

RELEVANCE OF DISEASE PROFILING IN PHARMA: A COMPARATIVE STUDY BETWEEN 2004 AND 2014 DONE ON GERIATRIC INDIVIDUALS

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Introduction

- Disease Profile is defined as collection of information about a disease i.e. incidence, prevalence
- Disease profiling in pharmaceutical industry has wide spread applications such as tracking, forecasting, segmenting, pricing, market research etc. using parameters such as Hospital Inpatient Profile, Hospital Outpatient Profile, Disease prevalence and incidence, paying capacity of the individuals etc.
- Presently around 135 pharmaceutical and biotech companies are developing 294 medicines specifically aimed at elderly
- The geriatric population is defined as population aged 60 years and above. (Elango S., 1998).
- The proportion of the population aged 60 years and above was 7 per cent in 2009 (88 million) and is expected to increase to 20 per cent (315 million) by the year 2050. (UNFPA, 2011)

Literature review

- The UN defines a country as 'ageing' where the proportion of people over 60 reaches 7 percent. (Dr. Indira Jai Prakash, 1999)
- Even though life expectancy has increased, not all years gained are lived in good health (Allen, 2008)
- Almost one-half (47 percent) of older Indians have at least one chronic disease such as asthma, angina, arthritis, depression, or diabetes. (Chatterji et al, 2008)
- The boom in the ageing population will increase the demand for efficacious, safe and affordable medicines enormously (Szucs,2001)
- If the underlying processes of ageing and of the age-depended disorders are known, it will be easier to develop therapies and to keep the elderly as healthy as possible (Jackson and Mangoni,2004)

Rationale

- Prevalence of various ailments amongst elderly population has a significant influence on their physical and psychological well-being. The mapping of morbidity pattern of these age group will help the in the planning of intervention in terms of introduction of new molecules and medical equipment to improve the health status and thus quality of life of elderly people.

The study was conduced to determine various ailments affecting the health of the elderly which can be used as background research by Pharma companies

Year	2011	2021	2031	2041	2051
Age	Above 60	50 - 59	40 - 49	30 - 39	20 - 29
Population	10,38,49,040	8,82,15,309	13,47,56,439	17,37,35,635	21,28,38,187
%age	8.58%	7.29%	11.13%	14.35%	17.58%

Source: Census 2011

Objectives

- To identify the emerging ailments resulting in hospitalization as well as OPD consultations in geriatric age group
- To determine the ailments for which geriatric specific medications need to be developed

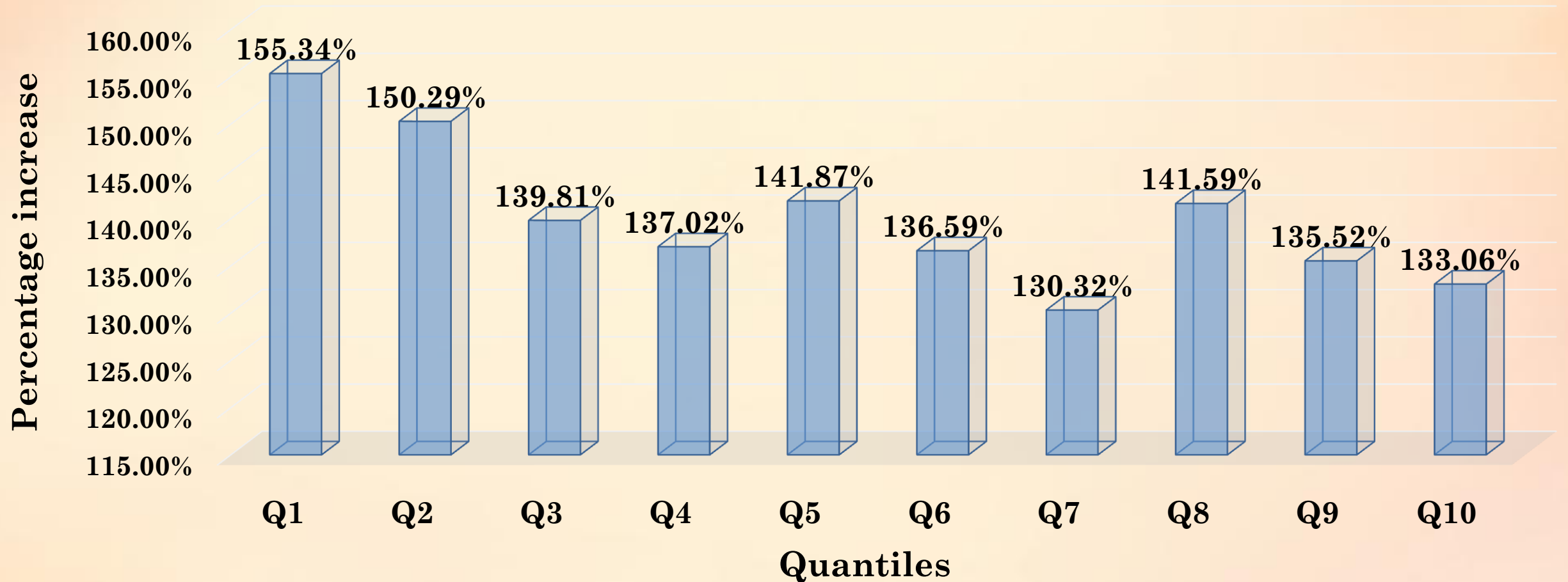
Methodology

Parameters	60 th Round	71 st Round
Type	National Sample Survey	National Sample Survey
Schedule	25.0	25.0
Title	Morbidity, Health and Condition of the aged	Social Consumption in India: Health
Year	2004	2014
Households Covered	Rural – 47,302 Urban – 26,566	Rural – 36,480 Urban – 29,452
Criteria for Analysis	Elderly member (Above 60 years) i) Has undergone hospitalization ii) Visited the doctor in past 15 days	Elderly member (Above 60 years) i) Has undergone hospitalization ii) Visited the doctor in past 15 days
Individuals for Analysis	In patient - 5,909 Out patient – 9,117	In patient - 9,554 Out patient - 8210

Findings

Percentage distribution of rural and urban geriatric households											
Quantiles		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Rural	2004	81.67%	82.27%	77.89%	81.47%	62.7%	58.76%	60.76%	35.06%	31.08%	24.80%
	2014	74.38%	69.02%	64.05%	53.33%	60.92%	55.29%	42.48%	37.52%	34.64%	19.22%
Urban	2004	18.33%	17.73%	22.11%	18.53%	37.3%	41.24%	39.24%	64.94%	68.92%	75.20%
	2014	25.62%	30.98%	35.95%	46.67%	39.08%	44.71%	57.52%	62.48%	65.36%	80.78%

Percentage increase in Household expenditure



In-Patient

Disease Profile for age group 60 - 69 years						
Disease	2004		2014		% increase	
	Rural	Urban	Rural	Urban	Rural	Urban
Infection	29.68%	21.79%	16.14%	11.10%	-13.54%	-10.69%
Cancer	3.59%	4.06%	3.88%	5.57%	0.28%	1.51%
Blood Disorder	0.59%	0.53%	1.38%	1.19%	0.79%	0.66%
Goitre & Thyroid	0.10%	0.08%	0.19%	0.28%	0.09%	0.20%
Lifestyle	6.74%	12.62%	7.53%	10.55%	0.79%	-2.07%
Nutrition	0.10%	0.08%	0.30%	0.12%	0.20%	0.04%
Mental & Neuro	5.07%	4.43%	7.83%	8.18%	2.76%	3.75%
Eye	13.14%	10.82%	11.00%	8.61%	-2.14%	-2.21%
Ear	0.00%	0.08%	0.30%	0.12%	0.30%	0.04%
CVS	6.45%	14.05%	9.62%	14.97%	3.17%	0.92%
Respiratory	8.81%	8.11%	7.83%	7.19%	-0.98%	-0.92%
Gastro	5.86%	2.93%	10.14%	8.10%	4.28%	5.17%
Skin	0.59%	0.30%	1.60%	1.03%	1.01%	0.73%
Musculo-Skeletal	5.31%	5.79%	7.90%	6.01%	2.59%	0.22%
Genito-Urinary	6.40%	8.79%	6.11%	5.57%	-0.29%	-3.22%
Obstetric	0.00%	0.00%	0.04%	0.04%	0.04%	0.04%
Injuries	7.58%	5.56%	8.24%	11.38%	0.66%	5.82%

Disease Profile for age group 70 - 79 years						
Disease	2004		2014		% increase	
	Rural	Urban	Rural	Urban	Rural	Urban
Infection	26.30%	22.94%	13.33%	8.60%	-12.97%	-14.35%
Cancer	2.33%	3.37%	2.61%	3.86%	0.28%	0.49%
Blood Disorder	0.27%	0.50%	1.81%	1.26%	1.54%	0.77%
Goitre & Thyroid	0.09%	0.00%	0.40%	0.44%	0.31%	0.44%
Lifestyle	5.39%	11.85%	7.77%	11.57%	2.38%	-0.28%
Nutrition	0.18%	0.00%	0.07%	0.44%	-0.11%	0.44%
Mental & Neuro	4.04%	4.99%	9.85%	9.04%	5.81%	4.05%
Eye	16.16%	9.35%	10.18%	8.41%	-5.98%	-0.94%
Ear	0.09%	0.00%	0.27%	0.06%	0.18%	0.06%
CVS	7.27%	16.21%	11.39%	15.36%	4.12%	-0.85%
Respiratory	9.61%	7.98%	10.65%	9.36%	1.04%	1.38%
Gastro	5.03%	2.87%	7.17%	8.03%	2.14%	5.16%
Skin	1.08%	0.37%	1.41%	0.57%	0.33%	0.19%
Musculo-Skeletal	6.19%	6.61%	7.50%	5.88%	1.31%	-0.73%
Genito-Urinary	8.26%	7.11%	5.56%	6.76%	-2.70%	-0.34%
Obstetric	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Injuries	7.72%	5.86%	10.05%	10.37%	2.33%	4.51%

Disease Profile for age group Above 80 years						
Disease	2004		2014		% increase	
	Rural	Urban	Rural	Urban	Rural	Urban
Infection	27.67%	18.02%	13.23%	11.98%	-14.43%	-6.05%
Cancer	0.86%	2.83%	3.85%	2.99%	2.99%	0.17%
Blood Disorder	0.00%	1.41%	2.01%	1.50%	2.01%	0.08%
Goitre & Thyroid	0.29%	0.00%	0.34%	0.30%	0.05%	0.30%
Lifestyle	6.92%	7.07%	7.04%	10.48%	0.12%	3.41%
Nutrition	0.29%	0.00%	0.17%	0.30%	-0.12%	0.30%
Mental & Neuro	5.48%	3.18%	12.06%	11.98%	6.58%	8.80%
Eye	11.24%	8.13%	4.86%	5.09%	-6.38%	-3.04%
Ear	0.00%	0.35%	0.00%	0.15%	0.00%	-0.20%
CVS	6.34%	19.79%	10.22%	15.72%	3.88%	-4.07%
Respiratory	14.12%	11.31%	11.39%	10.93%	-2.73%	-0.38%
Gastro	4.61%	3.53%	5.19%	6.44%	0.58%	2.90%
Skin	0.00%	0.00%	1.84%	0.60%	1.84%	0.60%
Musculo-Skeletal	7.20%	5.30%	5.70%	5.09%	-1.51%	-0.21%
Genito-Urinary	8.93%	6.71%	6.03%	5.69%	-2.90%	-1.03%
Obstetric	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Injuries	6.05%	12.37%	16.08%	10.78%	10.03%	-1.59%

Major diseases of Geriatric age group leading to hospitalization

- Infection
- CVS
- Injuries
- Lifestyle
- Mental & Neurological
- Eye

Out-Patient

Disease Profile for age group 60 - 69 years						
Disease	2004		2014		% increase	
	Rural	Urban	Rural	Urban	Rural	Urban
Infection	17.37%	4.67%	10.87%	4.73%	-6.50%	0.06%
Cancer	1.08%	0.23%	0.13%	0.19%	-0.95%	-0.04%
Blood Disorder	0.64%	0.00%	0.52%	0.65%	-0.12%	0.65%
Goitre & Thyroid	0.11%	0.00%	0.69%	1.42%	0.58%	1.42%
Lifestyle	14.78%	42.29%	32.60%	54.15%	17.82%	11.86%
Nutrition	0.04%	0.00%	0.00%	0.00%	-0.04%	0.00%
Mental & Neuro	3.92%	0.93%	5.35%	3.85%	1.42%	2.91%
Eye	9.84%	5.14%	1.98%	0.92%	-7.86%	-4.22%
Ear	2.06%	1.17%	0.82%	0.15%	-1.24%	-1.01%
CVS	4.58%	11.92%	5.35%	5.35%	0.77%	-6.57%
Respiratory	13.23%	13.08%	11.38%	7.54%	-1.85%	-5.55%
Gastro	7.25%	2.34%	5.35%	3.15%	-1.90%	0.82%
Skin	1.97%	1.17%	1.55%	1.08%	-0.42%	-0.09%
Musculo-Skeletal	18.89%	14.25%	20.53%	12.54%	1.63%	-1.71%
Genito-Urinary	1.82%	1.87%	0.82%	0.69%	-1.00%	1.18%
Injuries	2.42%	0.93%	2.07%	3.58%	-0.35%	2.64%

Disease Profile for age group 70 - 79 years						
Disease	2004		2014		% increase	
	Rural	Urban	Rural	Urban	Rural	Urban
Infection	11.44%	4.61%	8.65%	3.86%	-2.78%	-0.74%
Cancer	0.88%	1.97%	0.00%	0.47%	-0.88%	-1.50%
Blood Disorder	0.23%	0.00%	0.26%	1.02%	0.03%	1.02%
Goitre & Thyroid	0.19%	0.33%	0.17%	0.79%	-0.02%	0.46%
Lifestyle	13.51%	34.54%	31.03%	49.88%	17.52%	15.34%
Nutrition	0.08%	0.00%	0.00%	0.00%	-0.08%	0.00%
Mental & Neuro	3.49%	0.99%	5.33%	2.99%	1.84%	2.01%
Eye	13.43%	5.59%	2.88%	1.65%	-10.55%	-3.94%
Ear	3.88%	0.33%	0.52%	0.55%	-3.35%	0.22%
CVS	4.80%	9.21%	5.07%	6.86%	0.27%	-2.35%
Respiratory	13.81%	12.17%	14.86%	7.96%	1.05%	-4.21%
Gastro	5.10%	1.97%	4.46%	3.55%	-0.65%	1.57%
Skin	1.50%	1.64%	1.84%	1.02%	0.34%	-0.62%
Musculo-Skeletal	22.37%	21.71%	20.54%	14.97%	-1.83%	-6.74%
Genito-Urinary	2.07%	2.96%	0.87%	0.55%	-1.20%	-2.41%
Injuries	3.22%	1.97%	3.50%	3.86%	0.27%	1.89%

Disease Profile for age group above 80 years						
Disease	2004		2014		% increase	
	Rural	Urban	Rural	Urban	Rural	Urban
Infection	10.45%	0.00%	9.71%	4.72%	-0.74%	4.72%
Cancer	0.54%	1.48%	0.73%	0.43%	0.19%	-1.05%
Blood Disorder	0.65%	0.00%	0.97%	0.64%	0.32%	0.64%
Goitre & Thyroid	0.00%	0.00%	0.73%	1.72%	0.73%	1.72%
Lifestyle	11.31%	28.89%	29.61%	46.35%	18.30%	17.46%
Nutrition	0.11%	0.00%	0.00%	0.00%	-0.11%	0.00%
Mental & Neuro	4.96%	0.74%	6.55%	3.86%	1.60%	3.12%
Eye	15.84%	3.70%	3.64%	2.36%	-12.20%	-1.34%
Ear	5.28%	10.37%	1.46%	0.43%	-3.82%	-9.94%
CVS	2.80%	13.33%	4.85%	7.30%	2.05%	-6.04%
Respiratory	13.79%	7.41%	10.19%	9.66%	-3.60%	2.25%
Gastro	4.74%	1.48%	3.64%	2.58%	-1.10%	1.09%
Skin	0.75%	0.74%	1.70%	0.86%	0.94%	0.12%
Musculo-Skeletal	22.20%	28.15%	21.12%	14.38%	-1.08%	-13.77%
Genito-Urinary	4.85%	0.74%	0.73%	0.86%	-4.12%	0.12%
Injuries	1.72%	2.96%	4.37%	3.86%	2.64%	0.90%

Major diseases of out patient Geriatric age group

- Lifestyle
- Musculo- skeletal
- Respiratory
- Mental & Neurological
- Gastro-intestinal

Conclusion

- The unhealthy population is increasing in India
- Infectious diseases have decreased but there is a consequential increase in the burden due to Non-communicable disease
- Mental and neurological ailments, Gastric disorders, Lifestyle disorders and injuries are one of the major concerns.
- Increasing urbanisation and paying capacity of individuals, indicates new and emerging markets

Limitations

- State wise data could have been helpful for upcoming domestic Pharma companies
- Disease profiling with respect to income group could have given more accurate results

THANK YOU
FOR YOUR
TIME

