PATTERNS OF SELF-REPORTED CHRONIC MORBIDITY AND ITS TREATMENT BEHAVIOUR IN INDIA

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Abstract:

NHP 2017 targets to reduce premature mortality by one-fourth from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases in India, by 2025. In recent year, patterns of diseases have been changing, that is associated with changing lifestyle and degrading environment conditions. Treatment expenditure of chronic morbidity is also higher than acute illness. In India, there has been an increase in the prevalence of morbidity, seven times in cardiovascular diseases (CVD), four times in disability and nearly three times in infection and non-communicable diseases (NCD) from 1995 to 2014. Chronic morbidity referred to as symptoms of illness persist one month or more among people. Aim of the study is to analyse the spatial pattern of chronic morbidity and its treatment in India. Prevalence of any chronic morbidity has been estimated using data from NSS 71st round. Results show that prevalence of chronic morbidity increase with the ages. The prevalence of any chronic morbidity found higher in southern states of India. In terms of treatment, almost everyone has sought medical advice for chronic morbidity in India.

Keywords: *Chronic, Morbidity, spatial, Pattern, treatment, India*

INTRODUCTION

One of the sustainable development goals (SDG) is to ensure a healthy life and promote well-being for all at all ages. By 2030, it is required to improve access to treatment of morbidity, to reduce one-third of premature deaths due to non-communicable diseases (United Nations, 2019). National Health Policy of India 2017 (NHP) had recommended to set-up a National Institute of Chronic Diseases, to generate scientific evidence for chronic disease (*National Health Policy 2017*, 2017). NHP 2017 targets to reduce premature mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases by at least one-fourth by 2025 in India. The prevalence of morbidity in India has been increased from 1995 to 2014, like seven times in cardiovascular diseases (CVD), four times in disability and nearly three times in infection and non-communicable diseases (NCD). (Paul & Singh, 2017).

In India, chronic obstructive pulmonary disease (COPD) has a leading cause, contributing to chronic respiratory in the disease burden over the past 25 years (Rajkumar et al., 2017). Although India accounts for 18 percent of the world population, the global disability-adjusted life-years (DALYs) from chronic respiratory diseases are 32 percent (Salvi et al., 2018). Estimates that by 2030, around two-thirds of deaths will be contributed through chronic diseases; despite the socio-economic development, depressive disorder, COPD and road traffic injuries are the leading cause of loss to DALYs in India (Patel et al., 2011). In 2006, air pollution contributed almost half of COPD, and chronic respiratory disease is responsible for 11 percent of the total deaths in India (Brashier et al., 2012). In recent year, patterns of diseases have been changing, associated with changing lifestyle and degraded environment conditions (Chakma & Gupta, 2014). The increasing level of urbanisation has indirectly contributed to the concentration of many communicable diseases (Datta et al., 2017).

There is a need to increase access to health facilities for improvement of health status and check chronic morbidity and lifestyle diseases. An effective and responsive public health system needs to be in place to make health care services available for NCD and CVD at the primary level‖ (Paul & Singh, 2017). Sharma et al., (2015) found that the prevalence of hypertension (silent killer) is more among people belongs to the lower

middle class of socio-economic status in rural areas of Madhya Pradesh. A person knowledge and surrounding conditions have influenced the importance of identifying and treating diseases (Agrawal & Keshri, 2014; S Ghosh & Arokiasamy, 2010). Improving the diagnosis of morbidity is a major a challenge in a country, where poor health infrastructures with different socio-cultural belief exist, and there is a narrative for chronic morbidity (TB, HIV, and Cancer). Health expenditure is higher for the treatment of chronic morbidity than acute morbidity. In rural and urban slum areas, most of the time; highly catastrophic OOP expenditure on health led to families being pushed into poverty trap (Doorslaer, 2007). NHP 2017 has focused on health for all people; it is necessary to know, the prevalence of chronic morbidity and treatment in India. Here, chronic morbidity denotes self-reported chronic morbidity, according to the NSSO survey as if any member of the household was experiencing symptoms persisting for more than one month on the date of the survey. To my knowledge, there have been few studies on the prevalence of chronic morbidity in India. Therefore, it is essential to analyse the spatial pattern of prevalence of chronic morbidity in India and their treatment behaviour. The present study provides insight into the concentration of any chronic morbidity in India.

OBJECTIVE

To analysis the spatial pattern of any chronic morbidity (self-report) in people and its treatment behaviour in India at state-level.

DATA & METHOD

To fulfil the objectives of this study, the prevalence rate at the state level has estimated using data from the 71st round of NSSO. The NSSO is a survey organisation under the Ministry of Statistics and Program Implementation, Government of India, has been conducting a regular survey to collect data to provide crucial information on socio-economic to planning and policymaker in India (Ministry of Statistics and Program Implementation, 2019). The Survey on Morbidity and Health Care in India has been carried out respectively in the 52nd, 60th, 71st round of NSSO during 1994–95, 2004 and 2014.

The latest 71st survey on the "Social Consumption in India: Health" has given information about morbidity & health expenditure in all states of India. The 71st survey had used a stratified multi-stage survey design that covers all states and union territories in India. The 71st survey from January to June 2014 has collected information about a total of 65,932 households, in which 36,480 from rural and 29,452 from urban. The prevalence rate of self-reported chronic morbidity at age 15-59 years is estimated, as follows.

$$= \frac{Number\ of\ people\ reported\ chronic\ morbidity\ in\ sample}{Total\ number\ of\ people\ alive\ in\ sample} \times 1000$$

Percentage of treatment against any type of chronic morbidity at age 15-59 years has also estimated at the state level. Pearson's correlation coefficient (r) has used for investigating the relationship between self-reporting of morbidity, treatment for morbidity and different background characteristics of the respondent.

RESULTS

Spatial pattern of self-reported morbidity in India

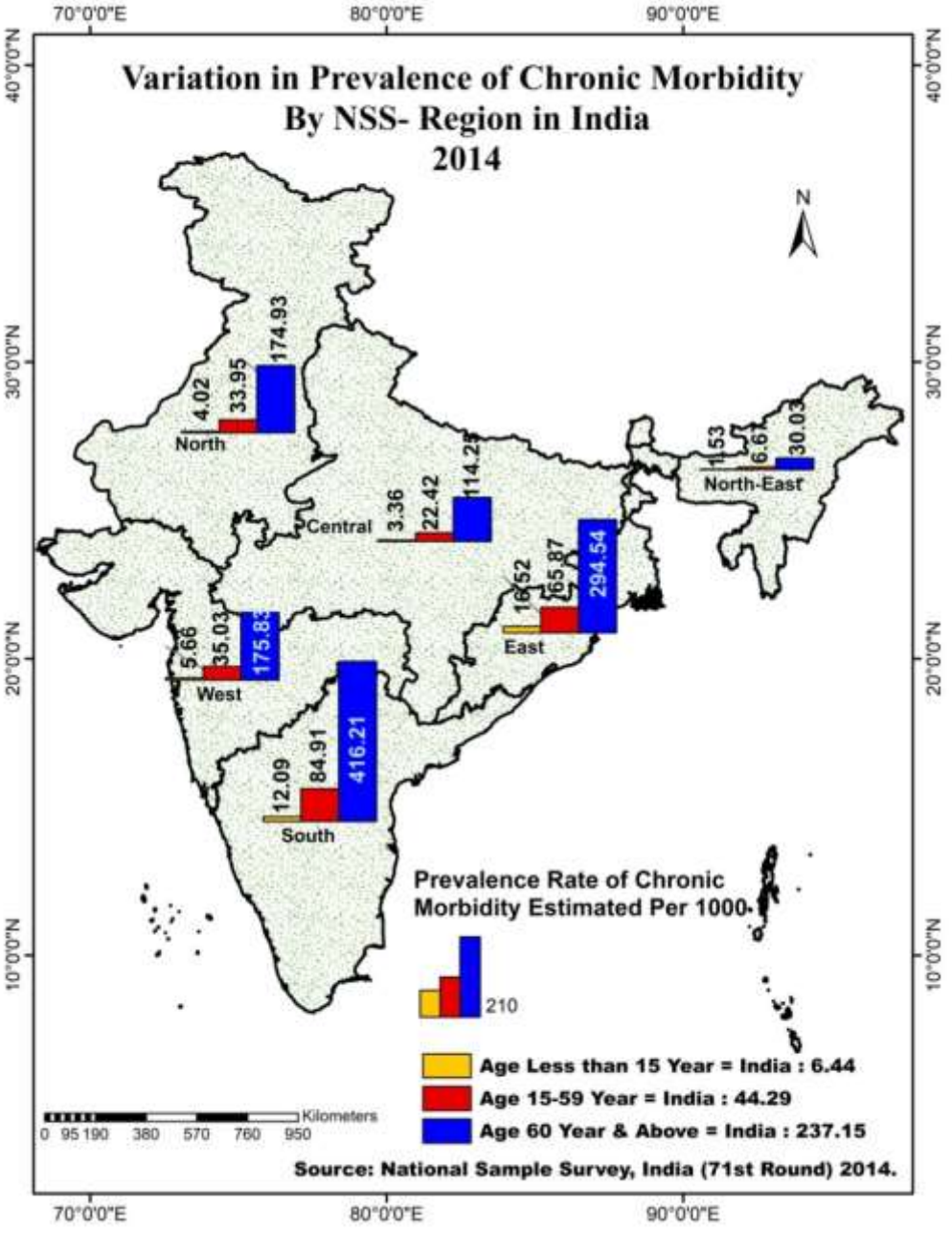
An estimate from NSSO 71st round shows a disparity in the prevalence of chronic morbidity in different NSS-region, states and age groups In India. Most reported chronic morbidity, among patients of all ages during last the 15 days is Cardiovascular, endocrine/metabolic/nutritional, and musculoskeletal which is mostly concentrated in Kerala, Andhra Pradesh, and Tamil Nadu states of India. The concentration of patients with respiratory morbidity has been higher in Rajasthan and Haryana, while at least in 2014 in the north-eastern states of India. The concentration of various chronic diseases in patients aged 15-59 years does not show a uniform pattern in India. At all India level cardiovascular, endocrine/metabolic/nutritional, musculoskeletal, gastrointestinal is most reported chronic morbidity in patients aged 15-59 years.

Table-1: Prevalence of any chronic morbidity per 1000 in India, 2014

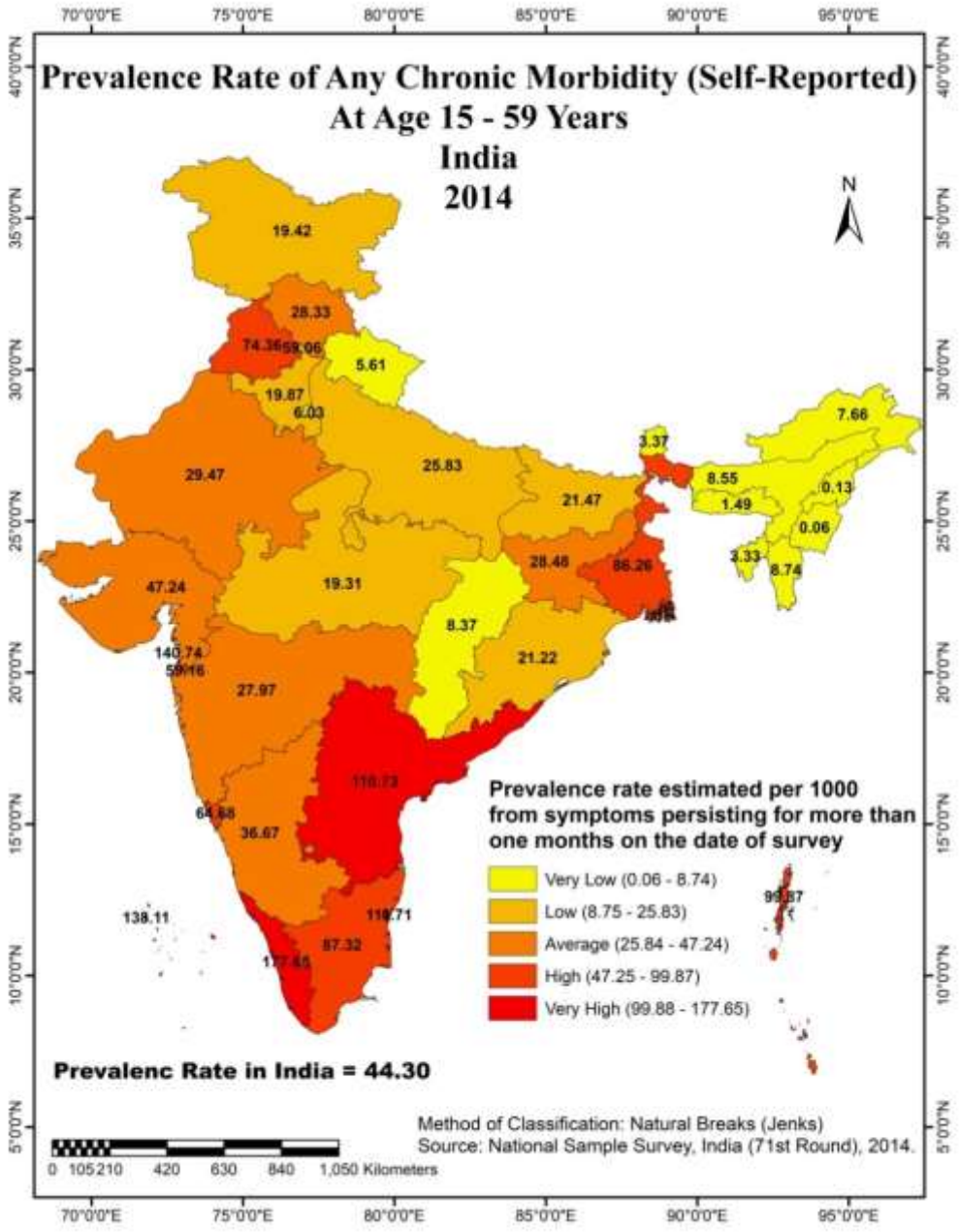
State	All-Age	Under 15 Year	In Age 15-59 Year	In Age 60 years & above
Jammu & Kashmir	29.8	9.3	19.4	182.5
Himachal Pradesh	43.5	3.5	28.3	201.0
Punjab	78.7	6.7	74.4	305.7
Chandigarh	54.6	3.4	59.1	455.3
Uttaranchal	11.8	NA	5.6	138.4
Haryana	24.1	1.7	19.9	139.6
Delhi	7.3	0.7	6.0	57.9
Rajasthan	28.9	3.9	29.5	131.9
Uttar Pradesh	25.1	5.0	25.8	132.1
Bihar	18.0	1.9	21.5	99.4
Sikkim	9.5	0.6	3.4	129.1
Arunachal Pradesh	12.3	9.3	7.7	84.4
Nagaland	0.1	NA	0.1	0.0
Manipur	2.7	NA	0.1	58.9
Mizoram	8.0	0.6	8.7	33.4
Tripura	2.4	0.3	3.3	1.5
Meghalaya	2.2	0.5	1.5	23.5
Assam	8.1	1.7	8.6	29.7
West Bengal	93.5	21.9	86.3	376.7
Jharkhand	23.5	3.7	28.5	76.0
Odisha	29.6	5.5	21.2	150.4
Chhattisgarh	10.1	0.7	8.4	91.0
Madhya Pradesh	20.2	1.9	19.3	106.8
Gujarat	50.4	3.8	47.2	260.9
Daman Diu	126.1	10.6	140.7	196.5
Dadra & Nagar Haveli	64.4	1.8	59.2	511.2
Maharashtra	31.4	6.7	28.0	132.3
Andhra Pradesh	123.2	14.9	110.7	520.8
Karnataka	50.5	5.4	36.7	283.0
Goa	100.1	5.3	64.7	439.9
Lakshadweep	127.4	22.1	138.1	372.0
Kerala	208.3	28.7	177.7	580.7
Tamil Nadu	102.9	9.0	87.3	387.6
Puducherry	122.5	48.0	111.7	410.8
Andaman & Nicobar	98.4	7.1	99.9	315.9
Telangana	54.5	9.9	38.9	282.6
Total	**48.4**	**6.5**	**44.3**	**237.2**

Source: National sample survey, 71st round, 2014. (NA- cases not found)

Table 1 shows the prevalence rate for self-reported chronic morbidity per 1000 population at different age groups in states/UTs of India in 2014. Table 1 reflects the spatial inequality in the prevalence rate of chronic morbidity also differs according to age group in India. For instance, a difference in the prevalence of chronic morbidity varies from eight in Assam to 208 in Kerala among the major populated state of India in 2014. Similarly, among people at age 60 years & above, the prevalence of chronic morbidity varies from Assam (29.7) to Kerala (580) in India. In Nagaland, Tripura, Meghalaya and Manipur the prevalence of any chronic morbidity is found to be less than five among all ages in 2014. The prevalence rate among children under 15 years of age is found to be 6.45 per 1000, whereas the prevalence rate for the elderly (60 years & above) is found to be 237 per 1000. Similarly, the prevalence of chronic morbidity among people at age 60 years & above has five times higher than people at age 15-59 years.


Variation in Prevalence of Chronic Morbidity
By NSS- Region in India
2014
70°0'0"E
80°0'0"E
90°0'0"E
40°0'0"N
30°0'0"N
20°0'0"N
10°0'0"N
N
North
4.02
33.95
174.93
Central
3.36
22.42
114.25
North-East
1.53
6.61
30.03
East
16.52
65.87
294.54
West
5.66
35.03
175.83
South
12.09
84.91
416.21
Prevalence Rate of Chronic
Morbidity Estimated Per 1000
210
Age Less than 15 Year = India : 6.44
Age 15-59 Year = India : 44.29
Age 60 Year & Above = India : 237.15
Kilometers
0 95 190 380 570 760 950
Source: National Sample Survey, India (71st Round) 2014.

Map-1



Map-2:

Map 1 shows the regional distribution of self-reported chronic morbidity under 15 years of age, 15-59 years, and 60 years & older in different NSS-region of India. That shows the spatial variation in the prevalence rate of self-reported chronic morbidity by each specific age group in India. In age 15-59 year, it is observed that the southern region has the highest prevalence of chronic morbidity, followed by eastern region, western region, northern region, central region and north-east region. In the Southern and Eastern region, the prevalence of chronic morbidity has more than the national average (44.29 per 1000) in 2014.

Map 2 shows the spatial pattern of prevalence rate of any chronic morbidity among people in age 15-59 years in India at the state level. A very high prevalence of chronic morbidity has been found in Kerala, Andhra Pradesh, Tamil Nadu, West Bengal, Punjab and Goa state of India. The moderate prevalence rate of chronic morbidity is seen in Gujarat, Karnataka, Rajasthan, Jharkhand, Himachal Pradesh and Maharashtra, which are more or less close to the national average of 44.30 per 1000 in 2014. All north-eastern states and Uttarakhand, Chhattisgarh have the least prevalence of chronic morbidity (less than nine per 1000) in 2014.

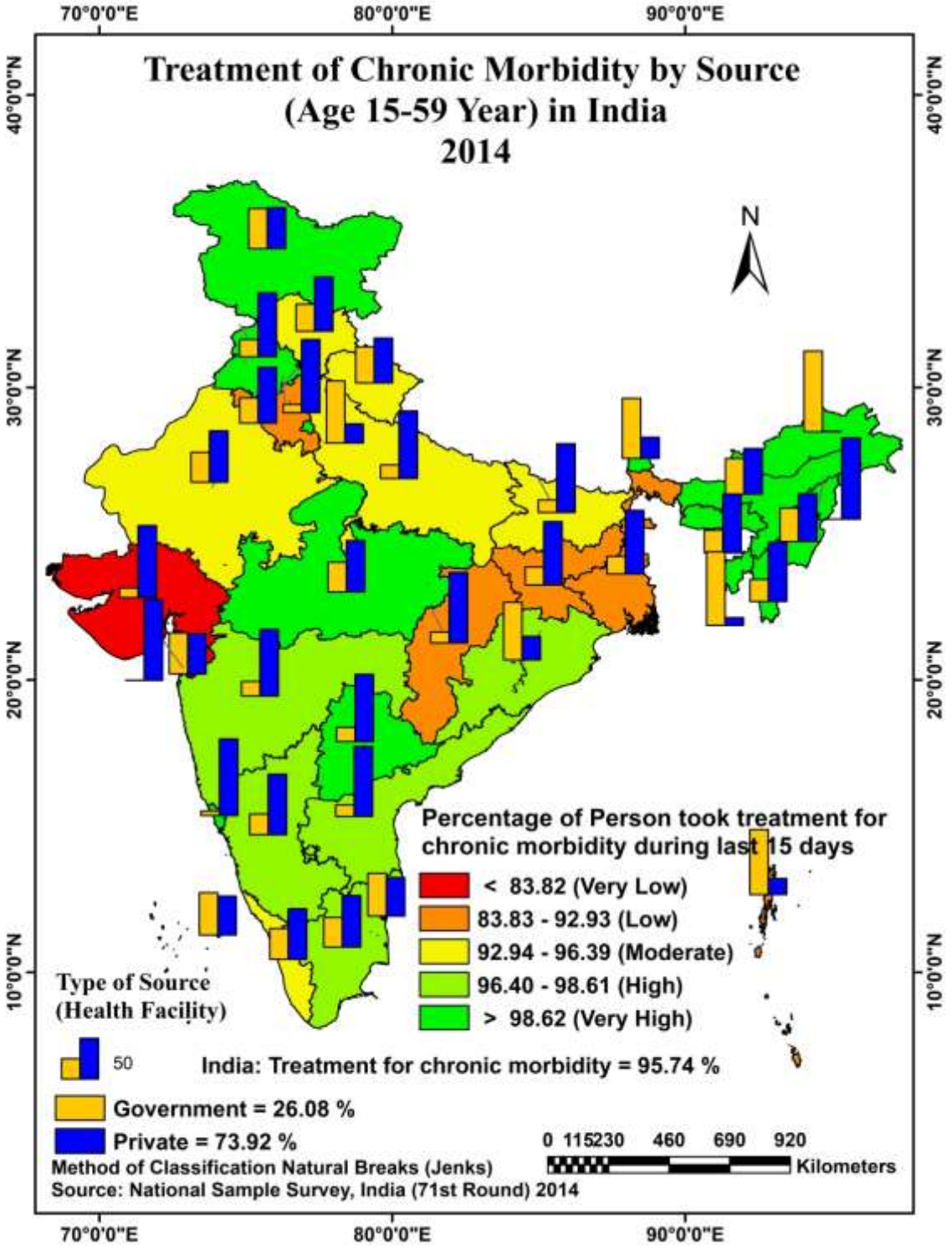
Treatment seeking behaviour for chronic morbidity

Nature of treatment for chronic morbidity in India

Nature of treatment for chronic morbidity is divided into three groups, e.g. Allopathy, Other (Indian system of medicine - Ayurveda, Unani or Siddha; Homoeopathy, Yoga & Naturopathy) and No treatment. The nature of treatment in the form of allopathy has increased with the increase in age groups in India. Nature of treatment for morbidity (allopathy) is not the same in all states of India. In Jammu & Kashmir, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, Assam, Goa and Telangana, all the patients received treatment for chronic morbidity at age 15-59 year.

About 87.60 percent of patients in age 15-59 years have sought allopathy treatment for chronic morbidity in India. In Goa, Tripura, Manipur, Nagaland, Sikkim (each has 100 %), Daman Diu (99.2), Delhi (98.7), Puducherry (98.3), Arunachal Pradesh (98.2), Jammu & Kashmir (96.4), Telangana (96.1), Punjab (96) percentage of patients had allopathy treatment at age 15-59 year. In Meghalaya (95 %), Dadra & Nagar Haveli (34 %), Chandigarh (30 %), Himachal Pradesh (22 %), Bihar (18 %), Andaman & Nicobar (17 %), Mizoram (16 %), and West Bengal (14 %) patients in age 15-59 year have sought treatment from Indian system of medicine. About four percent of people aged 15-59 year live without treatment for chronic morbidity, and three percent at age 60 years & above. Most people were found without medical advice in Gujarat (16.2%) and Chhattisgarh (10.3%). About 94 percent of patients in age 15-59 year, treated according to medical advice for chronic morbidity in India.

A higher proportion of people in both age groups (15-59 years and 60 years & above), who remain without medical advice, belong to states located into the central and east NSS region in India. Illness not considered severe is the major cause for not seeking medical advice among patients in age 15-59 year in Mizoram & Delhi (each 100), Haryana (96.4), Odisha (72.3), Himachal Pradesh (69.9), Tamil Nadu (68.5), Gujarat (60), Maharashtra (54.3), and Chhattisgarh (51). Too much expensive is also the main cause for not seeking medical care for chronic morbidity in Meghalaya (100), Punjab (47.6), Rajasthan (47), Jharkhand (46.3), and Madhya Pradesh (44.2). Similarly, the poor quality has also reported the main cause in Karnataka (61.8), Telangana (21.5). However, the 'others' reason for not seeking medical advice in the age group of 15-59 in India has been reported as the second most.



Map-3:

Map 3 shows the spatial distribution of treatment of chronic morbidity along with the source of medical care at age 15-59 years, during the last 15 days, in India. Source of medical care has been classified into government and private facilities. It is observed from map 3 that in Gujarat, West Bengal, Jharkhand, Chhattisgarh, and Haryana state have a very low percentage of patients who took medical care for chronic morbidity. In these states, the private health facilities had a major source of medical care among patients for chronic morbidity in

age 15-59 year in 2014. In the western and eastern NSS region of India, private health Facilities has a major source of treatment for chronic morbidity 2014.

Place of treatment for chronic morbidity in India

Source of treatment includes PHC, CHC, mobile medical unit, dispensary, public hospitals, HSC, ASHA, ANM, AWW, private doctor, private clinic and private hospitals. Further, it is categories into government and private health facilities. In India, the ratio for the source of care is 25:75 contributed by the government and private health facilities, respectively, at age 15-59 year and 60 years & above. The contribution of care provided (one in five people) from government hospital remains similar in all age groups at all India level but differs within the country.

In age 15-59 years, the primary source of treatment is the private doctors/clinic (42.9 %), followed by a private hospital (31 %) and government hospital (20.2 %) within India. In age 15-59 year highest the coefficient of variation in the source of care from HSC/ ANM/ ASHA/ PHC/ CHC/ Mobile medical unit (177.2), followed by the private hospital (85.5), government hospital (76.4), and private doctor/clinic (70.64) within India. The ratio of care to chronic illness makes the primary health system at only six percent. However, a high percentage of patients sought care from primary health facilities seen in Odisha (15%), Tripura (90%), Mizoram (21%) and union territories.

Reason for not availing government source for the treatment of chronic morbidity

More than three-fourths of patients in age 15-59 year and 60 years & above, who took treatment in private health facilities because not satisfied with the quality of service provided in government health facilities in India. One in four patients chooses private facilities because of specific health services are not available in the state located in the central part of India. The unavailability of specialised service and without satisfactory quality is the main reason for choosing private facilities among patients aged 15–59 in the north-eastern states of India. Although states such as Haryana, Gujarat, Andhra Pradesh and Punjab have higher per capita incomes, most people receive much higher medical facilities from private facilities due to the quality of public facilities and long wait times.

Correlation

Table 2 shows the relationship between the prevalence of chronic morbidity and its treatment with selected indicators of development in India. The prevalence rate of chronic morbidity is positively correlated with Net State Domestic Product (NSDP) per capita, education and urbanisation. However, labour force participation rates are negatively correlated with prevalence rates of chronic morbidity in India. Treatment of chronic morbidity is positively associated with net state domestic product per capita, labour force participation rate, education and urbanisation in India.

Table-2: Correlation between prevalence and treatment of chronic morbidity with selected indicators in India**.**

	Prevalence		Treatment	
	In 15-59 Year	All Ages	In 15-59 Year	All-Age
Per Capita Income ($) 2014*	0.225	0.279	0.177	0.289
Net State Domestic Product 2014 *	0.225	0.279	0.177	0.289
Labour Force Participation Rate (per 000) in age 15-59 year	-0.321	-0.280	0.118	-0.059
Total Literacy (%) 2011	0.421	0.415	0.102	0.199
Urban Population (%) 2011	0.471	0.430	0.106	0.251

Source: Ministry of Statistics and Programme Implementation, 2015; Employment unemployment survey, Labour Bureau, Ministry of Labour & Employment (2013-14); Census of India, 2011, Office of the Registrar General, India; * At a current price.

DISCUSSION & CONCLUSION

The present study focuses on variation in the prevalence of any chronic morbidity in the age of 15-59 year and their source of treatment, whether private or government. Estimates from NSSO 71st round data shows that the prevalence of chronic morbidity varies significantly among states, the highest in Kerala (285) to the lowest in Chhattisgarh (11), and also varies across age groups from 6 in an age less than 15 years to 279 at age 60 years & more per 1000 population in India. According to the Ghosh & Arokiasamy, (2009) the prevalence of chronic

morbidity at all India level in the age group 60 years & above is estimated at 217 per 1000 population in India in 2004. So during the last decade, there is an increase of 62 per 1000 in the prevalence of chronic morbidity in the age group 60 years & above. Higher prevalence of chronic morbidity is observed in southern states of India, whereas lower prevalence is observed in north-eastern and the northern states of India. From NSSO survey 1995, Paul & Singh (2017) found that the concentration of infectious diseases was in the north-east region, but in the NSSO survey 2014, the concentration was found both in the north-eastern and western region. In the case of the prevalence of the respiratory disease, a spatial pattern was also observed among states of India (Salvi et al., 2018).

The pattern of chronic morbidity is changing with age, such as respiratory and psychiatric/neurological are most prevalent in an age less than 15 years and endocrine/metabolic/nutritional, cardiac, musculoskeletal, gastrointestinal, most prevalent in 15–59 years of age. The most-reported chronic morbidity at age 60 or older is the only cardiovascular in India in 2014. Paul & Singh (2017) found that cardiovascular morbidity was concentrated only in southern region during NSSO survey 1995, but in NSSO survey 2014, there is a higher prevalence in the southern region as well as the eastern region of India. Allopathy is the most common nature of treatment for chronic morbidity in India. The nature of treatment for chronic morbidity as allopathy increases with increase in age in India. Results suggest that the nature of treatment in the form of allopathy is 84 percent under 15 years of age, increasing to 88 percent at age 15–59, at age 60, and above 91 percent. It has been observed that at the age of 15-59 years, the other nature of the treatment of chronic morbidity is mostly seen in Meghalaya, Himachal Pradesh, Bihar, Mizoram, West Bengal, Odisha and Kerala.

The total of treated patients is divided into two groups: treatment with medical advice and treatment without medical advice. Among children less than 15 years in all the states of India got treatment according to medical advice, except in Jharkhand, Meghalaya and Haryana. Among people in age 15-59 year, about six percent treated without medical advice for chronic morbidity. Similarly, about five percent of patients in age years & above are treated for chronic morbidity without medical advice. Private hospitals are the most commonplace for treatment of chronic morbidity at the age of 15–59 years due to unsatisfactory quality and prolonged waiting in public facilities in India. Similarly, private health facilities at the age of 60 years or more remain a commonplace for treatment of chronic morbidity, as people are not satisfied with the quality of treatment and long wait times in public health facilities in India.

REFERENCE

Agarwal, R., Denning, D. W., & Chakrabarti, A. (2014). Estimation of the Burden of Chronic and Allergic Pulmonary Aspergillosis in India. *Plos One*, *9*(12), e114745.

Agrawal, G., & Keshri, K. (2014). Morbidity Patterns and Health Care Seeking Behavior among Older Widows in India. *PLoS ONE*, *9*(4), e94295.

Brashier, B., Londhe, J., Madas, S., Vincent, V., & Salvi, S. (2012). Prevalence of Self-Reported Respiratory Symptoms, Asthma and Chronic Bronchitis in Slum Area of a Rapidly Developing Indian City. *Open Journal of Respiratory Diseases*, *2*, 73–81.

Chakma, J. K., & Gupta, S. (2014). Lifestyle and Non-communicable diseases: A double edged sword for future India. *Indian Journal of Community Health*, *26*(4), 325–332.

Datta, A., Nag, K., Karmakar, N., & Datta, S. (2017). *A study to assess common morbidity pattern of an urban population of Tripura*. *4*(12), 4613–4616.

Doorslaer, E. van. (2007). Paying Out-of-Pocket for Health Care in Asia: Catastrophic and Poverty Impact. In *eSocialSciences*. eSocialSciences.

Ghosh, S, & Arokiasamy, P. (2010). *Global Public Health Emerging patterns of reported morbidity and hospitalisation in West Bengal, India*. *5*(4), 427–440.

Ghosh, Soumitra, & Arokiasamy, P. (2009). *Morbidity in India: Trends, Patterns and Differentials*. Journal of Health Studies.

National Health Policy 2017, 32 (2017) (testimony of Government of India Ministry of Health and Family welfare). http://cdsco.nic.in/writereaddata/National-Health-Policy.pdf

Ministry of Statistics and Program Implementation, G. O. I. (2019). *National Sample Survey Office (NSSO)*.

http://www.mospi.gov.in/national-sample-survey-office-nsso-0

Patel, V., Chatterji, S., Chisholm, D., Ebrahim, S., Gopalakrishna, G., Mathers, C., Mohan, V., Prabhakaran, D., Ravindran, R. D., & Reddy, K. S. (2011). Chronic diseases and injuries in India. *Lancet (London, England)*, *377*(9763), 413–428.

Paul, K., & Singh, J. (2017). Emerging trends and patterns of self-reported morbidity in India: Evidence from three rounds of national sample survey. *Journal of Health, Population and Nutrition*, *36*(22).

Rajkumar, P., Pattabi, K., Vadivoo, S., Bhome, A., Brashier, B., Bhattacharya, P., & Mehendale, S. M. (2017). A cross-sectional study on prevalence of chronic obstructive pulmonary disease (COPD) in India: rationale and methods. *BMJ Open*, *7*, e15211.

Salvi, S., Anil Kumar, G., Dhaliwal, R. S., Paulson, K., Agrawal, A., Koul, P. A., Mahesh, P. A., Nair, S., Singh, V., Aggarwal, A. N., Christopher, D. J., Guleria, R., Murali Mohan, B. V, Tripathi, S. K., Ghoshal, A. G., Vijai Kumar, R., Mehrotra, R., Shukla, D. K., Dutta, E., … State-Level Disease Burden Initiative CRD Collaborators, I. (2018). The burden of chronic respiratory diseases and their heterogeneity across the states of India: the Global Burden of Disease Study 1990-2016. *Lancet Glob Health*, *6*(December), e 1363-74.

Sharma, A., Gupta, S. K., Agarwal, S. S., & Gupta, M. (2015). a Study of Prevalence of Hypertension and Pre Hypertension and Its Associated Risk. *National Journal of Community Medicine*, *6*(2), 207–211.

United Nations. (2019). *Health - United Nations Sustainable Development*. United Nations. https://www.un.org/sustainabledevelopment/health/