
Healthy Life Expectancy in the Context of Population Health and Ageing in South India

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Abstract

This study examines the healthy life expectancy of elderly populations in South Indian states—Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, and Telangana—by analyzing chronic morbidity patterns and life expectancy using data from the Longitudinal Ageing Study in India (LASI) and the Sample Registration System (SRS). Utilizing the Sullivan method, the study estimates life expectancy free of chronic conditions and identifies gender and urban-rural disparities. Findings indicate significant regional and demographic variations in morbidity and healthy life expectancy, emphasizing the need for targeted health interventions and policy responses..

Keywords:

Healthy life expectancy, population ageing, chronic morbidity, South India, Sullivan method, LASI

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1. Introduction

Population ageing represents a major demographic transformation driven by declining fertility and increased longevity. It is acknowledged as one of the four global "megatrends," alongside population growth, migration, and urbanization, influencing sustainable development globally. According to the United Nations (2019), the number of people aged 65 and above will double from 703 million in 2019 to 1.5 billion by 2050, constituting 16% of the global population. This shift has been most rapid in Eastern and South-Eastern Asia, as well as in Latin America.

India is witnessing rapid ageing, with the share of the elderly population projected to increase from 8.9% in 2015 to 19.4% by 2050. By the end of the century, 34% of India's population will be aged 60 or older. Southern states, led by Kerala, have the highest proportions of elderly, reflecting advanced demographic transitions. Kerala's old-age dependency ratio, nearly 20%, highlights an increasing demand for elderly care, contrasting with states like Uttar Pradesh and Bihar, where the ratio is below 10%.

Ageing in India is coupled with rising chronic diseases, such as diabetes, hypertension, and cardiovascular disorders, which account for over half of all deaths globally. These conditions, rooted in lifestyle changes like diet, physical inactivity, and substance use, disproportionately affect urban populations. Addressing these issues requires long-term, population-wide interventions targeting modifiable risk factors.

2. Research Method

Importance of the Study

Ageing is a universal phenomenon across species, and the global trend highlights the growing demand for specialized care for the elderly. The elderly represents the fastest-growing demographic group worldwide, and their needs are unique compared to other age groups.

Chronic and lifestyle-related diseases, exacerbated by globalization and urbanization, are rising among the elderly population. This underscores the urgent need for comprehensive research and interventions targeting ageing and morbidity, particularly in regions undergoing rapid demographic shifts.

Objectives of the Study

The study has the following objectives:

1. To analyze the prevalence of chronic conditions among the elderly population in South Indian states.
2. To estimate life expectancy and healthy life expectancy among the elderly.
3. To examine disparities in life expectancy and healthy life expectancy based on gender and place of residence.

Data and Methodology

Data

The data required for the study are taken from Longitudinal Ageing Study in India (LASI) Wave-1 2018 report, The LASI is a full-scale national survey of scientific investigation of the health, economic, and social determinants and consequences of population ageing in India. The LASI is a nationally representative survey of over 73,000 older adults aged 45 and above across all states and union territories of India. LASI is envisioned to be conducted every 3 years for the next 25 years. It is well-positioned to evaluate the effect of changing policies on the behavioural outcomes in India. For the present study data of South Indian states- Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana were taken from the LASI.

Age-Specific Death Rates (ASDR) for constructing life tables are from Sample Registration System (SRS) 2018 report. The Sample Registration System (SRS) is a large-scale demographic survey for providing reliable annual estimates of Infant mortality rate, birth rate, death rate and other fertility & mortality indicators at the national and sub-national levels. This Bulletin presents the estimates of Birth Rate, Death Rate, Natural Growth Rate and Infant Mortality Rate (IMR)

Methodology

Univariate and bivariate analyses have been done in order to understand the prevalence of chronic conditions among elderly in South India. Using the prevalence rate of chronic conditions we constructed Healthy life expectancy. For the study - 9 major chronic conditions are taken - Hypertension, Cancer, Stroke, Heart Disease, Lung Disease, Psychiatric Disease, Bone/Joint Disease, High Cholesterol and Diabetes were chosen. Using the ASDR of southern states from the SRS 2018 report we have constructed the life table.

Abridged life table

Life tables with broader age groups such as 5 or 10 years, called abridged life tables, are found to be adequate and useful for most of the situations confronted in demographic analysis. The steps in the construction of an abridged life table are the following.

While constructing an abridged life table there are 7 columns, they are as follows:

Column 1, x to $x+n$: The period of life time between two exact ages, that is between x and $x+n$.

Column 2, ${}_nq_x$: The probability that a person who is alive at the beginning of the indicated age interval that is at x , will die before reaching the end ($x+n$) of the age interval.

$${}_nq_x = \frac{2 * n * {}_nm_x}{2 + n * {}_nm_x}$$

Column 3, l_x : The number alive at the beginning of the indicated age interval. While constructing a life table usually starts with an arbitrary number of new born as 100000. This starting number is called the radix of the table.

Column 4, ${}_nd_x$: The number of persons who die within the indicated age interval x to $x+n$.

$${}_nd_x = l_x * {}_nq_x$$

Column 5, ${}_nL_x$: The number of years of life lived by a person within the indicated age interval x to $x+n$.

$${}_nL_x = n * \left(\frac{l_x + l_{x+n}}{2} \right)$$

Column 6, T_x : The total number of years remaining for a person after surviving till the beginning of the indicated age interval x to $x+n$.

$${}_nT_x = {}_nL_x + T_{x+n}$$

Column 7, e_x^0 : The average number of years of life remaining for a person after reaching the beginning of the age interval indicated.

$$e_x^0 = \frac{T_x}{l_x}$$

Sullivan Method

Life expectancy alone does not serve the purpose of measuring health status any more for the ageing population with increasing prevalence of disability and chronic conditions. Healthy life expectancy combines information on mortality and morbidity to indicate the health of a particular population. Healthy life expectancy is analysed using the Sullivan method. (Sullivan, 1971). In order to find out healthy life expectancy we need the ${}_nL_x$ values of the ordinary life table. Then the prevalence rate (PR) of chronic illness and disability is calculated.

$$HnL_x = {}_nL_x.PR$$

That is, in an ordinary life table, the L_x column is multiplied by PR to generate the H ${}_nL_x$ column. Then calculate HnT_x . The healthy life expectancy He_x is then obtained by dividing the cumulative healthy person years (H ${}_nT_x$) by the l_x column. That is,

$$HnT_x = \Sigma H {}_nL_x$$

Then, $He_x = H {}_nT_x/l_x$

3. Results and Analysis

The main aim of the study is to find the prevalence of chronic conditions among elderly population in Southern states of India, to estimate life expectancy and healthy life expectancy among elderly and to analyse whether there exist any differentials in life expectancy and healthy life expectancy among elderly in terms of gender and place of residence.

Chronic Morbidity Pattern - Kerala

The table 4.2.2 shows the distribution of chronic morbidity among elders in Kerala with respect to their sex and place of residence. Among females 39.5 percent have hypertension, 1.9 percent have cancer, 25.5 percent have diabetes, 9.8 percent have lung disease, 1.2 percent have stroke, 27.3 percent have bone/joint disease, 5.9 percent have heart disease, 2.5 percent have psychiatric disease and 23.6 percent have high cholesterol. Among male population 37.7 percent have hypertension, 0.9 percent have cancer, 30.5 percent have diabetes, 8.1 percent have lung disease, 3.9 percent have stroke, 14.7 percent have bone/joint disease, 11.6 percent have heart disease, 2.3 percent have psychiatric disease and 20.8 percent have high cholesterol. While considering the place of residence 39.9 percent rural elders and 37.7 percent urban elders have hypertension, 1.2 percent rural elders and 1.9 percent urban elders have cancer, 25.9 percent rural elders and 29.1 percent urban elders have diabetes, 8.5 percent rural elders and 9.8 percent urban elders have lung disease, 2.0 percent rural elders and 2.6 percent urban elders have stroke, 25.2

Chronic conditions	Male %	Female %	Rural %	Urban %	Total
Hypertension	37.7	39.5	39.9	37.7	969 (38.8)
Cancer	0.9	1.9	1.2	1.9	38(1.5)
Diabetes	30.5	25.5	25.9	29.1	686(27.5)
Lung Disease	8.1	9.8	8.5	9.8	228(9.1)
Stroke	3.9	1.2	2.0	2.6	204(8.2)
Bone/Joint Disease	14.7	27.3	25.2	19.3	557(22.3)
Heart Disease	11.6	5.9	7.6	8.7	57(2.3)
Psychiatric Disease	2.3	2.5	2.5	2.3	60(2.4)
High Cholesterol	20.8	23.6	23.1	21.8	561(22.5)

percent rural elders and 19.3 percent urban elders have bone/joint disease, 7.6 percent rural elders and 8.7 percent urban elders have heart disease, 2.5 percent rural elders and 2.3 percent urban elders have psychiatric disease, and 23.1 percent rural elders and 21.8 percent urban elders have high cholesterol. Among the chronic conditions, hypertension is found to be the most prevalent disease among female elders followed by Bone/Joint disease and diabetes. Among male elders hypertension is found to be the most prevalent disease followed by diabetes and cholesterol. Similar trends have been found in rural and urban areas.

The table 4.2.3 shows the percentage distribution of diseases among elders in Kerala. Among the elders about 34 percent have no diseases, 27.8 percent have single chronic conditions and 38.6 percent elders have multimorbidity. Among elderly males, 34.6 percent have no chronic conditions, 28.4 percent have single chronic morbidity and 37 percent have multimorbidity. Among elderly females 32.9 percent have no chronic conditions, 27.4 percent have single chronic morbidity and 39.7 percent have multimorbidity. Among elders in rural areas 33.1 percent have no chronic conditions, 26.9 percent have single chronic morbidity and 40.1 percent have multimorbidity. Among elders in urban areas 34.1 percent have no chronic conditions, 28.8 percent have single chronic morbidity and 37.2 percent have multimorbidity. Multiple

Diseases	Male %	Female %	Rural %	Urban %	Total
No disease	34.6	32.9	33.1	34.1	33.6
Single	28.4	27.4	26.9	28.8	27.8
Multimorbidity	37	39.7	40.1	37.2	38.6
Total	991	1506	1270	1227	2497

morbidity are found to be more among elderly females than males, more among elders in rural areas than in urban areas.

Chronic Morbidity Pattern - Tamilnadu

The table 4.3.2 shows the distribution of chronic conditions among elders in Tamilnadu with respect to their sex and place of residence. Among females 28.7 percent have hypertension, 0.5 percent have cancer, 20.6

percent have diabetes, 5.1 percent have lung disease, 0.7 percent have stroke, 21.7 percent have bone/joint disease, 3.1 percent have heart disease, 3.0 percent have psychiatric disease and 3.4 percent have high cholesterol. Among male population 27.5 percent have hypertension, 0.3 percent have cancer, 23.2 percent have diabetes, 6.0 percent have lung disease, 2.2 percent have stroke, 17.1 percent have bone/joint disease, 5.0 percent have heart disease, 3.9 percent have psychiatric disease and 3.4 percent have high cholesterol. While considering the place of residence 23.5 percent rural elders and 31.5 percent urban elders have hypertension, 0.3 percent rural elders and 0.5 percent urban elders have cancer, 15.6 percent rural

Diseases	Male %	Female %	Rural %	Urban %	Total %
Hypertension	27.5	28.7	23.5	31.5	995 (28.7)
Cancer	0.3	0.5	0.3	0.5	15(0.4)
Diabetes	23.2	20.6	15.6	25.9	764(21.6)
Lung Disease	6.0	5.1	6.2	5.0	193(5.5)
Stroke	2.2	0.7	1.2	1.3	136(3.9)
Bone/Joint Disease	17.1	21.7	21.4	18.8	701(19.9)
Heart Disease	5.0	3.1	3.0	4.5	45(1.3)
Psychiatric Disease	3.9	3.0	4.6	2.5	118(3.3)
High Cholesterol	3.4	3.4	1.8	4.5	120(3.4)

elders and 25.9 percent urban elders have diabetes, 6.2 percent rural elders and 5.0 percent urban elders have lung disease, 1.2 percent rural elders and 1.3 percent urban elders have stroke, 21.4 percent rural elders and 18.8 percent urban elders have bone/joint disease, 3.0 percent rural elders and 4.5 percent urban elders have heart disease, 4.6 percent rural elders and 2.5 percent urban elders have psychiatric disease, and 1.8 percent rural elders and 4.5 percent urban elders have high cholesterol.

The table 4.3.3 shows the percentage distribution of diseases among elders in Tamilnadu. Among the elders about 47 percent have no diseases, 29.1 percent have single chronic conditions and 23.6 percent elders have multimorbidity. Among elderly males 47.1 percent have no chronic conditions, 28.3 percent have single chronic morbidity and 24.6 percent have multimorbidity. Among elderly females 46.9 percent have no chronic conditions, 29.5 percent have single chronic morbidity and 23.6 percent have multimorbidity. Among elders in rural areas 49.9 percent have no chronic conditions, 29.5 percent have single chronic morbidity and 23.6 percent have multimorbidity. Among elders in urban areas 44.9 percent have no chronic conditions, 27.8 percent have single chronic morbidity and 27.3 percent have multimorbidity.

Chronic morbidity cases	Male %	Female %	Rural %	Urban %	Total %
No disease	47.1	46.9	49.9	44.9	47
Single	28.3	29.5	30.8	27.8	29.1
Multimorbidity	24.6	23.6	19.3	27.3	23.6
Total	1394	2136	1454	2076	3530

Chronic Morbidity Pattern - Karnataka

The table 4.4.2 shows the distribution of chronic morbidity among elders in Karnataka with respect to their sex and place of residence. Among females 24.9 percent have hypertension, 0.8 percent have cancer, 12.4 percent have diabetes, 5.7 percent have lung disease, 1.2 percent have stroke, 17.2 percent have bone/joint disease, 2.8 percent have heart disease, 2.1 percent have psychiatric disease and 1.9 percent have high cholesterol. Among male population 18.2 percent have hypertension, 0.1 percent have cancer, 13.1 percent have diabetes, 7.4 percent have lung disease, 3.0 percent have stroke, 12.7 percent have bone/joint disease, 4.5 percent have heart disease, 3.1 percent have psychiatric disease and 2.3 percent have high cholesterol. While considering the place of residence 18.1 percent rural elders and 31.0 percent urban elders have hypertension, 0.5 percent rural elders and 0.5 percent urban elders have cancer, 8.7 percent

Diseases	Male %	Female %	Rural %	Urban %	Total %
Hypertension	18.2	24.9	18.1	31.0	538(22.2)
Cancer	0.1	0.8	0.5	0.5	13(0.5)
Diabetes	13.1	12.4	8.7	21.2	307(12.7)
Lung Disease	7.4	5.7	5.9	7.4	154(6.4)
Stroke	3.0	1.2	1.9	1.9	85(3.5)
Bone/Joint Disease	12.7	17.2	14.6	17.2	373(15.4)
Heart Disease	4.5	2.8	2.6	5.4	47(1.9)
Psychiatric Disease	3.1	2.1	2.7	1.9	60(2.5)
High Cholesterol	2.3	1.9	1.2	3.7	49(2.0)

rural elders and 21.2 percent urban elders have diabetes, 5.9 percent rural elders and 7.4 percent urban elders have lung disease, 1.9 percent rural elders and 1.3 percent urban elders have stroke, 14.6 percent rural elders and 17.2 percent urban elders have bone/joint disease, 2.6 percent rural elders and 5.4 percent urban elders have heart disease, 2.7 percent rural elders and 1.9 percent urban elders have psychiatric disease, and 1.2 percent rural elders and 3.7 percent of urban elders have high cholesterol. Among the chronic conditions, hypertension is found to be the most prevalent disease among female elders followed by Bone/Joint disease and diabetes.

Chronic morbidity cases	Male %	Female %	Rural %	Urban %	Total %
No disease	60.3	56.9	62.9	48.6	58.3
Single	22.8	25.7	23.7	26.4	24.5
Multimorbidity	16.9	17.4	13.4	25	17.2
Total	973	1447	1646	774	2420

The table 4.4.3 shows the percentage distribution of diseases among elders in Karnataka . Among the elders about 58.3 percent have no diseases, 24.5 percent have single chronic conditions and 17.2 percent elders have multimorbidity. Among elderly males 60.3 percent have no chronic conditions, 22.8 percent have single chronic morbidity and 16.9 percent have multimorbidity. Among elderly females 56.9 percent have no chronic

conditions, 25.7 percent have single chronic morbidity and 17.4 percent have multimorbidity. Among elders in rural areas 62.9 percent have no chronic conditions, 23.7 percent have single chronic morbidity and 13.4 percent have multimorbidity. Among elders in urban areas 48.6 percent have no chronic conditions, 26.4 percent have single chronic morbidity and 25 percent have multimorbidity.

Chronic Morbidity Pattern - Andhra Pradesh

The table 4.5.2 shows the distribution of chronic morbidity among elders in Andhra Pradesh with respect to their sex and place of residence. Among females, 33.3 percent have hypertension, 0.7 percent have cancer, 15.7 percent have diabetes, 6.7 percent have lung disease, 0.8 percent have stroke, 19.8 percent have bone/joint disease, 3.3 percent have heart disease, 2.6 percent have psychiatric disease and 0.3 percent have high cholesterol. Among male population 31.3 percent have hypertension, 0.2 percent have cancer, 20.2 percent have diabetes, 7.5 percent have lung disease, 2.9 percent have stroke, 17.6 percent have bone/joint disease, 3.8 percent have

Diseases	Male %	Female %	Rural %	Urban %	Total
Hypertension	31.3	33.3	31.1	36.1	870(32.5)
Cancer	0.2	0.7	0.6	0.3	13(0.5)
Diabetes	20.2	15.7	14.3	26.3	470(17.5)
Lung Disease	7.5	6.7	7.4	5.9	188(7.0)
Stroke	2.9	0.8	1.4	2.4	45(1.7)
Bone/Joint Disease	17.6	19.8	19.6	16.7	505(18.9)
Heart Disease	3.8	3.3	3.4	3.7	94(3.5)
Psychiatric Disease	3.2	2.6	2.8	3.2	77(2.9)
High Cholesterol	0.5	0.3	0.5	1.7	21(0.8)

heart disease, 3.2 percent have psychiatric disease and 0.5 percent have high cholesterol. While considering the place of residence 31.1 percent rural elders and 36.1 percent urban elders have hypertension, 0.6 percent rural elders and 0.3 percent urban elders have cancer, 14.3 percent rural elders and 26.3 percent urban elders have diabetes, 7.4 percent rural elders and 5.9 percent urban elders have lung disease, 1.4 percent rural elders and 2.4 percent urban elders have stroke, 19.6 percent rural elders and 16.7 percent urban elders have bone/joint disease, 3.4 percent rural elders and 3.7 percent urban elders have heart disease, 2.8 percent rural elders and 3.2 percent urban elders have psychiatric disease, and 0.5 percent rural elders and 1.7 percent urban elders have high cholesterol.

The table 4.5.3 shows the distribution of diseases among elders in Andhra Pradesh. Among the elders about 45.5 percent have no diseases, 31.1 percent have single chronic conditions and 23.4 percent elders have multimorbidity. Among elderly males 45.5 percent have no chronic conditions, 29.6 percent have single chronic morbidity and 24.9 percent have multimorbidity. Among elderly females 45.5 percent have no chronic conditions, 32.2 percent have single chronic morbidity and 22.3 percent have multimorbidity. Among elders in rural areas 45.5 percent have no chronic conditions, 31.1 percent have single chronic morbidity and 21.7 percent have multimorbidity. Among elders in urban areas 40.7 percent have no chronic conditions, 31.3 percent have single chronic morbidity and 28 percent have multimorbidity.

Chronic morbidity cases	Male %	Female %	Rural %	Urban %	Total %
No disease	45.5	45.5	45.5	40.7	45.5
Single	29.6	32.2	31.1	31.3	31.1
Multimorbidity	24.9	22.3	21.7	28	23.4
Total	1120	1559	1956	723	2679

Chronic Morbidity Pattern - Telangana

The table 4.6.2 shows the distribution of chronic conditions among elders in Telangana with respect to their sex and place of residence. Among females 31.5 percent have hypertension, 0.5 percent have cancer, 10.6 percent have diabetes, 3.9 percent have lung disease, 1.0 percent have stroke, 26.8 percent have bone/joint disease, 1.6 percent have heart disease, 7.6 percent have psychiatric disease and 0.6 percent have high cholesterol. Among male population 27.8 percent have hypertension, 0.3 percent have cancer, 15.0 percent have diabetes, 5.5 percent have lung disease, 2.1 percent have a stroke, 22.6 percent have bone/joint disease, 2.7 percent have heart disease, 7.1 percent have psychiatric disease and 0.9 percent have high cholesterol. While considering the place of residence 23.6 percent rural elders and 43.1 percent urban elders have hypertension, 0.4 percent rural elders and 0.5 percent urban elders have cancer, 6.6 percent rural elders and 24.2 percent urban elders have diabetes, 4.6 percent rural elders and 4.3 percent urban elders have lung disease, 1.5 percent rural elders and 1.4 percent urban elders have stroke, 27.0 percent rural elders and 21.2 percent urban elders have bone/joint disease, 1.4 percent rural elders

Chronic conditions	Yes	No
Hypertension	742(30)	1733(70)
Cancer	11(0.4)	2464(99.6)
Diabetes	306(12.4)	2169(87.8)
Lung disease	112(4.5)	2363(95.5)
Heart diseases	51(2.1)	2424(97.9)
Bone/Joint diseases	621(25.1)	1854(74.9)
Stroke	36(1.5)	2439(98.5)
Psychiatric diseases	184(7.4)	2291(92.6)
High Cholesterol	18(0.7)	2658(99.2)

Diseases	Male %	Female %	Rural %	Urban %	Total %
Hypertension	27.8	31.5	23.6	43.1	742(30)
Cancer	0.3	0.5	0.4	0.5	11(0.4)
Diabetes	15.0	10.6	6.6	24.2	306(12.4)
Lung Disease	5.5	3.9	4.6	4.3	112(4.5)
Stroke	2.1	1.0	1.5	1.4	51(2.1)
Bone/Joint Disease	22.6	26.8	27.0	21.2	621(25.1)
Heart Disease	2.7	1.6	1.4	3.3	36(1.5)
Psychiatric Disease	7.1	7.6	7.4	7.4	184(7.4)
High Cholesterol	0.9	0.6	0.3	1.6	18(0.7)

and 3.3 percent urban elders have heart disease, 7.4 percent rural elders and 7.4 percent urban elders have psychiatric disease, and 0.3 percent rural elders and 1.6 percent urban elders have high cholesterol.

Chronic morbidity cases	Male %	Female %	Rural %	Urban %	Total %
No disease	47.5	46.4	51	38.4	46.9
Single	30.1	32	31.5	30.7	31.2
Multimorbidity	22.4	21.6	17.5	30.9	21.9
Total	1008	1467	1665	810	2475

The table 4.6.3 shows the distribution of diseases among elders in Telangana. Among the elders about 46.9 percent have no diseases, 31.2 percent have single chronic conditions and 21.9 percent elders have multimorbidity. Among elderly males 47.5 percent have no chronic conditions, 30.1 percent have single chronic morbidity and 22.4 percent have multimorbidity. Among elderly females 46.4 percent have no chronic conditions, 32.0 percent have single chronic morbidity and 21.6 percent have multimorbidity. Among elders in rural areas 51 percent have no chronic conditions, 31.5 percent have single chronic morbidity and 17.5 percent have multimorbidity. Among elders in urban areas 38.4 percent have no chronic conditions, 30.7 percent have single chronic morbidity and 30.9 percent have multimorbidity.

Life Expectancy of Elders in Southern States of India.

Table 4.7.1 shows that Life expectancy at age 60 of the States - Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 19.27, 20, 17.36, 19.36 and 17.9 years respectively. A person can live healthy without any Chronic condition at age 60 for the States are 4.16, 7.19, 7.87, 6.85 and 6.38 years respectively.

The Unhealthy life expectancies at age 60 for the States are 15.11, 12.81, 9.49, 12.51 and 11.52 years respectively.

States	LE	HLE	UHLE
Kerala	19.27	4.16	15.11
Tamilnadu	20	7.19	12.81
Karnataka	17.36	7.87	9.49
Andhra Pradesh	19.36	6.85	12.51
Telangana	17.9	6.38	11.52

States	LE		HLE		UHLE	
	Male	Female	Male	Female	Male	Female
Kerala	17.3	21.77	4.5	4	12.8	17.77
Tamilnadu	19.44	20.64	6.82	7.54	12.62	13.1
Karnataka	16.27	18.48	8.4	7.25	7.87	11.23
Andhra Pradesh	18.91	19.86	6.8	8.72	12.11	11.14
Telangana	17.33	18.51	7.04	5.53	10.29	12.98

Table 4.7.2- shows that the male population at age 60 in Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana will live 17.3, 19.44, 16.27, 18.91 and 17.33 years respectively and female population will live 21.77, 20.64, 18.48, 19.86 and 18.51 years respectively. Healthy life expectancy at the age of 60 for males in Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 4.5, 6.82, 8.4, 6.8 and 7.04 years respectively and females are 4, 7.54, 7.25, 8.72 and 5.53 years respectively. Unhealthy life expectancy (living with chronic conditions) at the age of 60 for males in Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 12.8, 12.62, 7.87, 12.11 and 10.29 years respectively and females are 17.77, 13.1, 11.23, 11.14 and 12.98 years respectively. The HLE among males are more than females in the states of Kerala, Karnataka and Telangana. The HLE among females are more than males in Tamilnadu and Andhra Pradesh.

Hypertension			
States	LE	HLE	UHLE
Kerala	19.27	9.19	10.08
Tamilnadu	20	12.78	7.22
Karnataka	17.36	11.74	5.62
Andhra Pradesh	19.36	10.97	8.39
Telangana	17.9	10.48	7.42

According to Table 4.7.3 - A person can live healthy without Hypertension in Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 9.19, 12.78, 11.74, 10.97 and 10.48 years respectively. The Unhealthy life expectancies with Hypertension are 10.08, 7.22, 5.62, 8.39 and 7.42 years respectively.

According to Table 4.7.4 - A person at age 60 can live healthy without Cancer in Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana for 18.94, 19.94, 17.27, 19.3 and 17.81 years respectively. The Unhealthy life expectancies at age 60 in the states Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana with Cancer are 0.33, 0.06, 0.09, 0.06 and 0.09 years respectively.

Table 4.7.4 - Total Life expectancy, Healthy Life expectancy free of Cancer and Unhealthy Life expectancy at 60 years of age of population with Cancer, based on self-reported Chronic morbidities from LASI 2018.			
Cancer			
States	LE	HLE	UHLE
Kerala	19.27	18.94	0.33
Tamilnadu	20	19.94	0.06
Karnataka	17.36	17.27	0.09
Andhra Pradesh	19.36	19.3	0.06
Telangana	17.9	17.81	0.09

According to Table 4.7.5 - A person at age 60 can live healthy without Diabetes in Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana for 12.4, 14.69, 14.66, 15.58 and 15.51 years respectively. The Unhealthy life expectancies at age 60 with Diabetes of the states Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 6.87, 5.31, 2.7, 3.78 and 2.39 years respectively.

Table 4.7.5 - Total Life expectancy, Healthy Life expectancy free of Diabetes and Unhealthy Life expectancy at 60 years of age of population with Diabetes, based on self-reported Chronic morbidities from LASI 2018			
Diabetes			
States	LE	HLE	UHLE
Kerala	19.27	12.4	6.87
Tamilnadu	20	14.69	5.31
Karnataka	17.36	14.66	2.7
Andhra Pradesh	19.36	15.58	3.78
Telangana	17.9	15.51	2.39

According to Table 4.7.6 - A person at age 60 can live healthy without Lung disease in Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 16.96, 17.58, 15.68, 17.4 and 16.93 years respectively. The Unhealthy life expectancies at age 60 with Lung disease of the states Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 2.31, 2.42, 1.68, 1.96 and 0.97 years respectively.

Table 4.7.6 - Total Life expectancy, Healthy Life expectancy free of Lung Disease at age 60 and Unhealthy Life expectancy at 60 years of age of population with Lung disease, based on self-reported Chronic morbidities from LASI 2018.			
Lung disease			
States	LE	HLE	UHLE
Kerala	19.27	16.96	2.31
Tamilnadu	20	17.58	2.42
Karnataka	17.36	15.68	1.68
Andhra Pradesh	19.36	17.4	1.96
Telangana	17.9	16.93	0.97

Table 4.7.7 - Total Life expectancy, Healthy Life expectancy free of Heart disease and Unhealthy Life expectancy at 60 years of age of population with Heart disease, based on self-reported Chronic morbidities from LASI 2018.			
Heart disease			
States	LE	HLE	UHLE
Kerala	19.27	16.91	2.36
Tamil Nadu	20	18.99	1.01
Karnataka	17.36	16.44	0.92
Andhra Pradesh	19.36	18.64	0.72
Telangana	17.9	17.41	0.49

According to Table 4.7.7 - A person at age 60 can live healthy without Heart disease in Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 16.91, 18.99, 16.44, 18.64 and 17.41 years respectively. The Unhealthy life expectancies at age 60 with Heart disease for the states Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 2.31, 2.42, 1.68, 1.96 and 0.97 years respectively.

Table 4.7.8 - Total Life expectancy, Healthy Life expectancy free of Stroke and Unhealthy Life expectancy at 60 years of age of population with Stroke, based on self-reported Chronic morbidities from LASI 2018.			
Stroke			
States	LE	HLE	UHLE
Kerala	19.27	18.58	0.69
Tamil Nadu	20	19.47	0.53
Karnataka	17.36	16.79	0.57
Andhra Pradesh	19.36	18.92	0.44
Telangana	17.9	17.53	0.37

According to Table 4.7.8 - A person at age 60 can live healthy without Stroke in Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana for 18.58, 19.47, 16.79, 18.92 and 17.53 years respectively. The Unhealthy life expectancies at age 60 with Stroke of the States Kerala, Tamilnadu, Karnataka, Andhra Pradesh and Telangana are 0.69, 0.53, 0.57, 0.44 and 0.37 years respectively.

Table 4.7.9 - Total Life expectancy, Healthy Life expectancy free of High Cholesterol and Unhealthy Life expectancy at 60 years of age of population with High Cholesterol, based on self-reported Chronic morbidities from LASI 2018.			
High Cholesterol			
States	LE	HLE	UHLE
Kerala	19.27	14.44	4.83
Tamil Nadu	20	19.06	0.94
Karnataka	17.36	17.08	0.28
Andhra Pradesh	19.36	19.25	0.11
Telangana	17.9	17.83	0.07

According to Table 4.7.9 - A person at age 60 can live healthy without High Cholesterol in Kerala, Tamil Nadu, Karnataka, Andhra Pradesh and Telangana are 14.44, 19.06, 17.08, 19.25 and 17.83 years respectively. The Unhealthy life expectancies at age 60 with Cholesterol for the states Kerala, Tamil Nadu, Karnataka, Andhra Pradesh and Telangana are 0.69, 0.53, 0.57, 0.44 and 0.37 years respectively.

4. Conclusion

Summary

Population ageing is a global phenomenon fueled by declining fertility and increasing longevity. By 2050, one in five individuals globally will be aged 60 or older, with the elderly population expected to double from 703 million in 2019 to 1.5 billion. While population ageing imposes financial pressure on old-age support systems, it also provides opportunities for sustainable growth with well-planned policies.

India is undergoing rapid demographic changes, with the percentage of elderly expected to increase significantly by 2050. Southern states such as Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, and Telangana lead this transition, reflecting advanced demographic and health trends. However, these states also face a rising burden of chronic diseases, particularly among urban populations.

This study analyzed data from LASI Wave-1 (2018) and SRS (2018) to estimate life expectancy (LE) and healthy life expectancy (HLE) in South India. Findings revealed significant gender and urban-rural disparities in chronic morbidity and life expectancy across these states. Hypertension emerged as the most prevalent condition, followed by diabetes and bone/joint diseases. Urban populations generally reported higher morbidity rates than rural populations, underscoring the role of lifestyle changes in disease prevalence.

Key findings include:

- Life expectancy at age 60 is highest in Tamil Nadu, followed by Andhra Pradesh.
- Kerala females have the highest life expectancy, while Andhra Pradesh females report the highest HLE.
- Karnataka males have the highest HLE among men.
- Kerala, despite having a high life expectancy, has the lowest HLE due to a significant burden of chronic diseases.

Hypertension significantly reduces healthy years, with individuals aged 60 in Tamil Nadu expected to live 12.78 years free of hypertension compared to only 9.19 years in Kerala.

Conclusion

The increasing prevalence of chronic conditions among the elderly in South India is primarily driven by lifestyle changes, urbanization, and dietary habits. These include high consumption of processed foods, low intake of fruits and vegetables, physical inactivity, and smoking. The findings emphasize the urgent need for preventive strategies and health interventions to mitigate chronic morbidity and enhance the quality of life among the ageing population.

Recommendations:

- **Dietary Improvements:** Promote healthy, nutrient-rich diets low in sodium and saturated fats.
- **Physical Activity:** Encourage regular exercise to reduce the risk of chronic conditions.
- **Health Screenings:** Implement routine screenings to identify and manage conditions early.
- **Lifestyle Changes:** Reduce alcohol consumption, quit smoking, and prioritize mental health.
- **Policy Interventions:** Develop programs to support elderly care, promote healthy living, and provide accessible healthcare services.

By addressing these challenges, South Indian states can enhance healthy life expectancy and ensure a better quality of life for their ageing populations. Proactive steps will enable these states to turn the challenges of ageing into opportunities for societal growth and development.

References

- Audinaratana N, “Gender, Ageing and Social Security”, Economics and Political Weekly , Vol. 41, No. 42, pp. 119-136, 2017
- Akhtar Shahida, Amin Wakar and Manzoor Shabzia, “‘Ageing and Alone’ : Analysing health implications of being left behind elderly parents in Kashmir.”, Indian Journal of Gerontology 2022, Vol. 36, No.1
- Bakshi Trisha and Bhattacharya Asmita, “Active ageing through technologies: Well being through the adoption of digital and non-digital health technologies among the Indian Elderly.”, Indian Journal of Gerontology 2022 Vol 36 No.2
- Dhillon Preeti and Ladusingh Laishram, “Working life gain from gain in old age life expectancy in India.”, Demographic Research , January - June 2013, Vol. 28
- Deka Bikash and Gogoi Mongita, “Elderly Care in Rural Assam-Emerging Issues and Challenges”, Indian Journal of Gerontology 2022 Vol 36 No.2
- Ghosh Joyeta and Chaudhuri Debnath, “Prevalence of anaemia and its association with metabolic syndrome and its components among rural elderly women of amdanga block, North 24th PGS West Bengal”, Indian Journal of Gerontology 2022 Vol 36 No.2
- India Ageing Report - 2017
- Jagger Carol, Cox Bianca and Le Roy Sophie, “Health Expectancy Calculation by the Sullivan Method: A Practical Guide”, EHEMU Technical report 2006_3, 3rd Edition, June 2007.
- Kumari Meena and Mohanty Sanjay K , “Caste, religion and regional differentials in life expectancy at birth in India: cross-sectional estimates from recent National Family Health Survey”, BMJ Open 2020
- Koley Samarpita and Sarkar Sovanjan, “Prevalence and predictors of Multimorbidity among the elderly of Paschim Medinipur: A Rural-Urban Comparison”, Indian Journal of Gerontology 2022 Vol 36 No.2
- Lau Robin S, Johnson Shanthi and Kamalanabhan T J, “Healthy Life Expectancy in the Context of Population Health and Ageing in India”, Asia Pacific Journal of Public Health , January 2012, Vol. 24, No. 1
- Longitudinal Ageing Study in India (LASI) Wave-1, India Report 2020, National Programme For Health Care Of Elderly, International Institute For Population Sciences, Ministry Of Health & Family Welfare, Government Of India
- Pengpid Supa and Peltzer Karl, “Prevalence and Correlates of Functional Disability among Community-Dwelling Older Adults in India: Results of a National Survey in 2017-2019”, Elderly Health Journal 7(1) June 2021
- Prakash Shiv and Srivastava Adya Shanker, “Stressful life events and perceived stress among elderly people living separately from their adult children”, Indian Journal of Gerontology 2022 Vol 36 No.2
- Rani Akanksha and Nidhijaiswal Lalita Vermaand , “Eating behaviour and lifestyle changes among elderly during COVID-19 pandemic”, Indian Journal of Gerontology 2022 Vol 36 No.2
- Roy Megha and Roy Shimula, “Nutritional status of Old aged population of Midnapore, West Bengal”, Indian Journal of Gerontology 2022 Vol 36 No.2
- Sample Registration System Statistical Report 2018, Office Of The Registrar General & Census Commissioner India, Ministry Of Home Affairs, Government Of India.
- Srivastava Shobhit and Gill Anayat, “Untreated morbidity and treatment seeking behaviour among the elderly in India: Analysis based on National Sample Survey 2004 and 2014”, Growing Old in Kerala, HRDC Unit, State 2020.
- The Economic Times - 2017
- Thomas M Benson, Gopinathan Sandeep and Jose Joe met, “Changes in life expectancy in Sri Lanka and Kerala: An analysis of its patterns and causes”, Indian Journal of Gerontology 2022 Vol 36 No.2
- United Nations, World Population Ageing Report - 2019
- Zang Zhen and Li Qiang, “Population aging caused by a rise in the sex ratio at birth”, Demographic Research , July - December 2020, Vol. 43