

Gender and Regional difference in Mobile Life Expectancy in India, 1995-2004

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Indian Context

- At 100 million, India has the second largest aged population in the world after China
- Up from 25 m in 1961 & expected to reach 298 m in 2051
- Proportion of aged increased from 5.6 percent in 1961 to 7.5 percent in 2001
- LE at birth is at 65.5 for males and 67.6 for females
- LE at age 60 is 16 for males and 18 for females
- LE has consistently improved although at a slower pace

Objective

Life expectancy without mobility limitation or mobile life expectancy, was calculated to measure changes in population health status between 1995 and 2004 on the basis of gender and region.

Data and Method

- Data from cross sectional 52nd (July 1995 - June 1996) and 60th (January -June 2004) round National Sample Survey (NSS) on Morbidity, Health Care, and the Conditions of the Aged conducted by the NSSO (Dept. of Statistics in the Government of India).
- Nationwide coverage with a sample of 33,982 and 34,831 elderly sample in the two rounds resp.
- Age specific Death Rate from the Sample Registration System, Registrar General, India

Data and Method

- Prevalence-based Sullivan method used
- Prevalence rates for mobility limitation calculated from the NSS data

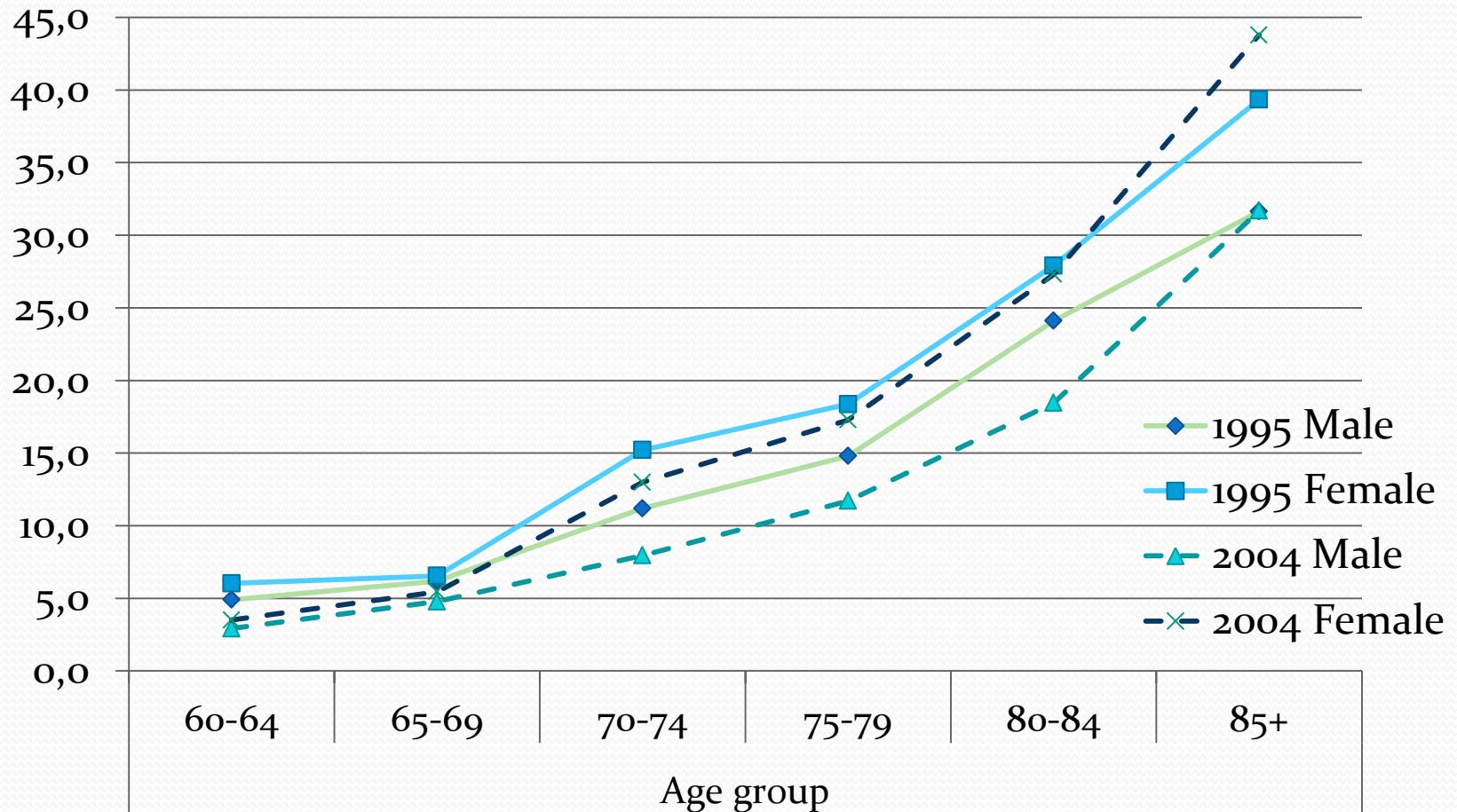
Measure

- Physical mobility
- The question asked in the survey is whether the respondent is physically immobile?
 - Yes, confined to bed (persons unable to move around the house, particularly use the washroom on their own)
 - Yes, confined to home (persons able to move with the house but unable to move outside the house)
 - No
- The prevalence rates for confined to bed and home combined to derive prevalence rate for mobility limitation

Prevalence of mobility limitation by gender and region, 1995-2004

	N	1995	N	2004
Male	16514	9.6	17750	6.9
Female	16148	11.3	17081	9.3
Rural	20141	10.9	22265	7.9
Urban	12521	8.8	12566	8.6

Prevalence of mobility limitation by 5 year age groups and gender, 1995-2004



Health Expectancy: Definition

Life Expectancy = Healthy Life Expectancy
+ Unhealthy Life Expectancy

86 Years of Life = 82 Years of Healthy Years
+ 4 Years of Unhealthy Years

4 years of unhealthy years do not mean the last 4 consecutive years of life.

Example of Health Expectancy

Age	0	65
Life Expectancy	81.9	20.0
Disability-free Life Expectancy	76.4	15.9
Life Expectancy with Disability	5.5	4.1
Proportion of Disability-free Life Expectancy (%)	93.3	79.5

Definition of Health

- WHO: Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.
- Many measures of health expectancy

Measures of Health Expectancy

- disease prevalence
- bed-disability
- perceived health
- impairment
- Activity of Daily Living (ADL)
- Instrumental Activity of Daily Living (IADL)
- Limitation of Activities (disability)

Health Expectancy & Measures Used

“health states in question”

- perceived health → healthy life expectancy
- specific disease → disease-free life expectancy
- impairments → impairments-free life expectancy
- functional limitation → disability-free life expectancy
- handicap → handicap-free life expectancy
- ADL limitation → active life expectancy
- dementia → dementia-free life expectancy

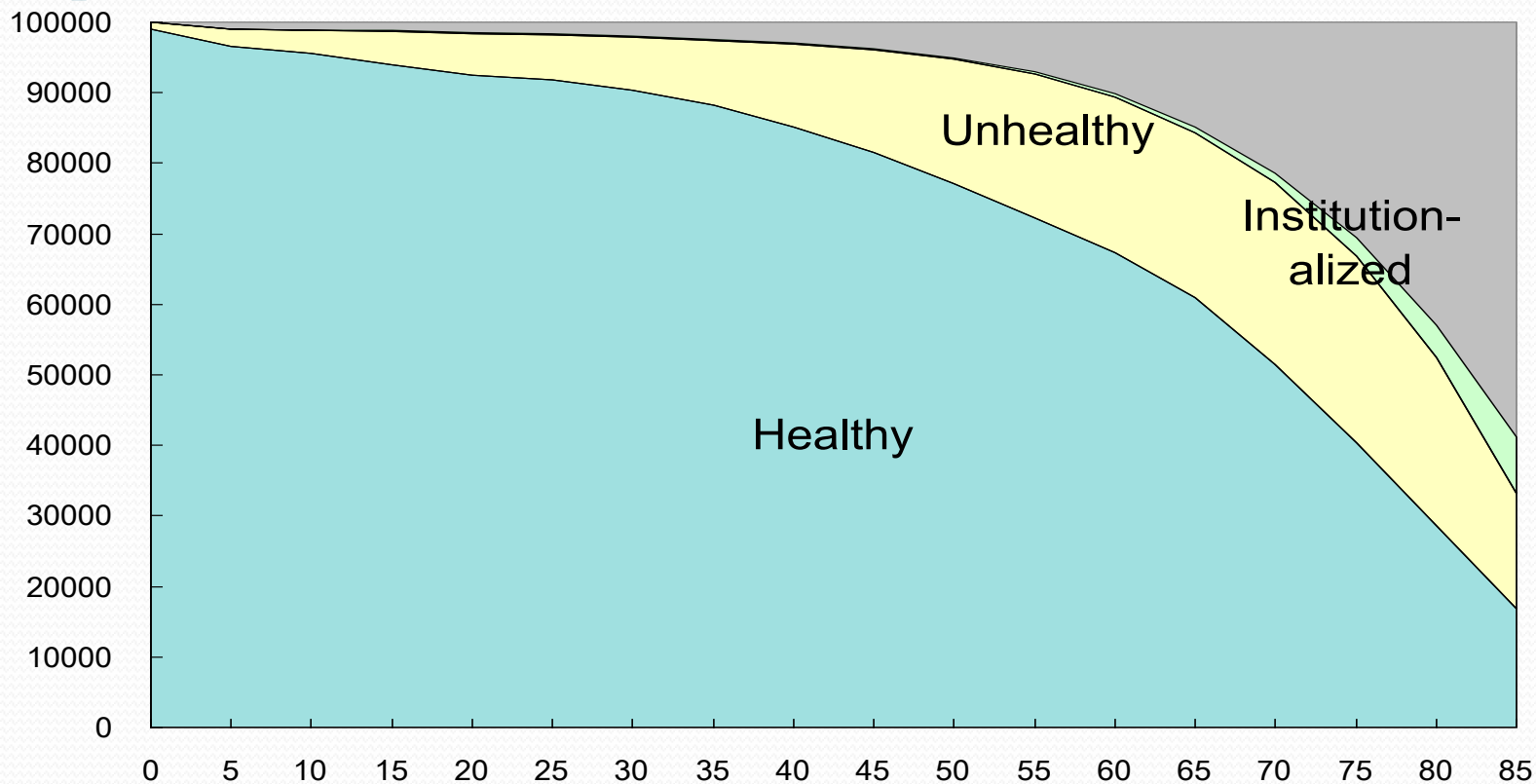
Acronyms of Summary Measure

- Health Expectancy
 - **DFLE**: Disability-Free Life Expectancy
 - **ALE**: Active Life Expectancy
 - **HALE**: Health-Adjusted Life Expectancy
 - **DALE**: Disability-Adjusted Life Expectancy
- George W. Torrance (1976, 1987)
 - **QALY**: Quality-Adjusted Life Year
- GBD
 - **DALY**: Disability-Adjusted Life Year

Methods of Calculation

- Sullivan Method
- Double Decrement Life Table Method
- Multistate Life Table Method
 - Population-Based
 - Status-Based
- GoM Approach
- Microsimulation Method

Depiction of Sullivan Method



Life expectancy (in years) in different mobility states by age and gender, 1995-2004

Age	Sex	1995			2004		
		Total	Mobile	With limitation	Total	Mobile	With limitation
60-64	Male	15.6	13.9	1.7	16.7	15.3	1.5
	Female	17.5	15.0	2.4	18.7	16.2	2.5
	Change (M-F)	-1.9	-1.1***	-0.8***	-2.0	-0.9***	-1.1***
65-69	Male	12.7	11.1	1.7	13.6	12.1	1.5
	Female	14.2	11.8	2.4	15.2	12.6	2.6
	Change (M-F)	-1.5	-0.7***	-0.7***	-1.6	-0.5***	-1.1***
70-74	Male	10.2	8.5	1.7	11.0	9.4	1.6
	Female	11.3	8.8	2.5	12.2	9.5	2.7
	Change (M-F)	-1.1	-0.3**	-0.8***	-1.2	-0.1	-1.1***
75-79	Male	8.1	6.4	1.7	8.8	7.2	1.6
	Female	9.0	6.6	2.4	9.7	7.1	2.7
	Change (M-F)	-0.9	-0.2	-0.6***	-1.0	0.1	-1.1***
80-84	Male	6.5	4.7	1.8	7.0	5.3	1.7
	Female	7.1	4.7	2.3	7.7	5.0	2.7
	Change (M-F)	-0.6	0.0	-0.6***	-0.6	0.3*	-1.0***
85+	Male	5.0	3.4	1.6	5.5	3.8	1.7
	Female	5.5	3.4	2.2	6.0	3.4	2.6
	Change (M-F)	-0.5	0.1	-0.6**	-0.5	0.4	-0.9***

Proportion of Lifetime in Different Mobility States by Age and Gender, 1995-2004

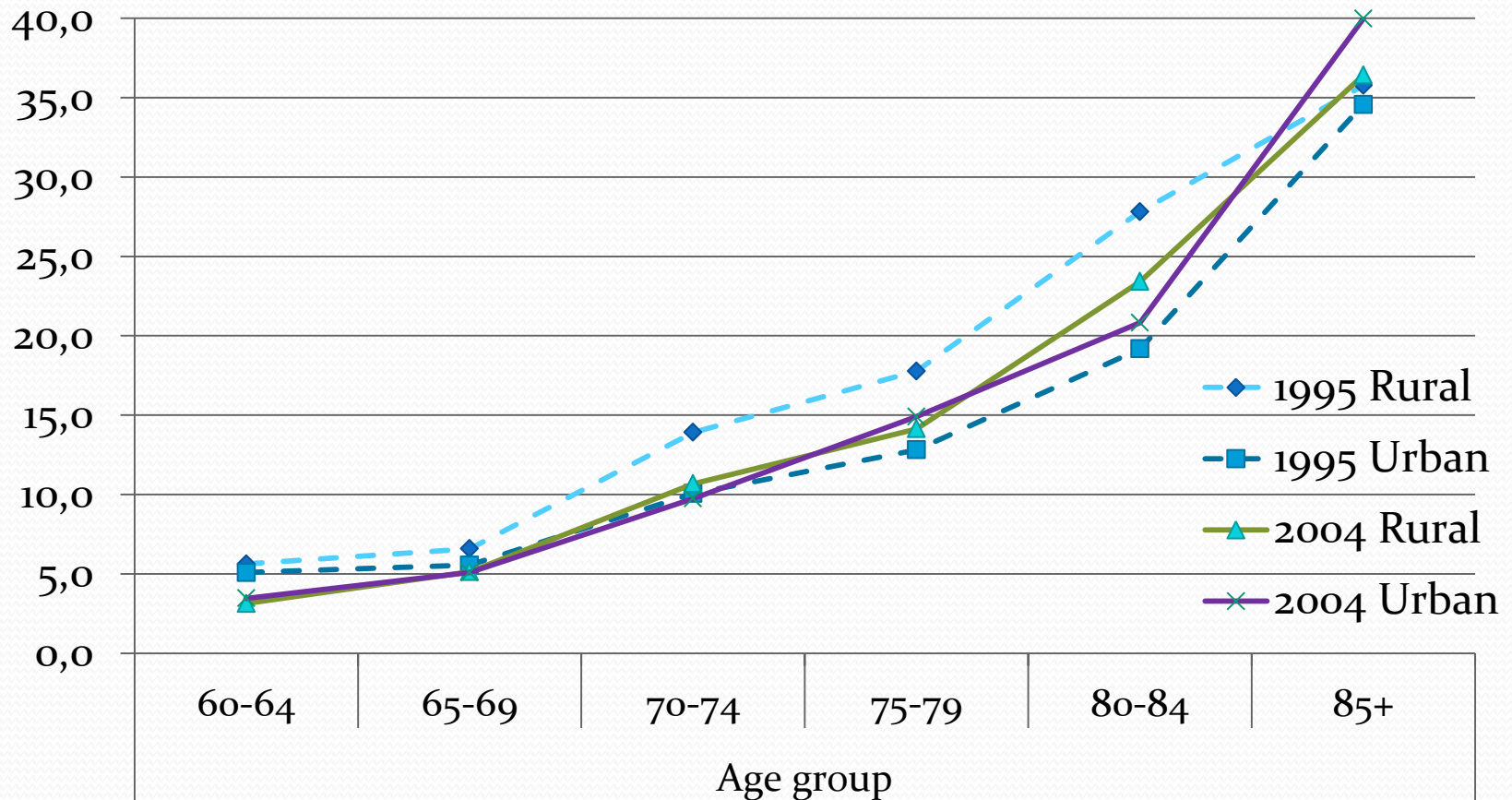
Age	Sex	1995		2004	
		Mobile	With limitation	Mobile	With limitation
60-64	Male	89.4	10.6	91.2	8.8
	Female	86.1	13.9	86.5	13.5
65-69	Male	86.9	13.1	88.9	11.1
	Female	83.1	16.9	83.0	17.0
70-74	Male	83.1	16.9	85.8	14.2
	Female	78.1	21.9	78.0	22.0
75-79	Male	79.0	21.0	81.6	18.4
	Female	73.8	26.2	72.7	27.3
80-84	Male	72.8	27.2	75.7	24.3
	Female	67.0	33.0	64.9	35.1
85+	Male	68.4	31.6	68.3	31.7
	Female	60.7	39.3	56.2	43.8

Observations

Increase in LE for both men and women, but only older men seem to have increased healthier lives

Women spent more years and a larger proportion of their lives with mobility limitation than men

Prevalence of mobility limitation by 5 year age groups and region, 1995-2004



Life expectancy(in years) in different mobility states by age and region, 1995-2004

Age	Sex	1995			2004		
		Total	Mobile	With limitation	Total	Mobile	With limitation
60-64	Rural	16.3	14.3	2.1	17.5	15.6	1.9
	Urban	17.1	15.3	1.8	18.2	16.2	2.0
	Change (R-U)	-0.8	-1.1***	0.3**	-0.7	-0.6***	-0.1
65-69	Rural	13.3	11.2	2.1	14.3	12.3	2.0
	Urban	13.9	12.2	1.7	14.8	12.7	2.1
	Change (R-U)	-0.6	-0.9***	0.3**	-0.5	-0.4***	-0.1
70-74	Rural	10.6	8.5	2.2	11.5	9.4	2.1
	Urban	11.1	9.4	1.8	11.9	9.8	2.1
	Change (R-U)	-0.5	-0.9***	0.4**	-0.4	-0.3**	-0.1
75-79	Rural	8.5	6.4	2.1	9.2	7.2	2.1
	Urban	8.8	7.1	1.7	9.3	7.2	2.1
	Change (R-U)	-0.3	-0.7***	0.3**	-0.1	0.0	-0.1
80-84	Rural	6.7	4.6	2.1	7.4	5.2	2.2
	Urban	7.1	5.2	1.8	7.3	5.1	2.2
	Change (R-U)	-0.3	-0.6***	0.3	0.1	0.0	0.0
85+	Rural	5.3	3.4	1.9	5.8	3.7	2.1
	Urban	5.3	3.5	1.8	5.6	3.3	2.2
	Change (R-U)	-0.1	-0.1	0.0	0.3	0.4	-0.1

Proportion of Lifetime in Different Mobility States by Age and Region, 1995-2004

Age	Sex	1995		2004	
		Mobile	With limitation	Mobile	With limitation
60-64	Rural	87.3	12.7	89.1	10.9
	Urban	89.5	10.5	88.8	11.2
65-69	Rural	84.4	15.6	86.2	13.8
	Urban	87.5	12.5	86.1	13.9
70-74	Rural	79.7	20.3	82.1	17.9
	Urban	84.1	15.9	82.1	17.9
75-79	Rural	75.3	24.7	77.5	22.5
	Urban	80.2	19.8	77.1	22.9
80-84	Rural	68.8	31.2	70.6	29.4
	Urban	74.1	25.9	70.5	29.5
85+	Rural	64.2	35.8	63.6	36.4
	Urban	65.4	34.6	60.0	40.0

Observations

Increase in LE in both rural and urban areas, but those in urban areas expected to have increase in unhealthier lives

The gap between the rural and urban LE with mobility limitation reversed from in favor of rural in 1995 to in favor of urban in 2004.

Discussion

Among women the increase in LE with mobility limitation could be due to actual mobility deterioration particularly in the older age groups.

The increase of LE with mobility limitation in the urban area could be due to better awareness about health conditions and possibly an increase in unfriendly urban built up spaces.

Limitations of the study

Only one indicator used because chronic morbidity and disability data not comparable between 1995 & 2004
NSS

Institutionalized population is not considered although the number would be very small

Policy implication

Impaired mobility would affect the older persons ability to live and function independently

Increase in LE with mobility limitation would have implications on need for long term care

Particularly for older women since they are more likely to be widowed and live alone than men, so need focus on their care needs

Build more elder friendly urban spaces