)	33 (4.5)	52 (6.8)
Aralamallige	1869	918 (49)	951 (51)	494 (26)	250 (27)	244 (26)	1266 (68)	604 (66)	662 (70)	109 (5.8)	64 (7)	45 (4.7)
Madihalli	663	330 (49.7)	333 (50)	134 (20)	75 (23)	59 (18)	464 (70)	218 (66)	246 (74)	65 (9.8)	37 (11.2)	28 (8.4)
Bidarakere	2800	1377 (49)	1423 (50)	791 (28)	410 (30)	381 (27)	1812 (65)	877 (64)	935 (66.7)	197 (7)	90 (6.5)	107 (7.5)
Manakawad	1991	1010 (51)	981 (49)	523 (26)	249 (25)	274 (28)	1322 (66)	677 (63)	645 (66)	146 (7.3)	85 (8.4)	61 (6.1)
Yardona	6676	3282 (49)	3394 (51)	2580 (39)	1308 (40)	1272 (37)	3902 (58)	1896 (58)	2006 (59)	194 (2.9)	80 (2.4)	114 (3.3)
Kamarawadi	1484	747 (50.4)	737 (49.6)	615 (41)	318 (42)	297 (40)	789 (53)	386 (52)	403 (55)	80 (5.4)	44 (4.9)	36 (5.7)
Kurubathur	459	228 (49.6)	231 (50.4)	142 (31)	76 (33)	66 (29)	287 (63)	136 (60)	151 (65)	30 (6.5)	16 (7)	14 (6)

(Contd.)

**Table 4 : (Contd.)**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Yadavarahalli	329	152 (46)	177 (54)	92 (28)	38 (25)	54 (30)	225 (68)	108 (71)	117 (66)	12 (3.6)	6 (3.9)	6 (3.4)
Agsal	894	456 (51)	438 (49)	231 (26)	121 (27)	110 (25)	605 (68)	309 (68)	296 (68)	58 (6.5)	26 (5.7)	32 (7.3)
Naravi	3524	528 (47)	603 (53)	293 (26)	133 (25)	160 (26)	736 (65)	338 (64)	398 (66)	102 (9)	57 (10.8)	45 (7.4)
Vakwadi	2357	1059 (45)	1298 (55)	658 (28)	319 (30)	339 (26)	1547 (66)	669 (63)	878 (68)	152 (6.5)	72 (6.8)	80 (6.1)

Source : Field Survey (2002).

Figures in parentheses indicate the percentage.

It is attempted in this section to study the various demographic variables of sample villages of Karnataka and to see the disparities in the distribution of aged population.

Tables 3 and 4 show the socio-economic and demographic characteristics of the sample villages. Age groups of population show that Kamarvadi and Yardona villages have more than 40 per cent of dependent population and remaining villages have more than 30 per cent of the dependent population (below 15 years).

Literacy of sample villages shows that only Kamarvadi and Yardona villages have below 45 per cent of literacy rate and Madihalli, Kurubathur and Naravi villages have above 70 per cent of literacy rate. It thus indicates that north-eastern part of Karnataka is education-wise relatively backward.

About 30 to 45 per cent of total population in each village is working population engaged in different occupations. Large proportion of workers are mainly found in agriculture.

However, Table 4 reveals that Yardona and Kamarvadi have high young age population, low literacy (below 45 per cent) and more non-working population compared to other villages leading to poor socio – economic and demographic development. As a result, these two villages have relatively less proportion of old age population, while Madihalli, Manakavadi, Bidarkere, Naravi and Kurubhatur have high literacy (above 62 per cent) and high working population leading to relatively high development and to high and medium proportion of (more than 6.5 per cent) old age population.

**Table 5 : Old Age and Sex Composition of Selected Villages in Karnataka**

Villages	% of aged population to total population	% of male aged population to total male population	% of female aged population to total female population
Vakwadi	6.5	6.8	6.1
Manakvadi	7.3	8.4	6.2
Kamarvadi	5.4	5.9	4.9
Agsala	6.5	5.7	7.3
Yardona	2.9	2.4	3.3
Bidarkere	7.1	6.5	7.5
Chikkamaralli	5.6	4.5	6.8
Chikkanerale	4	4.4	3.7
Aralumallige	5.8	7	4.7
Kurubatur	6.5	7	6
Yardavarahalli	3.6	3.9	3.4
Naravi	9.1	10.8	7.4
Madihalli	9.8	11.2	8.4
Total	5.5	5.6	5.4

Source : Primary Survey data.

Finally, Table 4 revealed that Naravi and Madihalli have high proportion of old age population while Yardona and Kamarvadi have

low proportion of aged population (mainly due to the demographic development of the village).

**Chart 1 : Sex-wise Old Age Population of Sample Villages in Karnataka**

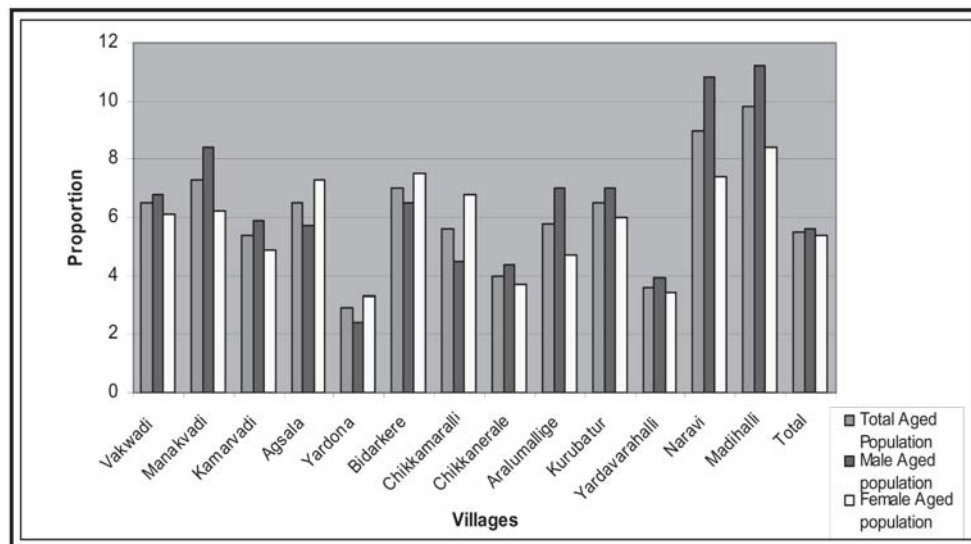


Table 5 reveals that out of 13 villages the highest proportion of ageing population is concentrated only in two villages namely, Madihalli having 9.8 per cent (Tumkur) and Naravi 9 per cent (Dakshina Kannada). The lower proportion of ageing population of below 7 per cent is found in 9 villages namely, Aralumallige (Bangalore rural) 5.8 per cent, Chikkamaralli (Mandya) 5.6 per cent, Kamaravadi (Gulbarga) 5.4 per cent, Chikkanerale (Mysore) 4 per cent, Yadavarahalli (Hassan) 3.6 per cent and 3 villages namely Vakwadi in Udupi, Agsala in North Kanara and Kurubathur in Hassan are having 6.5 per cent, while lowest is found in Yadona village with only 2.9 per cent (Chart 2).

Remaining two villages have medium proportion of between 7-9 per cent, Manakvadi (7.3 per cent) in Dharwad and Bidarkere (7.1 per cent) in Davangere. It indicates that the proportion of female aged

population distribution at village level is different from that of district level. It also shows that the male aged population is more than female aged population in most of the villages, except in Yardona (2.4 per cent males and 3.3 per cent females), Agsala (5.7 per cent and 7.3 per cent) and Bidarkere (6.5 per cent and 7.5 per cent).

However, both the district and village level analysis reveal that majority of southern districts viz., Tumkur (9.7 per cent at district level and 9.8 per cent at village level), Hassan (6.5 per cent and 9.2 per cent), Dakshina Kannada (9 per cent and 8.4 per cent) and Davangere (7 per cent and 7.8 per cent) have higher percentage of elder population compared to other districts.

### Summary

The analyses made above can be summarised as below :

- \* In 2001, the State's total aged population was 40,62,022, which is 7.7 per cent of the total population. Of them 28,89,594 (71 per cent) were in rural areas and the remaining 11,72,428 (29 per cent) in urban areas.
- \* Though the rural aged population of the State amounted to about 8.2 per cent of the total rural population, it is 8.8 per cent for female aged population and 7.7 per cent for male aged.
- \* More than 25 per cent of the districts have high proportion of aged population and 59 per cent of the districts have moderate proportion and only 15 per cent of the districts have lower proportion. The female elders outnumber their male counterparts in all the districts.
- \* It is clear that the spatial pattern of proportion of rural aged population is unevenly distributed in the State, but more concentration is in the southern part of rural Karnataka.
- \* The village level analysis revealed that Yardon and Kamarvadi both in north Karnataka, have high young age population, low literacy (below 45 per cent) and more non-working population compared to other villages indicating poor socio – economic and demographic development. As a result, these two villages have relatively less proportion of old age population, while Madihalli, Manakavadi, Bidarkere, Naravi and Kurubhatur have high literacy and high working population indicating relatively higher development with high and medium proportion of (more than 6.5 per cent) old age population.
- \* The proportion of female aged population at village level is different from that of district level. The male aged population is more than female aged population in most of the villages, except Yardon (2.4 per cent males and 3.3 per cent females), Agsala (5.7 per cent and 7.3 per cent) and Bidarkere (6.5 per cent and 7.5 per cent) and Chikkamaralli (4.5 per cent males and 6.8 per cent females).

### Conclusion

It is clear from the analysis made both at district and village levels that broadly southern part of rural Karnataka has higher proportion of aged population. This could be due to higher level of demographic development in terms of literacy, percentage of working population to total population, percentage of young dependency ratio etc. in addition to higher level of economic development in the southern districts.

### Recommendations

The findings of the study warrant that the government of Karnataka should devise and adopt appropriate strategies to bring about higher demographic and economic development in those areas where the proportion of aged population is relatively low.

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