Extent and magnitude of out-Of-Pocket expenditure on health in India: A Region-Wise analysis

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ABSTRACT
Designing health systems is complex, especially in a diverse country like India, due to its vast variations. Healthcare financing poses a significant challenge as households bear a considerable share of expenses. Out-of pocket health care expenditure (OOPE) often leads Indian house holds to financial difficulties, especially when dealing with hospitalization costs. The present study is based on unit-level data from the NSSO 75th round. The findings demonstrated that several Indian state regions display significant disparities between urban and rural areas, with rural residents severely lacking access to necessary healthcare services. Second, the percentage share of injuries was found to be highest among outpatients and the percentage share of infection was high among inpatients nation wide. Third, the analysis revealed that Island territories and Northern India have the highest average out-of-pocket expenditure on health as a percentage of total health expenditure (i.e.,92.38% and 76.67%). Due to the exceptionally high prevalence of OOPE, it is imperative that more people have health insurance and that outpatient services be covered by it. To enhance financial risk protection, it is necessary to prioritize health promotion and disease prevention initiatives and increase the regulation of private healthcare providers while strengthening the public health system.

Keywords: Out-of pocket health care expenditure, inpatients, outpatients, hospitalization cases, nature of ailment.

INTRODUCTION

The Indian healthcare system consists of a diversified multifaceted network of public and private sectors that deliver an array of medical facilities to the nation's 1.4 billion citizens. In terms of global health status, India ranks lower compared to other countries. The World Economic Forum's Health and SurvivalIndex2021rankedIndia'shealthsystem155thoutof156economies,comparedtoits101strankingin2007 and 2008, indicating a decline in healthcare system performance over decades and a need for improvement in healthcare performance (World Economic Forum, 2023; Balaraj an et al. 2011). India faces a substantial challenge in healthcare financing, with a large portion of expenditure borne directly by households. This out-of-pocket expenditure on health (OOPE) pushes many into financial hardship, particularly during hospitalization. Due to lower spending on public health which causes high out-of-pocket expenditure on healthcare and impoverishment in India, highlights significant disparities across rural and urban areas with rural communities facing a severe shortage of access to healthcare services (Rao,2017). The lack of qualified healthcare professionals in rural areas, coupled with a shortage of healthcare infrastructure, leads to poor healthcare access and lower utilization of preventative care (Kumar, 2023; Thakur and Faizan, 2024). This situation increases the overall cost of healthcare and decreases a population's overall number of years in perfect health. Over the years, both rural and urban areas have been impacted by the rise in OOPE as a percentage of overall household spending, with rural households being more severely hit as seen by the sharp rise in inpatient expenditures per admission. Over half of all out-of-pocket expenses are related to medications, diagnostic tests, and medical equipment, accounting for more than half of out-of-pocket expenditures, exacerbating poverty and causing many households to fall into poverty because of healthcare costs (Chawla, 2023). Moreover, both individual well-being and the overall healthcare system have also been affected by health challenges posed by the Indian health system, e.g., child under nutrition, high neon at al and maternal mortality rates, non communicable diseases (NCDs), respiratory infections, malnutrition, road traffic accidents, health system disparities, and healthcare financing. Low infant weights and under nutrition in children might result in early mortality or long-term health issues, necessitating urgent attention. Neon at al and maternal mortality rates are high, necessitating improved maternal care and safe deliveries. Non

communicable diseases, such as cardiovascular issues, diabetes, obesity, and hypertension, are increasing, necessitating lifestyle changes and effective management. Respiratory infections, exacerbated by air pollution and smoking, require public health measures. Malnutrition, particularly for vulnerable populations, is a significant issue. Road traffic incidents in India cause fatalities as well as injuries, necessitating improved safety measures and emergency medical services. This raises the pressure of health expenditure on households, excess of which leads to out-of-pocket medical expenses, creating a grave challenge to the country's healthcare system. Since health is non-negotiable and expenditure on health is an important financial burden, pushes many households into poverty. Further, stark public spending and infrastructure disparities across different states have long plagued the Indian healthcare system. Evidence from various studies like Kshatri et al. (2022) and Mor (2015) indicate that states like Bihar, Jharkhand, and Odisha have notably lower levels of public health expenditure compared to more developed states such as Kerala and Punjab. The disparity is reflected in the percapita out-of-pocket expenditure(OOPE)on healthcare, the developed states like Kerala and Punjab show higher OOPE compared to the relatively poorer states like Jharkhand, Chhattisgarh, and Odisha (Garg and Karan, 2009). According to the NHA (2019-20),Kerala has the country's highest per capita overall health expenditure, at ₹10,607. Also, the state has the highest per capita out-of-pocket expenditure (OOPE) on health, accounting for 67.9% of total health expenditure, much higher than the national average (52%). Tamil Nadu's per capita OOPE is ₹2,034, significantly lower than Kerala's. Addressing these challenges requires a multi-pronged approach involving government policies, community engagement, and individual awareness. The Indian government has implemented various health programs such as the National Health Protection Scheme(Ayushman Bharat) to improve coverage for specific population groups and reduce financial catastrophe and vulnerability for lower-income populations. Several studies have highlighted the magnitude of OOPE on health, but no such study was found that discussed the regional variations in the extent of health expenditure in India. It is because of that the present study will throw light on the extent and drivers of OOPE on health among different geographical regions of India. The paper is divided into four sections. Section I includes an introduction and background. Data and methods will be covered in section II. Results and discussion will come under section III. The last section deals with the conclusion and policy suggestion.

METHODOLOGY

Data Source: This research study made use of NSSO data from the 75th round of the National Sample Survey(NSS)for2017-18 on social consumption (health) to analyze the regional variation of OOPE for hospitalization and outpatient care in both rural and urban areas. The survey is based on data that was obtained from a randomized sample of 1,13,823 households (64,552 in rural & 49,271 in urban areas), encompassing 5,55,115 individuals (3,25,883 in rural & 2,29,232 in urban areas), scattered around the nation, wrapping the maximum number of households in all 36 states (including union territories). All the states are categorized into variousgeographicalgroupsasillustratedinFigure1.

Out-of-pocket healthcare expenditure: To understand the differences between rural and urban areas, descriptive statistics will be used to examine the out-of-pocket healthcare costs for different state groups. OOPE on health is calculated as:

OOPE=Total Health Expenditure–the total amount of insurance reimbursed

The overall medical expenditure has considered the cost of patient transportation as well as other non-medical expenses(registration fee, food, transportation, expenditure on escort, lodging charges, etc). Data visualization (charts and maps) will provide a thorough picture of the country's out-of-pocket health care expenditure. The estimated number of households was used to compute OOPE on health. Since the NSSO collects data through sample surveys, we have computed all our estimations using the weighting method that is incorporated into the NSSO. Nevertheless, even with the built-in weights, the NSSO's total population estimate is often underestimated for a particular year.

Multiple log-linear regression analysis: For the computation of factors affecting OOPE on health, multiple log-linear regression analysis is used. Eight models for different state regions and all India data were estimated.

$\log Y_i=\alpha+\beta_1 \log X_1+\beta_2 \log X_2 \ldots\ldots+\beta_K \log X_K+\mu_i$

Where $Y_i$is the dependent variable (log OOPE on health), X_i's are the explanatory variables, α, β_1,β_2, $\beta_K$are the parameters, and μ_i is the stochastic term. The details of the explanatory variable are as follows:

X_1=House hold size

X_2=Gender (Female=1;else=0)

X_3 =Age(above60years=1;else=0)

X_4=Years of schooling

X5=Marital status(married=1; otherwise=0)
X6=Social group (Scheduled Tribe=1; otherwise=0)
X7=Number of times hospitalized

Household Size (X1): Larger families (those with more individuals) may have higher healthcare expenses due to increased health care needs. The probability of illness, doctor visits, and prescription needs increases with the number of family members. A positive relationship between out-of-pocket expenses and household size was expected.

Gender (X2): Adequate health expenditure is crucial for accessing medical services, preventive care, and treatments, directly impacting an individual's health and quality of life. Healthy individuals contribute more effectively to the workforce, increasing productivity and economic growth. However, OOPE on health was anticipated to be higher for women than for men as women tend to seek preventive care more diligently, which helps manage chronic conditions. However, they also require more frequent health care visits due to reproductive health needs, which drives up health expenses.

Ageabove60(X3): Men and women in their latery ears need healthcare services more frequently and require long-term care services, such as assisted living or nursing facilities. The observed disparity in out-of-pocket health spending can be attributed to several factors, including age-related health demands, chronic illnesses, prescription medications, and differences in insurance coverage. The elderly population was expected to face a highout-of-pocketcost.

Years of schooling(X4): Education equips individuals with knowledge and critical thinking skills.People with higher levels of education typically grasp health information, preventive measures, and treatment options better. Consequently, it was anticipated that years of schooling and OOPE on health would positively correlate with health.

Marital status (X5): Being married can either reduce or exacerbate health expenditure. The existence of as pouse may impact overall health spending if expenses are positively correlated across spouses which means both are spending to fulfill the healthcare requirements. However, ifone partner primarily serves as acare giver, their expenses can goup because of the care giving responsibilities.

Social group (X6): Social categories of households such as Scheduled tribes, Scheduled caste, Other backward classes, and others can also affect the OOPE on health. For example, people belonging to the upper caste category were expected to spend more on health as they have health resources and health literacy. ST communities were expected to face geographic al barriers due to factors like lack of awareness, affordability, and administrative hurdles.

No. of times hospitalized (X7): Individuals who are hospitalized more frequently tend to incur higher healthcare costs. Each hospitalization involves expenses such as room charges, medical procedures, medications, and doctor consultations. Frequent hospitalizations were expected to add up health costs overtime, especially if the conditions are chronic or necessitate continuous care.

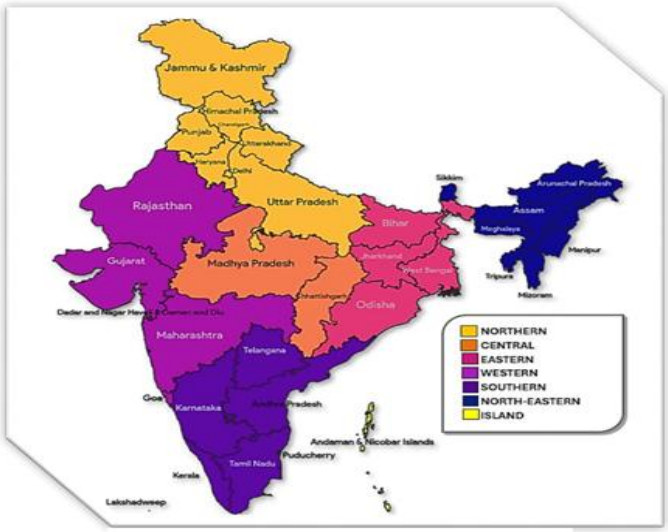

Figure 1: Geographical Division of Indian States

RESULTS AND DISCUSSION

Tables 1 and 2 present the percentage distribution of inpatients' and outpatients' households according

to the rural-urban division, gender, and social group among various state regions. In Table 1,inpatientsinthe urban areas of the Southern region are highest accounting for 32.84% approx., followed by Western, Northern, and Eastern areas ranging between 13% - 24%.Whereas, in the case of rural areas, the highest share is found in the Eastern region (24.46%), followed by the Northern, Southern, and Western regions. The gender distribution shows male dominance in the Southern region at 31.36%, the Northern at 21.02%, and female dominance in the Northern region at 24.26%, and the Southern at 23.41%. The social group-wise distribution of inpatient households shows the highest share of ST, SC, and OBC in Western(37.44%),Northern(30.17%),and Southern regions(33.94%).

The rural-urban division in Table 2 shows the proportion of outpatients' households is higher in the urban areas of the Southern region (32.84%) and rural areas of the Eastern region (24.46%). In the case of gender distribution, it was found that male dominance is in the Northern region at 23.73%, and female dominance is in the Southern region at 25.59%. The social group-wise distribution showed the highest percent share of OBC in the Southern region (30.33%), followed by SC (29.99%) in the Northern region and ST in the Western region(26.25%).

The distribution of inpatients and outpatients among different social groups in India is influenced by numerous elements including wealth, caste, gender, geographical variations, educational attainment, and government interventions like the Free Drugs and Diagnostics Service Initiative (FDDSI), Swachh Bharat Mission(SBM), Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP), and the four pillars of Ayushman Bharat: Health and Wellness Center (AB-HWC), Jan Arogya Yojana (AB PM-JAY), Digital Mission(ABDM), and Pradhan Mantri Ayushman Bharat- Health Infrastructure Mission (PM-ABHIM), etc, inagreement with Ramachandran (2023). Scheduled Castes, Scheduled Tribes, and Other Backward Classes(OBCs) have historically faced social and economic disadvantages, such as poverty, lack of education, and limited healthcare access. Geographical variation also affects healthcare utilization patterns. Education plays a crucial role in socio-economic empowerment. Similar discussions were reported by Rajesh Kanna & Sujatha (2023).Although government initiatives aim to empower these communities through education, employment, and poverty all eviation programs, still there is along way to go.

Table 1: Percentage distribution of inpatient households among different regions in India

Regions	Sector		Gender		Social Group			
	Rural	Urban	Male	Female	ST	SC	OBC	Others
Northern	23.34	22.72	21.02	24.16	4.31	30.17	20.93	26.48
Central	7.8	5.82	6.45	7.51	19.51	6.28	7.9	3.51
Eastern	24.46	13.65	19.09	21.95	21.49	23.45	17.29	25.07
Western	18.19	23.38	19.7	19.91	37.44	16.12	18.29	22.95
Southern	22.78	32.84	31.36	23.41	14.8	22.7	33.94	18.62
Northeastern	3.38	1.52	2.32	3.01	12.29	1.27	1.61	3.28
Island territories	0.04	0.07	0.06	0.05	0.16	NA	0.03	0.1

Source: Computed by the author using NSSO unit-level data from the household social consumption-Health survey 2017-2018.

Table 2: Percentage distribution of outpatient households among different regions in India

Regions	Sector		Gender		Social Group			
	Rural	Urban	Male	Female	ST	SC	OBC	Others
Northern	23.63	21.24	23.73	22.16	3.27	29.99	22.82	25.03
Central	9.6	6	9.95	7.2	23.35	7.04	8.68	3.92
Eastern	26.2	14.64	23.17	22.32	25.19	27.03	18.14	26.23
Western	17	24.06	19.41	18.85	26.25	12.62	17.75	23.54
Southern	19.04	31.91	19.99	25.59	9.65	21.52	30.33	16.51
Northeastern	4.51	2.11	3.73	3.85	12.2	1.79	2.26	4.7
Island territories	0.03	0.05	0.03	0.04	0.08	NA	0.01	0.08

Source: Same as Table 1.

Sector-wise and age-wise percent share of the number of hospitalization cases of inpatients for different regions is presented in Table 3. Firstly, in both rural and urban areas, results showed a high percent share among the younger age group for a single visit to the hospital, followed by the 15-30 years age group, and the lowest percent share of people above 60 years. However, as the number of visits increases, the

percent ages hare of the elderly population also increases in comparison to the younger generation. The results align with Pandey et.al. (2017) and Banerjee & Chowdhury (2020). Also, it can be noted that the percentage of rural is more than in urban areas, because rural healthcare infrastructure is less developed than in urban areas,with limited availability of hospitals, clinics, and healthcare professionals. Compared to the requirement, there is a significant shortage of specialists in community health centers (CHCs). Urban areas have better-equipped hospitals and specialized care facilities, which could affect the distribution of inpatients. The findings were consistent with (Banerjee,2021). Secondly, Rural-urban disparities also impacted the number of hospitalization cases in the different state regions. Overall, more inpatients are found in Northern, Eastern, Western & Southern regions. Inpatients in rural areas of Northern, Central, Eastern, and Northeastern regions are more compared to the urban areas where as in patients in urban areas of Western, Southern, and Island territories are more compared to rural areas.
Access to health care is also challenging for rural residents due to geographical distance, transportation issues, and lack of near by medical facilities. Lifestyle factors, such as diet, physical activity, and environmental exposure, can impact health outcomes, and rural populations may have different health behaviors and risk factors, affecting their likelihood of hospitalization.

Table 3: Percentage distribution of inpatient households as per number of hospitalization cases

Particulars	**Number of Hospitalization Cases**					
	1	**2**	**>2**	**1**	**2**	**>2**
	Rural			**Urban**		
Age Group (years)						
0-15	31.67	27.69	23.77	26.59	24.4	25.43
15-30	28.59	29.29	27.49	27.8	26.76	24.81
30-45	18.03	16.91	17.73	21.08	20.57	18.86
45-60	14.62	15.23	15.01	15.8	16.18	17.1
above60	7.09	10.88	15.99	8.72	12.08	13.79
All	100	100	100	100	100	100
State Region						
Northern	27.07	23.61	22.41	25.54	21.33	24.07
Central	8.54	8.16	5.07	6.67	6.06	4.33
Eastern	23.45	20.51	21.44	14	13.61	12.67
Western	19.42	21.44	14.58	24.01	27.54	21.52
Southern	17.94	25.03	35.6	28.13	30.53	37.14
Northeastern	3.54	1.18	0.81	1.6	0.85	0.19
Island Territories	0.03	0.07	0.09	0.06	0.08	0.08
All	100	100	100	100	100	100

Source: Same as Table 1.

Tables 4 and 5 represent the nature of ailment for inpatients and outpatients across different regions in India. The result showed that the percentage share of injuries for outpatients is the highest among all the other ailments (i.e., 73.76% in rural areas and 71.32% in urban areas) as compared to the inpatients e.g.,injuriesaccountfor48.07%forruraland37.85%forurbanareasfollowedbyinfectionandgastrointestinal with the more percent share of the inpatients ranging between (17% - 26%) and (4% -10%). The percentage of outpatients with cancer, blood disorders, endocrine, metabolic, nutritional, skin, and ear conditions was higher in urban regions (6.71%). Additionally, the Northeastern region has a larger share of injuries accounting for 90.40% in rural and87.88% in urban areas, followed by the Central region (85.32% in rural and 79.69% in urban areas). However, injuries continue to be the most common reason for inpatient admissions, accounting for a large percentage of cases in rural areas with 54.51% in Central India and 44.11% in urban areas of Northeastern India, followed by 53.86% in North eastern India's rural areas and 42.03%in Eastern India's urban areas. Inpatients with gastro intestinal disorders are prevalent in urban as well as rural regions. Injuries can result from falls, accidents, burns, fractures, and other trauma-related events. The most common human tragedy is traffic-related injury or accident, which results in hospitalization, early death, and lost productivity due to disability. The results are consistent with Yadav et.al. (2021), Ram & Thakur (2022), and Thomas et.al. (2024). Utilization and accessibility, which roughly correspond to the demand and supply aspects of the healthcare delivery system, are the two most important factors in determining how effective healthcare services are. There has been a

paucity of research to examine the nature of the illness determinant of the rural-urban disparity in healthcare utilization, even though earlier studies have identified sub-national healthcare gaps because of the existing infrastructure's lack of ability to serve all regions of India.

The percent share of out-of-pocket expenditure on healthcare among rural-urban regions and all India data is presented in Table 6, Although many research studies did a state-wise analysis of OOPE on health and found that state-wise disparities persist, Kerala (Southern region) has the highest share of OOPE on health as well as total health expenditure along with other states like Uttar Pradesh, Jharkhand, Andhra Pradesh, Bihar, Madhya Pradesh, Odisha, Punjab & West Bengal. This research study concentrated different states in to regions geographically and found that Island territories (Andaman& Nicobar, Lakshadweep) and Northern India (Jammu& Kashmir, Himachal Pradesh, Punjab, Chandigarh, Uttarakhand, Haryana, Delhi, Uttar Pradesh) have the highest average OOPE on health percentage (92.38% and 76.67%) among different state regions. The lowest average OOPE on health percentage is found in the Northeastern, Central, and Eastern areas i.e. 27.28%, 36.80%, and 37.98% respectively. The outcomes match up with Garg et.al. (2009), Sangar et.al (2019), Prinja et.al. (2019), Panda et.al. (2014),Bhojani et al. (2012), John and Kumar (2017), and Bose & Dutta (2018). Figure 2 is the Sankey diagram which demonstrates the average THE, average OOPE on health, and OOP health expenditure % of THE in India. India's urban population is more likely to seek healthcare services, they have better access to healthcare facilities and providers than rural areas, resulting in higher healthcare utilization and overall out-of-pocket expenses (OOPE).Also, urban residents opt for private healthcare services, which are often more expensive due to poor quality public facilities. They tend to have higher incomes and lesser health insurance coverage than rural households, making them more vulnerable to high OOPE. Although urban areas have higher OOPE in absolute terms, rural residents frequently experience financial hardship since OOPE makes up a greater percentage of their total household budget. Reducing the large OOPE load in India requires addressing the differences in insurance coverage, healthcare quality, and access between rural and urban areas. The findings are consistent with the literature (Dash & Mohanty 2019, Pandey et.al. 2017, Selvaraj et.al. 2018,Singh&Kumar,2016).

Table 4: Percentage distribution of nature of ailment among inpatient households in India

Nature of ailments	**Northern**	**Central**	**Eastern**	**Western**	**Southern**	**Northeastern**	**Island Territories**	**All India**
Rural								
Infection	17.96	18.96	17.51	19.51	25.31	21.79	24.34	20.02
Psychiatric & Neurological	3.20	2.21	2.64	3.94	3.53	2.36	4.25	3.17
Eye	2.18	3.06	1.95	2.52	2.85	1.10	3.91	2.37
Cardio-vascular	3.58	3.65	3.33	5.33	7.40	3.35	5.37	4.71
Respiratory	1.80	1.44	1.92	2.53	2.90	1.42	3.75	2.17
Gastro-intestinal	6.79	5.59	7.49	5.32	6.49	6.96	5.97	6.54
Musculoskeletal	2.23	4.33	2.21	1.93	4.43	2.03	6.70	2.83
Genito-urinary	3.74	1.75	2.73	3.58	5.10	2.12	4.50	3.56
Obstetric	3.14	1.76	3.64	1.75	1.58	2.30	0.57	2.52
Injuries	52.12	54.51	52.91	47.96	35.80	53.86	30.25	48.07
Others	3.26	2.73	3.67	5.64	4.63	2.71	10.40	4.05
Urban								
Infection	24.48	24.10	17.76	24.31	25.97	18.78	20.59	23.90
Psychiatric & Neurological	3.67	3.69	4.91	3.43	3.44	3.92	8.35	3.72
Eye	2.69	1.85	3.14	1.94	3.33	1.53	2.63	2.72
Cardio-vascular	5.94	7.47	7.77	8.19	7.78	6.02	7.95	7.41
Respiratory	2.66	3.33	4.24	2.42	2.71	3.16	3.36	2.88
Gastro-intestinal	8.02	4.86	8.72	5.71	4.94	9.37	7.07	6.40
Musculoskeletal	1.66	2.20	2.51	3.45	4.02	2.40	2.61	3.01
Genito-urinary	3.97	3.08	4.50	3.58	5.29	4.21	10.73	4.34
Obstetric	2.60	1.79	1.63	1.35	1.38	1.47	3.75	1.71
Injuries	39.77	42.03	38.48	39.03	34.41	44.11	24.46	37.85
Others	4.53	5.60	6.35	6.60	6.73	5.02	8.48	6.06

Note: Others include Cancers, Blood diseases, Endocrine Metabolic Nutritional, Ear, and Skin.
Source: Same as Table 1.

Table 5: Percentage distribution of nature of ailment among outpatient households in India

Nature of ailments	Northern	Central	Eastern	Western	Southern	Northeastern	Island Territories	All India
Rural								
Infection	14.76	7.15	11.22	10.98	5.79	4.57	4.68	10.29
Psychiatric & Neurological	1.02	0.72	1.35	1.13	1.03	0.71	2.32	1.09
Eye	0.55	0.29	0.49	0.28	0.21	0.19	0.02	0.38
Cardio-vascular	1.91	0.83	3.30	3.16	7.05	0.67	5.09	3.31
Respiratory	4.23	2.43	2.31	4.29	2.29	1.42	3.13	3.07
Gastro-intestinal	1.76	0.88	1.95	0.99	1.32	0.61	2.09	1.46
Musculoskeletal	2.37	0.46	2.81	1.79	4.13	0.72	1.28	2.46
Genito-urinary	0.65	0.20	0.26	0.34	0.18	0.08	0.11	0.34
Obstetric	0.03	0.03	0.03	0.12	0.17	0.05	0.00	0.07
Injuries	69.58	85.32	72.39	74.40	70.40	90.40	72.28	73.76
Others	3.14	1.71	3.86	2.52	7.42	0.58	8.99	3.79
Urban								
Infection	12.70	7.61	7.96	8.61	5.18	5.45	2.17	8.16
Psychiatric & Neurological	1.18	0.54	1.56	1.03	1.22	0.71	2.86	1.16
Eye	0.11	0.08	0.23	0.15	0.16	0.40	0.62	0.16
Cardio-vascular	2.93	3.89	8.10	6.62	6.85	1.14	10.21	5.85
Respiratory	3.31	2.49	4.50	3.41	1.89	1.08	0.54	2.96
Gastro-intestinal	1.39	0.95	1.44	0.67	0.48	1.06	0.32	0.90
Musculoskeletal	2.51	1.48	2.76	1.96	2.61	0.35	1.62	2.34
Genito-urinary	0.68	0.19	0.42	0.23	0.20	0.45	0.17	0.35
Obstetric	0.12	0.00	0.05	0.19	0.04	0.02	0.12	0.09
Injuries	70.03	79.69	64.56	69.87	73.73	87.88	71.16	71.32
Others	5.05	3.10	8.42	7.26	7.65	1.47	10.22	6.71

Note: Others include Cancers, Blood diseases, Endocrine Metabolic Nutritional, Ear, and Skin.
Source: Same as Table 1.

Table 6: Sector-wise percent share of OOPE on health in India

State Region	Rural	Urban	All
Northern	33.11	51.77	76.67
Central	15.57	29.90	36.80
Eastern	16.14	31.05	37.98
Western	27.84	39.61	64.39
Southern	27.68	36.08	62.41
Northeastern	10.64	30.85	27.28
Island Territories	22.88	81.33	92.38
All India	24.07	39.17	56.89

Source: Same as Table 1.

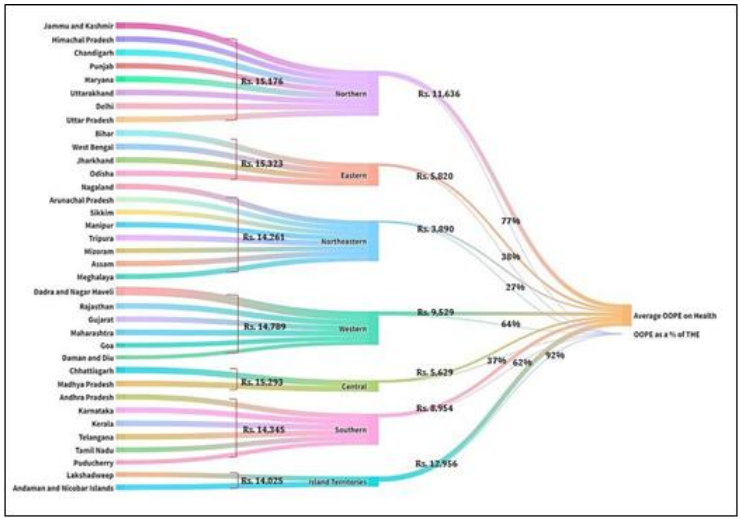

Figure 2:OOPE as a percentage of total health expenditure among different regions in India

Across several state regions, the determinants influencing out-of-pocket expenditure on health were determined using a multiple-log-linear regression model. The results are shown in Table 7. The table shows variables like age, years of education, marital status, number of hospitalization cases, and size of the family had a statistically and positive influence on out-of-pocket expenditure on health. Social group and gender both had statistically significant adverse effects. Except for gender and social groups, which had a significant negative impact, all the factors had positive significant effects on the out-of-pocket health expenditure in all state regions (Northern, Central, Eastern, Western, Northeastern, and Island territories).Consistent with the outcomes of other studies such as Joe (2014), Guptaet.al., (2016),Srivastava et.al., (2021), and Nanda & Sharma (2023) in the literature, our results indicated that the above-mentioned parameters had a favorable and significant impact.

Table 7: Factors affecting OOPE on health expenditure: Results of regression analysis

Particulars	Northern	Central	Eastern	Western	Southern	North-eastern	Island Territories	All India
Constant	8.49***(181.34)	7.78***(87.28)	7.84***(158.38)	8.06***(274.38)	8.08***(335.66)	7.85***(139.81)	6.54***(38.18)	8.23***(0.028)
House hold Size	0.15***(6.33)	0.19***(4.31)	0.15***(5.77)	0.11***(8.22)	0.28***(21.59)	0.13***(4.28)	0.48***(5.74)	0.11***(0.011)
Gender (Female=1;Else=0)	-0.47***(-20.67)	-0.64***(-14.51)	-0.25***(-10.04)	0.43***(3.52)	-	-0.05**(-2.04)	-	-0.308***(-0.011)
Age (Above 60 years=1;Else=0)	0.57***(17.57)	0.89***(12.69)	0.63***(17.43)	0.42***(19.74)	0.18***(10.01)	0.69***(17.91)	0.35***(2.62)	0.59***(0.015)
Years of schooling	0.04*** (19.96)	0.05*** (9.49)	0.07*** (25.70)	0.05*** (35.19)	0.03*** (26.54)	0.07*** (22.03)	0.02** (2.35)	0.06*** (0.001)
Marital Status(Married=1;Otherwise=0)	-	-	0.08***(2.81)	-	-	0.10***(4.09)	-	0.04***(0.012)
Social Group(ST=1; Otherwise=0)	-0.23***(-3.55)	-0.47***(-8.97)	-0.49***(-12.24)	-0.80***(-40.31)	-0.37***(-12.75)	-0.42***(-19.13)	-	-0.58***(-0.015)
Number Of Times Hospitalized	0.52***(9.54)	0.59***(5.17)	0.17***(3.32)	-	-	0.28***(2.79)	-	0.21***(0.025)
R^2	0.06	0.95	0.09	0.04	0.01	0.11	0.01	0.08
Number of Observations	19285	6394	14427	79942	88423	10489	2859	451014

Note:1) ***,**&*denotes levelofsignificanceat1,5&10 percent,respectively.2) Figures inparent he sisare‘t’values.

CONCLUSIONS

The present study examined the variations in out-of-pocket healthcare expenditure in different regions of India (such as Northern, Central, Eastern, Western, Southern, Northeastern, and Island territories) during2017-18 using unit-level data from the 75th round health assessment survey. The results showed that different state regions across India exhibit notable differences between urban and rural areas, with rural in habitants suffering from a serious lack of access to healthcare requirements. Numerous factors,including historical background, regional variance, government interventions like the Free Drugs and Diagnostics Service Initiative (FDDSI), Swachh Bharat Mission(SBM), Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP), and the four pillars of Ayushman Bharat, etc., and higher education, influence the distribution of inpatients and outpatients among different social strata in India, showing the highest share of ST, SC, and OBC in case of inpatients in Western India (37.44%), Northern India (30.17%), and Southern India (33.94%) as well as in outpatients' cases. The findings also showed a high percent share among the youngsters for a single visit to the hospital. However, as the number of visits increases, the percentage share of the elderly population also rises. The nature of ailment percentage distribution for both inpatients and outpatients was studied across different regions. The result showed that the percentage share of injuries is the highest among cases of outpatients (i.e., 73.76% in rural &71.32% in urban areas) in the Northeastern and Central regions as compared to the inpatients, followed by infection, which inpatients reported more of. Many research studies did a state-wise analysis of OOPE on health. They found that state-wise disparities persist, and Kerala (Southern region) has the highest share of OOPE on health as well as total health expenditure. However, this research study found that Island territories(Andaman & Nicobar, Lakshadweep) and Northern India (Jammu & Kashmir, Himachal Pradesh, Punjab, Chandigarh, Uttarakhand, Haryana, Delhi, Uttar Pradesh) have the highest average OOPE on health as a percentage of Total health expenditure (i.e.,92.38%and76.67%) among different state regions. Regression analysis findings revealed a statistically positive and substantial relationship between most of the variables and out-of-pocket health care spending.

The government must take these actions such as: -

- Enhancing healthcare financing and insurance; improving the work force distribution in the healthcare industry; removing transportation barriers; funding healthcare research; establishing free health services; monitoring and addressing healthcare disparities.
- Increasing government subsidies for healthcare services, particularly in rural areas, to lessen the financial burden on households.
- Expanding health insurance coverage, especially to vulnerable and low-income populations, can help mitigate the burden of out-of-pocket expenses.
- Government-sponsored insurance schemes like Ayushman Bharat have made strides in this direction but need continuous improvement and expansion.

In conclusion, tackling the problem of high out-of-pocket healthcare costs in India necessitates a long-term commitment and a multifaceted strategy that includes raising government health spending, broadening the scope of health insurance, and carrying out in-depth research to identify the factors that influence OOPE for improving healthcare access and financial protection for all facets of the population. By improving access, expanding insurance coverage, and enhancing the affordability and quality of healthcare services, India can work toward reducing the financial burden on its population and improving overall health outcomes.

REFERENCES

[1] Balarajan, Y., Selvaraj, S., & Subramanian, S. V. (2011). Health care and equity in India. The Lancet, 377(9764),505–515. https://doi.org/10.1016/s0140-6736(10)61894-6.

[2] Banerjee, S. (2021). Determinants of rural-urban differential in healthcare utilization among the elderly population in India. BMC Public Health, 21(1). https://doi.org/10.1186/s12889-021-10773-1.

[3] Banerjee, S., & Roy Chowdhury, I. (2020). Inequities in curative health-care utilization among the adult population (20–59 years) in India: A comparative analysis of NSS 71st (2014) and 75th (2017–18)rounds.PLOS ONE,15(11),e0241994.https://doi.org/10.1371/journal.pone.0241994.

[4] Bhojani, U., Thriveni, B., Devadasan, R., Munegowda, C., Devadasan, N., Kolsteren, P., & Criel, B.(2012).Out-of-pocket healthcare payments on chronic conditions impove rishurban poorin Bangalore, India.BMC Public Health,12.https://doi.org/10.1186/1471-2458-12-990

[5] Bose, M., & Dutta, A. (2018). Health financing strategies to reduce out-of-pocket burden in India: a comparative study of three states. BMC Health Services Research, 18(1). https://doi.org/10.1186/s12913-018-3633-5.

[6] Chawla,A.(2023,June 1).How Much Do Indian Households Spend on Healthcare Every Month?

Retrieved from The Wirewebsite:https://thewire.in/health/how-much-do-indian-households-spend-on-healthcare-every-month.

[7] Dash,A.,& Mohanty,S.K.(2019).Do poor people in the poorer states pay more for healthcare in India? BMCPublicHealth,19.https://doi.org/10.1186/s12889-019-7342-8

[8] Garg,C.C.,& Karan,A.K. (2009).Reducing out-of-pocket expenditure stored ucepoverty: A disaggregated analysis at rural-urban and state level in India. Health Policy and Planning, 24,116–128. https://doi.org/10.1093/heapol/czn046

[9] Govt. of India.(2020). National Health Accounts |National Health Systems Resource Centre. Nhsrcindia.org. https://nhsrcindia.org/national-health-accounts-records.

[10] Gupta, I., Chowdhury, S., Prinja, S., & Trivedi, M. (2016). Out-of-Pocket Spending on Out-Patient Care in India:Assessment and Options Based on Results from a District Level Survey. PLOS ONE, 11(11), e0166775.https://doi.org/10.1371/journal.pone.0166775.

[11] Jayakrishnan,T.(2008).Morbidity and healthcare expenditure in Kerala.

[12] Joe, W. (2014). Distressed financing of household out-of-pocket health care payments in India: incidence and correlates. Health Policy and Planning,30(6), 728–741. https://doi.org/10.1093/heapol/czu050.

[13] John,D., & Kumar, V. (2017). Exposure to hardship financing for healthcare among rural poor in Chhattisgarh, India. Journal of Health Management, 19,387–400. https://doi.org/10.1177/0972063417717879

[14] Kshatri, JayaS, Satpathy,P., Sharma,S., Bhoi,T., Mishra,S.P., &Sahoo,S.S. (2022). Health research in the state of Odisha, India. Journal of Family Medicine and Primary Care, 11(7). https://journals.lww.com/jfmpc/fulltext/2022/07000/health_research_in_the_state_of_odisha,_india.61.aspx.

[15] Kumar,A. (2023).The Transformation of The Indian Healthcare System. Cureus, vol15(5). https://doi.org/10.7759/cureus.39079.

[16] Mor,N. (2015). Designing Regional Health Systems in India: A Case Study of Himachal Pradesh. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2649562.

[17] Nanda,M.,& Sharma,R.(2023). A Comprehensive Examination of the Economic Impact of Out-of-pocket Health Expenditures in India. Health Policy and Planning, 38(8). https://doi.org/10.1093/heapol/czad050.

[18] NHA(2019 20). National Health Accounts |National Health Systems Resource Centre. Nhsrcindia.org. https://nhsrcindia.org/national-health-accounts-records.

[19] NSS75th Round: Health in India[Report by Ministry of Statistics and Programme Implementation].

[20] Panda, P., Chakraborty, A., Dror, D. M., & Bedi, A. S. (2014). Enrolment in community-based health insurance schemes in rural Bihar and Uttar Pradesh, India. Health Policy and Planning, 29, 960–974.https://doi.org/10.1093/heapol/czt077

[21] Pandey, A., Ploubidis, G. B., Clarke, L., & Dandona, L. (2017). Hospitalisation trends in India from serial cross-sectional nation wide surveys: 1995to2014. BMJ Open, 7(12), e014188. https://doi.org/10.1136/bmjopen-2016-014188.

[22] Pandey, A., Ploubidis, G. B., Clarke, L., & Dandona, L. (2017). Horizontal inequity in outpatient care use and untreated morbidity: evidence from nationwide surveys in India between 1995 and 2014. Health Policy and Planning,32(7), 969–979.https://doi.org/10.1093/heapol/czx016.

[23] Prinja, S., Kaur, G., Gupta, R., Rana, S. K., & Aggarwal, A. K. (2019). Out-of-pocket expenditure for health care: District level estimates for Haryana state in India. International Journal of Health Planning and Management,34,277–293.https://doi.org/10.1002/hpm.2628

[24] RajeshKanna,R., &Sujatha,V. (2023).The Socio economic Status Of SC, ST, And OBC Communities In India: Challenges And A Way Forward. Journal of Survey in Fisheries Sciences, 10(1), 7196–7201.

[25] Ram, B., & Thakur, R. (2022). Measuring the burden of accidental injuries in India: a cross-sectional analysis of the National Sample Survey (2017–18). Humanities and Social Sciences Communications, 9(1),363. https://doi.org/10.1057/s41599022013690.

[26] Ramachandran, R. (2023). Caste and Socoieconomic Disparities in India: An Overview. Handbook on Economics of Discrimination and Affirmative Action , 1–25. https://doi.org/10.1007/978-981-33-4016-9_23-2.

[27] Rao, K. S. (2017). An Indian perspective on the challenges in global health financing. Health Economics, Policy and Law,12(2),113–116. https://doi.org/10.1017/s1744133116000384.

[28] Sangar, S., Dutt, V., & Thakur, R. (2019). Economic burden, impoverishment, and coping mechanisms associated with out-of-pocket health expenditure in India: A disaggregated analysis at the state level. International Journal of Health Planning and Management, 34,e301–e313.https://doi.org/10.1002/hpm.2649

[29] Selvaraj, S., Farooqui, H. H., & Karan, A. (2018). Quantifying the financial burden of households' out-of-pocket payments on medicines in India: a repeated cross-sectional analysis of National Sample Survey data, 1994–2014.BMJOpen, 8(5),e018020.https://doi.org/10.1136/bmjopen-2017-018020

[30] Singh, P., & Kumar, V. (2016). The Rising Burden of Healthcare Expenditure in India: A Poverty Nexus. Social Indicators Research, 133(2), 741–762.https://doi.org/10.1007/s11205-016-1388-0

[31] Srivastava, S., Kumar, M., Mishra, S., Chaurasia, H., & Singh, S. K. (2021). Gender Differentials in Out-of-Pocket Health Expenditure Among Older Adults in India: Evidence from National Sample Survey 2014 and 2018.Ageing International, 47. https://doi.org/10.1007/s12126-021-09451-9.

[32] Thakur, R., & Faizan,M. A.(2024).Magnitude of health expenditure induced removable poverty in India: Some reflections of Ayushman Bharat. Heliyon, 10(1), e23464. https://doi.org/10.1016/j.heliyon.2023.e23464.

[33] Thomas, M. B., Pandey, A. K., Gautam, D., Gopinathan, S., & Panolan, S. (2024). Economic Burden of Accidents and Injuries in India: WhatDoes75th Round of National Sample Survey Imply? Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine, 49(1),181–188.https://doi.org/10.4103/ijcm.ijcm_457_23.

[34] World Economic Forum. (2023,June20). Global Gender Gap Report 2023. World Economic Forum.https://www.weforum.org/publications/global-gender-gap-report-2023/in full/ bench marking -gender-gaps-2023/.

[35] Yadav,J.,Menon,G.R.,& John,D. (2021). Disease-Specific Out-of-Pocket Payments, Catastrophic Health Expenditure, and Impoverishment Effects in India: An Analysis of National Health Survey Data. Applied Health Economics and Health Policy,19. https://doi.org/10.1007/s40258-021-00641-9