Asian Business Research Journal
Vol. 10, No. 8, 24-48, 2025
ISSN: 2576-6759
DOI: 10.55220/2576-6759.533

Demand for Healthcare Services and Resultant Costs of Treatment by Public and Private Providers in India: An Inter-State Analysis of National Sample Surveys for 1986-87, 1995-96, 2004, 2014 and 2017-18

Anil Gumber[1]
Swathi Krishna[2]

[1]*Emeritus Fellow, Sheffield Hallam University, United Kingdom.*
[2]*Centre for Development Studies, Thiruvanthpuram, India.*
Email: anil.gumber@shu.ac.uk
Email: swathi20phd@cds.ac.in
(Corresponding Author)

Abstract

This paper focuses on changes in people's health seeking behaviour, reliance on government health providers, and differentials in the cost of treatment at public and private facilities over the five National Sample Survey rounds undertaken during 1986–87, 1995–96, 2004, 2014 and 2017-18. An exclusive section is devoted on key factors influencing uptake of health insurance and resultant financial protection received specifically by poor families through analyses of 2014 and 2017-18 datasets. With wide variations across states, it is discovered that over time, less people sought care from public providers and more people preferred private providers. However, in the most recent round of 2017-18 an improvement is recorded in use of public hospitals over private for inpatient care, overall as well as most of states. Despite the fact that both men and women are now more likely to seek treatment for their illnesses, a sizeable portion of the population (more in rural than in urban areas), still refuses treatment because they believe their illness is not serious enough to warrant it. Whilst the real cost of healthcare has gone up over time, the difference between public and private treatment costs has contracted, possibly as a result of the higher recurring cost in public health facilities and levying user fees and cutting on the provision of free medication. Since the middle of the 2000s, public insurance companies have offered low-cost hospitalisation insurance programmes like the Jan Arogya Bima Policy and Rashtriya Swasthya Bima Yojana (RSYB) as well as Ayushman Bharat Yojana to help with the healthcare needs of the underprivileged section of society. Interestingly, compared to 2014 the real cost of treatment for inpatient care in 2017-18 has declined for urban residents in most of states (14 out of 17) whilst for rural residents this has been noticed in only 5 states, thus reflecting a healthy change in the reduced burden of treatment.

Keywords: Equity in healthcare, Healthcare costs, Morbidity, Public vs private hospital cost ratios, Untreated illnesses.

1. Introduction

The emphasis on equity in the utilization of health care services has been a defining aspect of health policy in India. Various health policies have consistently reaffirmed this, beginning with the 'Bhore Committee report' in 1946 and continuing with various national health policies including Ayushman Bharat Program initiated in 2018. India has committed to achieving Universal Health Coverage. The combined Central and State governments' health expenditure has risen slightly to 1.9% in 2022-23 from 1.4% of GDP in 2018-19, which is still drastically below the 5% norm required to support the Universal Health Coverage mission.

Indian healthcare system, similar to many neighbouring countries, has public and private providers with wide inter-state variations in terms of their spread and coverage. The total health expenditure (THE) for India is estimated to be 3.3% of Gross Domestic Product (GDP) of which public sector contributed 41.4%, household out-of-pocket expenditure (OOPE) 47.1%, the Private Health Insurance 7.0% and the remainder by Social Security and External Donors (National Health Accounts 2019-20, Government of India, 2023). Since the inception of National Health Accounts, the total health expenditure as percentage of GDP has continuously declined from 4.2% in 2004-05 to 3.8% in 2015-16 and further to 3.3% in 2019-20. It is interesting to note that the contribution of government has increased from 22.5% in 2004-05 to 41.4% in 2019-20, that of the household OOPE decreased from 69.4% to 47.1% whilst that of private health insurance increased from 1.6% to 7.0% during the same period.

Several evidences both quantitative and qualitative have consistently demonstrated that the high level of household OOPE on treatment including private health insurance premium is responsible for pushing people into poverty (Gumber 2000; World Bank 2001; van Doorslaer et al. 2006; Selvaraj et al. 2009; Berman et al. 2010). It may be noted that private health expenditure is higher than public expenditure across all major states. The burden of OOPE falls on a quarter or a third of the households with incomes below the poverty line (Deolalikar et al. 2008),

which has impacted the reduction in consumption expenditure on food and other essential items, increased indebtedness, and growing untreated illness; and which could further lead to gender bias in health-seeking behaviour (Sen, 2003).

Although public health system has not equally spread-out geographically and has several shortcomings in terms of providing both quantity and quality of services in India, even then it has been evident from the previous National Sample Survey Organisation (NSSO) Survey Rounds on Healthcare Utilisation that public health services are the preferred option, particularly, for inpatient care (Gumber 2002; Gumber 2021). Moreover, health outcomes, especially, infant mortality, respond more to public health and local clinical interventions than to hospital care (Deolalikar et al. 2008) and these may vary across states.

This paper portrays the health and morbidity conditions prevailing in India over a span of 31 years through analysing unit-level data of the NSS rounds for 1986-87, 1995-96, 2004, 2014 and 2017-18. It examines the changes in health seeking behaviour of males and females overtime; the trends in the use of public and private healthcare services by rural and urban residents separately associated expenditure on treatment as inpatient and outpatient care. These five survey rounds encompass through various economic development phases, namely the liberalization period of the 1980s, the period of fiscal contraction in the 1990s that saw the decline in social spending, the phase of globalization and the launch of National Rural Health Mission in 2005 and Rashtriya Swasthya Bima Yojana (RSYB) in 2008. Later on, in order to achieve the Universal Health Coverage (UHC) goals and following the recommendation of the National Health Policy 2017 the national Ayushman Bharat Yojana (comprehensive need-based health scheme) was introduced in early 2018. The impetus to write this paper came after seeing the surprising findings of the NSS 75th round (2017-18) on the cost of treatment which reports "Average medical expenditure for hospitalisation has decreased in NSS 75th round in both rural and urban areas and also at all-India level as compared to NSS 71st round" (Government of India, 2019a: p5). Therefore, the most critical objective of this paper is to compare the real cost of treatment faced by rural and urban residents across states not only in the previous two but all the five rounds (1986-87 through 2017-18) after adjusting for the inflation specifically experienced in the pharmaceutical sector.

The paper is structured in five sections, including the introduction. The health and morbidity scenario for India as well as for select states together with changes in people's health seeking behaviour overtime are discussed in section 2. Section 3 examines the healthcare utilisation pattern and associated cost of treatment for inpatient and outpatient care for rural and urban residents along with differentials in cost of treatment between public and private facilities. The key findings and conclusions are drawn in the final section.

The analysis took into account 17 of India's largest states; however, the computation of "All-India" averages included all major and smaller states and union territories. There have been a few splits in states after November 2000; hence we have added back Chhattisgarh to Madhya Pradesh, Uttaranchal to Uttar Pradesh and Jharkhand to Bihar (which depicts a pre-bifurcation scenario) in order to compare statistics between NSSO Rounds. Furthermore, to account for inflation between survey rounds we converted the cost of treatment in real terms by deflating the OOP expenditure by the wholesale price index of pharmaceutical products at 2011-12 prices. Pharmaceutical prices are a significantly better reflection of the actual rising cost of Indian healthcare services than the deflator based on consumer price/wholesale price index for all commodities. The inflation rate of pharmaceutical products has turned out to be higher than those for all commodities. The wholesale price for pharmaceutical product is estimated to have increased by 318 per cent against 240 per cent for prices of all commodities during the period 1994-95 to 2011-12 (This is computed from RBI report on Wholesale Price Index for various years under sub-category - Manufacture of Pharmaceuticals, Medicinal Chemical and Botanical Products). Since much of the household's recurring health expenditure is incurred on purchasing the necessary drugs as an inpatient or outpatient, the use of price index for pharmaceutical items than any other commodity/general price index is more appropriate to demonstrate the financial burden of rising healthcare expenditure on people seeking treatment in widely diverse states of India.

2. Health Scenario in India

India's health landscape has evolved significantly over the decade and is characterized by improvements in health indicators. India has witnessed a consistent decline in its birth, death, and natural growth rates. In 2020, the birth rate had decreased to 19.7 per 1000 population, and the death rate to 6 per 1000 population compared to 1991 levels of 29.5 and 9.8, respectively. Notably, rural areas reported higher birth and death rates than their urban counterparts, reflecting a persistent rural-urban demographic divide. India experienced a significant improvement in life expectancy, increasing from 49.7 years in 1970-75 to 69.4 years in 2014-18. The life expectancy for females reached 70.2 surpassing the 68.2 years recorded for males. However, several states reported figures below the national averages reflecting regional disparities in life expectancy across the country. Life expectancy lagged in Madhya Pradesh, Uttar Pradesh, Assam and Chhattisgarh. India has made commendable progress in reducing its infant mortality rate (IMR) over time. In 1994, IMR stood at 74 infant deaths per thousand live births, with rural areas showing a higher rate of 80, while urban areas had a rate of 52. By 2020, IMR dropped to 28 infant deaths per thousand live births, with rural areas at 31 and urban areas at 19 infant deaths per thousand live births. Despite the nationwide progress, states such as Madhya Pradesh(43), Uttar Pradesh(38), Chhattisgarh(38), Assam (36) and Odisha(36) reported higher IMR in 2020. Maternal Mortality Ratio (MMR) of India has declined to 97 per 1,00,000 live births for 2018-2020 from 178 per 1,00,000 for 2010-2012.[1]

Over the past years, India has seen considerable advancements in health care infrastructure ,including improvement in medical education and the provision of health facilities. The number of medical colleges has increased to 648 medical colleges (396 government, 252 private) as of September 2022 compared to 146 medical colleges in 1991-92. Several schemes were introduced to ensure improvement it healthcare provisions including National Rural Health Mission (2005), National Health Policy(2017, National Ayush mission(2012), National

[1] Health indicators provided by "CBHI (2020). National Health Profile 2020. India: Central Bureau of Health Intelligence (CBHI), Directorate General of Health Services, Ministry of Health and Family Welfare (MoHFW), Government of India "
https://cbhidghs.mohfw.gov.in/WriteReadData/l892s/9420384676161680514146.pdf

Urban Health Mission(2013), Ayushman Bharat Yojana(2018). As a result, the number of government health facilities including sub-centres, Primary Health Centres, Community Health Centres, sub-divisional Hospitals and district hospitals has increased.

Despite advancements in healthcare infrastructure, India still trails behind other low- and middle-income countries. For instance, India has just about 5.3 hospital beds per 10,000 population, which is significantly lower than that of Indonesia, Bangladesh, Brazil, and China (Selvaraj et al 2022). The lack of a sufficient health workforce is a key driver of inefficiency in government healthcare services, with the density of active doctors and nurses/midwives considerably falling well short of the WHO standard (Karan et al 2021). There is a pronounced imbalance in the health workforce across different states and between rural and urban areas, as well as within public and private sectors(Karan et al 2021, Hazarika 2013).

India's health care system is a mix of government and private health care sector. The private health care sector is dominant with heavy concentration of diagnostic facilities , workforce and specialized services (Selvaraj et al 2022). India's healthcare system is most privatized and commercialized healthcare system globally, coupled with an underfunded public health sector, exacerbating social and economic inequalities, especially impacting women, marginalized and vulnerable population (Shukla, Pawar & More 2021).

India's Healthcare Access and Quality Index score is 41, placing it 145th in the Global Burden of Disease Study 2016 and there is a noteworthy interstate disparity in personal healthcare access and quality, with Goa scoring 64.8 and Assam 34 (Fullman et al 2018). There is substantial disparity in health care utilization and its determinants include geographical regions , social groups, gender, income level and educational background. Several studies has reflected on the inequality in utilization of healthcare services(Baru et al 2010, Reddy et al 2011, Rout et al 2019, Ghosh 2014, Mahapatro, James & Mishra, 2021).

India is experiencing an epidemiological transition characterized by a growing prevalence of non-communicable diseases (Yadav & Arokiasamy 2014). The share of total deaths attributed to NCDs has risen substantially, from 36.8% in 1991 to 55.09% in 2021. Conversely, the percentage of deaths caused by communicable, maternal, neonatal, and nutritional diseases has decreased from 54.1% in 1990 to 31% in 2021(Global Burden of Disease 2021) . This shift highlights the dual burden of both communicable and non-communicable diseases. The magnitude and causes of disease burden differ significantly across the states as there is diverse stages of epidemiological transition within the country, underscoring the necessity of state-specific health policies and interventions (Dandona et al 2017).

With the increasing attention towards achieving better population health, India has significantly improved its health in terms of higher life expectancy and lower levels of mortality over the last 50 years. According to health indicators provided by the Central Bureau of Health Intelligence, (Government of India, 2018), the birth rate decreased from 25.8 in 2000 to 20.4 in 2016 and the crude death rate decreased from 8.5 to 6.4 during the same period. Other health metrics, such as the infant and maternal mortality rates, have also decreased over time as a result of the numerous programmes included in previous Five Year Plans. Between the 1970s and 2015, the infant mortality rate dropped from 120 per 1,000 live births by more than a third to 37. Similarly, the maternal mortality ratio decreased from 400 maternal deaths per 100,000 live births in 1997-98 to 167 in 2011-13. In spite of these improved health outcomes, substantial disparities in these health indicators continue to prevail among the states (Balarajan et al. 2011).

In contrast to other Asian nations like China, Indonesia, Thailand, Malaysia, the Republic of Korea, and Sri Lanka, India's progress has lagged behind. Due to the continuous epidemiological transformation and the explosive increase of non-communicable diseases, the nation is also dealing with the new challenge of a "double burden of disease." Even though India has made tremendous progress in containing communicable diseases, their disease burden on the nation is still significant. The prevalence of chronic non-communicable diseases (NCDs), such as cardiovascular disease, diabetes, chronic obstructive pulmonary disease, malignancies, common mental disorders, and accidents, has gradually increased along with the drop in morbidity and mortality from communicable diseases. The National Health Policy 2015 states that communicable diseases still account for 24.4% of all disease burden while maternal and neo-natal ailments contribute to 13.8%. The NCDs (39.1%) and injuries (11.8%) now constitute the bulk of the country's disease burden.

The government health spending in India must significantly grow in light of the prevalent disease burden. The supply and financing of various health services between the federal government and the states are clearly demarcated. The financing and provision of curative healthcare are both regarded as state matters. The Employees' State Insurance Scheme (ESIS), primary healthcare facilities, and hospital services are entirely funded by the state. The federal government fully funds programmes for family welfare and medical education. The majority of national disease control programmes are funded on a 50:50 share basis by the federal government and the states. However, the state's contribution to the overall cost of these programmes turns out to be around three-fourths, i.e., only basic inputs are shared equally. The state has to bear all the administrative cost including salaries of the staff. The centre and states share equally the capital investment. The federal government's share is little over 40% in the total expenditure on medical education and research, Broadly, thus the states fully manage and fund all curative care services. This implies that State's economic and financial conditions as well as human resources have a direct impact on people's health outcomes.

Table 1. Key Health Financing Indicators for India across NHA Rounds.

	2004-05	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
1 THE as % of GDP	4.2	4	3.9	3.8	3.8	3.3	3.2	3.3
2 THE per capita (Rs) at current prices	1201	3638	3826	4116	4381	4297	4470	4863
3 CHE as % of THE	98.9	93	93.4	93.7	92.8	88.5	90.6	90.5
4 Total Govt. Health Exp. As % of THE	22.5	28.6	29	30.6	32.4	40.8	40.6	41.4
5 OOPE as % of THE	69.4	64.2	62.6	60.6	58.7	48.8	48.2	47.1
6 Social security expenditure on health as percent of THE	4.2	6	5.7	6.3	7.3	9	9.6	9.3
7 Private Health Insurance as a % THE	1.6	3.4	3.7	4.2	4.7	5.8	6.6	7.0
8 External/Donor Funding for health as percent of THE	2.3	0.3	0.7	0.7	0.6	0.5	0.4	0.5

Note: THE, CHE, and OOPE refer to Total Health Expenditure, Current Health Expenditure, Out-of-Pocket Expenditure, respectively.
Source: National Health Accounts- Estimates for India 2019-20.

India is dedicated to attaining universal health coverage for everyone by 2030, aiming to provide access to high-quality health services without causing financial burdens. The vital role played by health financing indicators is instrumental in realizing universal health coverage.

The key financing indicators are shown in Table 1.

The percentage of Total Health Expenditure in relation to GDP reflects India's healthcare spending in proportion to its economic growth. Since the fiscal year 2013-14, India's total health expenditure as a percentage of GDP has stayed below 4 per cent. The per capita health expenditure at current prices has escalated more than four times from Rs. 1201 in 2004-05 to Rs. 4863 by the year 2019-20. A decline in operational healthcare expenses have been noted as the percentage of Current Health Expenditure (CHE) to Total Health Expenditure (THE) has reduced over the years. The CHE as a percentage of THE dropped from 98.9% in 2004-05 to 88.5% in 2017-18, and subsequently rose to 90.5% in 2019-20.

Government health expenditure includes all initiatives financed and administered by the local, state, and union governments. A higher government expenditure reduces the household out-of-pocket expenditure (OOPE), and as a result decreases the relative financial burden on households. The proportion of total government expenditure relative to THE has shown an upward trend over the past years. A notable surge occurred in the fiscal year 2017-18, with total government expenditure increasing from 32.4% in 2016-17 to 40.8% in 2017-18. This surge is reflected in the percentage share of OOPE relative to THE, which decreased from 58.7 in 2016-17 to 48.8 in 2017-18. The pattern shows an inverse relationship between government health expenditure and out-of-pocket expenditure as a percentage of THE. Most recent estimates by the news agency ANI (2024) for 2021-22 shows that for the first time the share of government health expenditure in THE has surpassed that of the household OOPE (48% vs. 39.4%). Thus the government's increased focus on public funding is easing the financial burden on households who have traditionally relied on private healthcare services for treatment.

Expenditure on health through social security programs, as a percentage of THE, has grown over the years, rising from 4.2% in 2004-05 to 9.3% in 2019-20. This portrays an augmentation in pooled funds, facilitated by government-backed health insurance schemes such as RSBY, PMJAY, and government employee benefit programmes. Similarly, the share of Private Health Insurance as a percentage of THE has also seen an increase, escalating from 1.6% in 2004-05 to 7.0% in 2019-20. This suggests a surge in the adoption of voluntary prepayment plans aimed at enhancing financial protection against catastrophic health expenditure. The proportion of External/Donor Funding for health in relation to THE demonstrates a decreasing pattern, declining from 2.3% in 2004-05 to 0.5% in 2019-20.

All these health statistics on healthcare financing clearly reflects a shift in reshaping India's healthcare landscape, ensuring more equitable distribution of resources and improving access to medical care together with reliance on health insurance to provide financial protection against catastrophic hospital expenses. By prioritizing public health, the government is working toward a more accessible and affordable healthcare system for all citizens.

Aganst this general background, we report in the following section the pattern of health care utilisation across 17 major states over five NSS rounds.

3. Pattern of Healthcare Use

3.1. Health Seeking Behaviour

An episode of illness may result in seeking or not seeking a medical advice for treatment, and thus reflects on of the health-seeking behaviour of individuals. The decision to use a health facility immediately or later would depend upon the personal circumstances, socioeconomic condition, affordability and proximity to healthcare services. Several studies on healthcare utilization depicted the influenced of various predisposing factors such as financial status, socioeconomic conditions, and demographic elements; the gender disparities in healthcare utilization, with females in India trailing behind their male counterparts are highlighted by Saikia, Moradhvaj, and Bora (2016); Patel and Chauhan (2020). Likewise, studies highlight people in rural areas face more significant challenges when compared to their urban counterparts in terms of healthcare access (Ghosh, 2014).

The demographics particularly the gender plays a critical factor in deciding whether to seek treatment or not. Figure 1, which shows the gender differences in the percentages of illnesses treated, highlights the disparities between rural and urban residents' patterns of health-seeking behaviour. Until the year 2004, the utilization of healthcare services by females was lower compared to their male counterparts, both in rural and urban areas. In 1986-87, the healthcare utilization rates for rural males and females were 82.8% and 80.2%, respectively. However, by 2017-18, there was a shift, and female utilisation surpassed that of males. In rural areas, female utilisation reached 88.3%, while male utilisation was 87.9%. Similarly, the gap between males and females in urban areas also narrowed down. In 1986-87, urban males reported 90.2% of illnesses being treated, whereas for urban females the

figure was lower to 88.1%. In 2017-18, the figures of illnesses being treated rose to 92.3% for urban males and 93.07% for urban females. Thus, the gender difference favouring men that was evident in the prior three rounds disappeared by 2014 and was minimal during 2017-18.

Overall at the all-India level, the proportion of illnesses treated in urban regions for both males and females continued to remain greater than those in rural areas in all the five rounds. This is due to the fact that urban areas have better availability of medical facilities. The rural-urban disparity for illnesses being treated has also decreased over the years. In 1986-87, the proportion of treated illnesses in the rural population was 81%, contrasting with 89.1% in urban areas. Although this gap has considerably diminished, a slight disadvantage for the rural population still persists. In 2017-18, the percentage of the rural population seeking treatment for illnesses was 88.1%, while that for urban population it was higher by 4.6% point (i.e., 92.7% of illnesses being treated). By 2017-18, the rural-urban divide is found to be much smaller than what existed in 1986–1987.

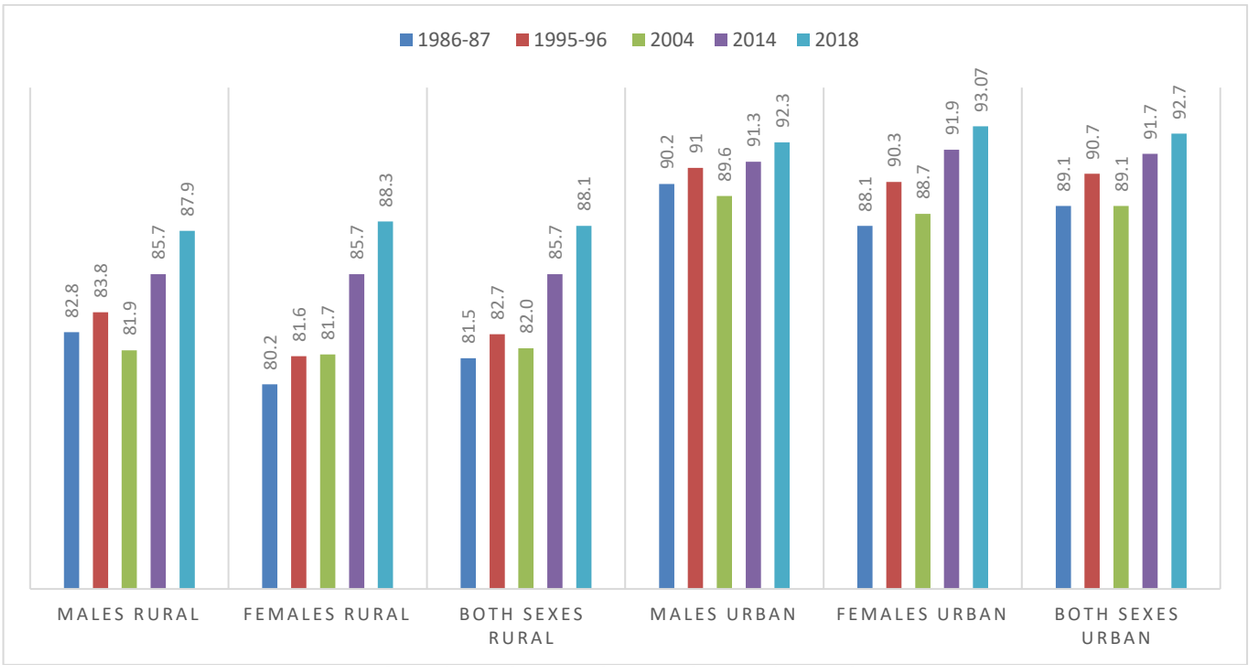

Figure 1. Share of treated illnesses by sex and rural-urban residence (%).

Additionally there are significant differences in health seeking behaviour between men and women and between rural and urban areas across states indicating positive and negative trends over the five rounds. Table 2 illustrates the share of treated illness by gender across rural and urban areas by states. The overall pattern diverges significantly among states concerning the rural-urban divide, gender disparity, and the increase in seeking treatment for illnesses. In 2017-18, the rural-urban divide is notably pronounced in Assam, followed by Karnataka, Bihar, West Bengal, and Uttar Pradesh. Conversely, states such as Haryana, Andhra Pradesh, Rajasthan, and Kerala exhibit a reversed trend, with the share of the rural population seeking treatment surpassing their urban counterparts.

For the year 2017-18, the highest gender disparity in rural areas is observed in Jammu and Kashmir, followed by Assam, Odisha, Tamil Nadu, Gujarat, and Haryana. In urban areas, gender disparity is most prominent in Odisha, followed by Himachal Pradesh, Tamil Nadu, Andhra Pradesh, and Karnataka, respectively.

In contrast to the figures from 1986-87, the percentage of individuals seeking treatment for illnesses in both urban and rural areas has experienced a slight increase in 2017-18. However, this upward trend is not consistently observed across states. When compared to 1986-87, the urban regions of Andhra Pradesh, Kerala, West Bengal, Maharashtra, Tamil Nadu, and Assam have exhibited a notable increase. Conversely, Bihar, followed by Odisha, Jammu and Kashmir, Himachal Pradesh, and Madhya Pradesh, has shown a decline in the utilization of healthcare services.

In rural areas, Andhra Pradesh, Tamil Nadu, Maharashtra, and Madhya Pradesh have demonstrated a significant increase in the share of treatment in 2017-18 compared to 1986-87. Meanwhile, Bihar, Assam, Karnataka, and Himachal Pradesh have experienced a decline in this aspect over the same period.

3.2. Underlying Reasons for Not Seeking Treatment

Despite the experiencing an illness, not everyone seeks medical help/assistance primarily due to various socio-economic and cultural reasons. One of such reasons could be because "respondents are known to underestimate both latent illness and chronic illness and the perception of being ill is known to be dependent on cultural factors, health awareness and access to care" (Sundarraman and Muraleedharan, 2015:p.17). The NSS rounds had collected responses on the underlying reasons for 'not seeking treatment' for their illnesses categorised in six heads: (a) non-availability of medical facility nearby; (b) lack of faith; (c) lengthy waiting period; (d) financial reasons; (e) ailment not regarded as serious; and (f) all other remaining reasons. Ailment not considered serious serves as a significant deterrent to seeking medical treatment across all surveyed rounds in both rural and urban areas (see Table 3). Financial constraints were a prevalent hindrance to medical care up to 2004, showing an increase in both rural and urban regions. However, there was a substantial decline in financial reasons post-2004, dropping from 15.3% in 1986-87 to 2.71% in 2017-18 in rural India and from 9.6% to 1.5% in urban India during the same period. This suggests that increased government spending has made healthcare more affordable.

Table 2. Share of treated illnesses by sex across rural and urban residents by states.

Major States	Rural Males					Rural Females					Rural Both Sexes				
	1986-87	1995-96	2004	2014	2017-18	1986-87	1995-96	2004	2014	2018	1986-87	1995-96	2004	2014	2017-18
Andhra Pradesh	63.2	76.9	79.7	82.1	93.3	56.3	71.9	73.2	87.5	92.1	59.7	74.5	76.2	84.8	92.6
Assam	77.1	56.2	76.9	65.8	71.3	76.3	55.7	81.2	80.7	62.9	76.7	56.0	79.0	74.8	67.0
Bihar	85.2	78.6	80.3	68.2	66.7	84.1	77.6	80.9	59.7	71.6	84.7	78.1	80.6	63.8	69.0
Gujarat	89.1	94.7	80.4	91.1	93.6	87.9	89.4	85.0	88.4	89.1	88.5	92.1	82.7	89.8	91.2
Haryana	90.3	98.7	94.6	85.6	98.7	90.7	95.4	92.5	99.3	95.9	90.5	97.0	93.5	93.4	97.0
Himachal Pradesh	94.8	89.0	93.7	96.1	89.2	98.1	86.2	95.6	93.2	90.5	96.5	87.5	94.0	94.2	89.9
Jammu & Kashmir	90.5	94.7	85.7	98.4	93.3	85.1	92.7	78.1	89.9	84.2	87.9	93.7	82.0	93.5	87.3
Karnataka	88.5	83.9	76.8	93.7	79.8	87.3	72.0	77.2	95.6	80.1	87.9	77.5	77.0	94.7	80.0
Kerala	93.4	87.9	83.0	94.4	96.1	91.2	88.6	86.3	96.9	96.9	92.2	88.3	87.0	95.8	96.6
Madhya Pradesh	74.5	85.1	85.5	90.5	89.4	71.8	82.4	89.1	90.2	87.3	80.0	83.7	87.4	90.4	88.2
Maharashtra	79.8	90.4	88.6	93.3	89.8	80.2	86.8	87.7	93.1	90.4	73.3	88.6	88.1	93.2	90.2
Odisha	70.7	69.3	75.7	88.6	80.8	68.8	66.1	76.4	79.1	74.3	69.7	67.7	76.0	83.4	77.4
Punjab	94.6	99.4	94.8	94.6	93.6	93.0	98.6	93.2	95.6	93.6	93.8	99.0	93.9	95.2	93.6
Rajasthan	84.5	86.0	88.6	90.7	92.1	81.7	95.1	91.7	84.7	92.5	83.2	89.8	90.2	87.1	92.3
Tamil Nadu	75.2	75.9	77.6	91.8	97.8	75.7	79.2	78.6	93.9	93.3	75.3	77.6	78.1	93.0	95.6
Uttar Pradesh	89.0	91.3	76.7	84.9	86.0	85.5	89.9	76.0	82.6	87.2	87.4	90.6	76.4	83.7	86.6
West Bengal	84.4	79.4	83.4	79.2	86.8	81.5	80.8	77.1	79.8	90.0	83.0	80.1	80.3	79.5	88.6
All-India	82.8	83.8	81.9	85.7	87.9	80.2	81.6	81.7	85.7	88.3	81.5	82.7	82.0	85.7	88.1

Major States	Urban Males					Urban Females					Urban Both Sexes				
	1986-87	1995-96	2004	2014	2017-18	1986-87	1995-96	2004	2014	2017-18	1986-87	1995-96	2004	2014	2017-18
Andhra Pradesh	77.3	87.2	88.8	91.6	93.8	66.2	82.8	86.8	92.2	89.0	71.4	85	87.7	91.9	91.4
Assam	90	68.5	97.3	94.7	87.7	84.8	59.6	91.9	40.2	96.2	87.3	63.6	94.3	65.3	93.1
Bihar	92.7	84.2	87.1	55.5	73.3	91.2	84.8	88.4	64.9	80.7	91.5	84.5	87.7	59.6	77.3
Gujarat	94.3	95.8	92	96.2	92.8	95.2	97.1	93.9	95.2	96.7	94.7	96.5	92.9	95.7	94.9
Haryana	91	97.8	94.7	99.8	94.8	91	98.8	97.8	96.2	93.8	91	98.4	95	98	94.3
Himachal Pradesh	100	96.9	100	98.9	97.2	100	97.6	91.5	99.4	89.3	100	97.2	92	99.1	92.1
Jammu & Kashmir	98.3	96.8	93.7	96.6	87.7	98.1	98.6	94.7	75.4	91.5	98.2	97.6	94.2	84.9	90.1
Karnataka	93.4	89.6	84.8	90	95.9	96.7	93.2	87.1	95.2	91.9	95.1	91.4	86	93	93.9
Kerala	91.5	89.6	88.9	92.7	96.4	89.4	88.8	90.7	94.5	97.6	90.4	89.2	89.9	93.8	97.2
Madhya Pradesh	88.6	94.8	96.7	92.9	87.2	86.3	91.5	94.1	93.2	88.9	95.4	93.3	95.3	93.1	88.0
Maharashtra	95.2	92.2	91.3	93.2	92.8	95.5	92.4	92.6	96.4	94.2	87.4	92.3	91.9	94.8	93.5
Odisha	88.4	84.3	86.8	84.5	85.1	89.5	88.6	86.3	81.3	76.1	88.9	86.6	86.6	82.8	80.5
Punjab	97.4	96.5	96.8	85.1	94.3	95.3	96.5	96.4	87.2	97.1	96.4	96.5	96.6	86.3	95.8
Rajasthan	90	80.6	88.8	93.5	86.3	90.3	88.5	90	97.5	97.1	90.2	89.6	89.4	95.5	92.8
Tamil Nadu	89.2	90.9	89.8	93.9	98.0	88.4	92.8	83.9	92.9	92.1	88.8	92	86.5	93.3	94.7
Uttar Pradesh	87.9	94.7	87.6	87.8	90.6	87.7	92.6	88	90	90.9	87.8	93.5	87.8	89.1	90.8
West Bengal	90.7	91	84.8	93.3	92.4	85.2	88.8	81	89.9	95.6	87.9	89.9	82.8	91.3	94.1
All-India	90.2	91	89.6	91.3	92.3	88.1	90.3	88.7	91.9	93.07	89.1	90.7	89.1	91.7	92.7

Table 3. Distribution of Untreated Ailments by Reason for Non-Treatment, 1986-87 to 2017-18.

State	Survey Year	Rural Residents						Urban Residents					
		No nearby medic al facility	Lack of faith/non satis- factory facility *	Long waiting	Financial reasons	Ailment not considered serious	Others	No nearby medical facility	Lack of faith	Long waiting	Financial reasons	Ailment not considered serious	Others
Andhra Pradesh	1986-87	0.9	1.1	0.2	10.1	74.4	7.2	0.0	1.2	0.8	8.0	84.6	5.5
	1995-96	3.2	4.7	0.3	26.2	56.2	7.9	0.0	10.7	2.1	20.3	54.8	10.7
	2004	8.0	2.2	0.0	26.6	39.2	23.9	0.6	3.7	0.3	13.0	75.0	7.5
	2014	12.6	8.7	0.1	5.8	46.7	26.1	5.6	5.1	0.3	8.8	57.2	23.0
	2017-18	5.3	2.3	7.5	2.3	75.9	6.8	3.2	0.8	4.0	0.8	84.9	6.4
Assam	1986-87	0.5	1.1	1.1	5.3	87.7	4.3	0.0	0.1	5.7	3.7	82.9	7.7
	1995-96	11.5	4.5	0.9	9.2	58.0	13.0	0.2	8.7	0.3	20.5	58.0	10.9
	2004	14.7	3.9	0.0	22.2	44.4	14.7	0.0	0.0	0.0	36.1	63.9	0.0
	2014	1.0	0.3	0.0	0.0	92.4	6.2	0.0	0.0	0.7	0.0	94.7	4.6
	2017-18	3.0	7.6	0.0	3.0	77.3	9.1	0.0	5.6	5.6	0.0	83.3	5.6
Bihar	1986-87	1.9	1.3	0.8	18.0	74.7	3.3	0.0	0.2	0.0	9.1	86.1	4.5
	1995-96	5.3	1.5	1.9	40.4	36.8	9.6	0.0	2.9	0.8	24.9	55.4	13.0
	2004	10.6	1.6	0.1	27.2	37.6	22.7	0.0	0.2	1.5	15.5	71.5	11.3
	2014	14.4	2.8	0.6	0.0	76.1	6.0	0.0	0.6	2.0	0.1	92.7	4.6
	2017-18	13.0	3.4	1.3	3.4	59.4	19.7	2.2	1.5	0.7	0.0	79.4	16.2
Gujarat	1986-87	0.3	0.6	9.0	17.4	74.7	6.0	0.0	5.7	0.0	13.3	77.2	3.8
	1995-96	23.1	2.7	0.0	2.8	66.4	5.0	0.0	5.5	19.2	0.0	52.4	9.7
	2004	4.1	3.7	2.3	24.3	42.2	23.2	0.0	2.1	2.0	9.8	55.4	30.7
	2014	0.0	8.9	11.2	1.3	47.8	30.7	9.6	0.4	19.9	0.6	65.8	3.7
	2017-18	0.0	0.0	0.0	0.0	82.1	17.9	0.0	2.9	11.4	2.9	71.4	11.4
Haryana	1986-87	0.6	3.6	1.0	14.1	70.6	10.2	0.0	6.2	0.0	7.1	75.1	11.6
	1995-96	9.6	16.6	0.0	12.9	55.9	5.0	0.0	0.0	0.0	12.9	22.8	64.3
	2004	0.0	8.7	0.0	14.1	42.2	34.9	0.0	0.0	0.0	0.0	29.0	71.0
	2014	0.0	0.0	0.0	0.0	89.4	10.6	0.0	0.0	9.9	0.0	84.6	5.5
	2017-18	2.6	0.0	2.6	2.6	60.5	31.6	0.0	0.0	15.4	7.7	46.2	30.8
Himachal Pradesh	1986-87	14.1	4.1	1.1	4.3	70.9	5.5	0.0	0.0	0.0	0.0	0.0	0.0
	1995-96	2.4	7.4	0.6	0.5	52.9	32.3	0.0	0.0	0.0	0.0	63.2	35.9
	2004	6.2	0.0	0.0	21.9	4.6	67.2	0.0	0.0	64.0	36.0	0.0	0.0
	2014	7.8	2.3	0.0	0.6	73.9	15.4	0.0	0.0	58.5	0.0	41.5	0.0

	2017-18	10.3	2.6	2.6	10.3	59.0	15.4	0.0	10.0	0.0	0.0	90.0	0.0
Jammu & Kashmir	1986-87	3.9	8.1	0.0	67.5	15.2	5.3	0.0	5.3	0.0	4.5	90.2	0.0
	1995-96	14.3	0.0	4.4	0.3	73.3	7.7	0.0	0.0	6.4	13.6	57.2	19.9
	2004	4.4	0.0	0.0	44.0	20.0	31.5	0.0	0.0	0.0	2.3	51.5	46.2
	2014	1.4	0.0	8.1	1.1	67.5	21.8	0.0	0.0	0.0	0.0	25.9	74.1
	2017-18	1.6	0.0	1.6	0.0	91.8	4.9	5.2	3.5	3.5	0.0	79.3	8.6
Karnataka	1986-87	5.3	3.4	0.2	14.6	67.6	8.9	0.7	1.7	0.0	11.3	81.6	4.7
	1995-96	7.5	4.8	0.0	22.0	58.4	5.4	0.0	1.6	0.0	11.6	73.7	12.9
	2004	2.9	3.9	0.0	33.9	29.1	30.2	2.5	4.9	0.0	31.7	35.4	25.5
	2014	3.8	8.8	0.9	0.0	79.3	7.2	0.4	18.2	0.0	0.3	73.9	7.3
	2017-18	0.0	1.3	0.0	1.3	92.5	5.0	0.0	0.0	0.0	0.0	94.3	5.7
Kerala	1986-87	0.0	1.7	0.0	14.7	81.0	2.6	0.0	0.2	0.0	4.5	88.9	6.4
	1995-96	5.7	1.2	0.0	12.9	69.8	9.1	1.1	1.3	0.0	12.4	68.6	14.4
	2004	0.2	1.0	0.3	24.3	58.4	15.8	0.0	0.3	1.2	10.6	82.4	5.4
	2014	1.8	0.0	0.9	5.4	51.4	40.4	0.0	0.7	0.0	0.4	68.4	30.5
	2017-18	5.5	2.2	3.3	0.0	79.1	9.9	0.0	0.0	1.6	0.0	87.5	10.9
Madhya Pradesh	1986-87	5.4	2.5	Negl	15.8	73.3	3.0	0.3	2.6	0.4	8.6	88.8	4.3
	1995-96	19.8	2.6	0.0	21.0	45.4	7.5	10.8	15.3	0.0	10.4	52.4	10.9
	2004	11.7	0.8	0.0	22.7	48.6	16.1	0.0	1.1	2.3	23.3	45.6	27.8
	2014	19.6	0.0	0.4	0.0	58.4	21.6	9.9	3.5	8.1	3.1	40.8	34.6
	2017-18	7.0	1.7	7.8	0.0	69.6	13.9	2.4	1.2	3.6	3.6	74.7	14.5
Maharashtra	1986-87	1.6	1.4	0.8	7.2	85.5	3.5	0.5	0.4	2.7	8.2	80.4	7.8
	1995-96	8.2	3.4	0.0	20.1	63.7	4.2	0.0	0.0	0.3	25.1	63.3	11.3
	2004	7.2	2.5	0.7	40.7	36.1	12.9	1.1	2.0	0.3	18.8	69.6	8.3
	2014	26.1	1.7	3.5	4.1	60.3	4.3	0.2	2.5	19.0	0.6	62.2	15.4
	2017-18	16.3	3.1	8.2	0.0	57.1	15.3	2.6	3.4	10.3	1.7	70.1	12.0
Odisha	1986-87	6.6	1.2	0.0	68.6	17.4	6.2	0.9	0.0	0.0	12.1	85.5	1.5
	1995-96	19.5	5.1	0.4	23.0	38.3	10.8	0.0	0.0	4.0	45.4	35.6	10.0
	2004	13.5	1.2	0.0	23.8	28.4	33.2	3.0	7.1	0.0	42.2	36.5	11.1
	2014	3.9	4.3	8.9	2.7	71.9	8.2	2.2	0.5	2.6	10.5	76.6	7.6
	2017-18	6.8	2.8	2.3	1.1	80.2	6.8	0.0	3.5	1.8	0.0	86.0	8.8
Punjab	1986-87	1.3	3.1	0.0	6.2	82.7	6.7	0.0	2.0	0.0	2.1	93.2	2.8
	1995-96	21.3	5.5	0.0	49.0	7.7	16.5	0.0	4.5	0.0	47.3	48.2	0.0
	2004	1.5	3.7	2.5	41.5	27.8	23.0	0.0	0.0	0.0	49.1	42.2	8.7

	2014	4.0	2.5	6.2	2.0	56.5	28.7	0.0	0.1	7.8	1.4	61.8	29.0
	2017-18	4.7	0.0	7.0	7.0	60.5	20.9	0.0	0.0	0.0	3.5	89.7	6.9
Rajasthan	1986-87	8.6	3.2	0.7	69.5	14.7	3.3	0.1	0.6	0.3	11.2	86.4	1.5
	1995-96	7.1	2.2	0.0	60.3	25.7	4.7	0.0	1.3	0.0	4.9	72.2	21.6
	2004	4.1	6.5	1.8	37.1	25.2	25.3	13.1	0.0	1.3	34.8	35.1	15.8
	2014	1.2	0.0	6.9	12.0	74.9	4.9	0.0	0.4	15.5	1.3	75.6	7.2
	2017-18	12.5	4.2	0.0	2.1	66.7	14.6	0.0	5.4	13.5	5.4	59.5	16.2
Tamil Nadu	1986-87	1.6	2.5	1.3	15.1	71.6	8.0	0.0	0.9	2.5	7.5	79.9	9.2
	1995-96	0.8	4.7	1.1	21.6	66.1	5.6	0.0	5.1	0.0	11.7	46.6	36.0
	2004	3.9	2.3	1.8	31.8	52.2	8.1	1.1	4.7	4.4	23.6	45.6	20.6
	2014	1.4	0.4	4.0	0.0	85.1	9.0	0.2	0.6	0.9	0.9	73.9	23.5
	2017-18	7.7	1.9	3.9	1.9	82.7	1.9	2.9	2.9	2.9	17.1	62.9	11.4
Uttar Pradesh	1986-87	2.9	2.6	0.1	18.6	73.8	2.0	0.4	0.8	0.9	15.1	75.7	7.2
	1995-96	10.8	4.5	0.0	22.4	51.0	9.6	0.0	11.2	1.0	22.5	64.6	0.7
	2004	21.8	5.3	0.8	31.1	31.7	9.3	0.0	0.9	3.9	31.4	51.5	12.3
	2014	17.4	3.6	8.0	0.0	60.6	10.5	1.0	3.9	11.7	2.4	69.1	11.9
	2017-18	9.3	1.4	2.1	3.9	75.1	8.2	1.1	2.2	1.1	4.4	77.5	13.7
West Bengal	1986-87	3.9	2.0	0.0	12.1	78.3	3.7	0.1	1.5	2.1	11.8	78.4	6.0
	1995-96	7.9	0.5	0.0	43.1	34.6	13.2	0.0	2.0	0.3	19.7	65.9	10.6
	2004	22.7	2.5	3.6	42.3	20.4	8.4	1.6	0.9	2.5	27.8	52.9	14.3
	2014	30.9	2.2	11.6	10.0	26.7	18.7	0.4	0.2	9.3	3.4	55.4	31.4
	2017-18	2.1	1.6	20.2	6.9	58.0	11.2	1.0	1.0	2.1	3.1	81.3	11.5
All-India	1986-87	2.9	1.9	0.3	15.3	74.6	5.0	0.1	1.8	1.1	9.6	81.1	6.3
	1995-96	8.8	3.7	0.5	24.2	51.1	9.9	0.8	5.3	1.1	19.8	59.4	12.4
	2004	13.0	4.1	0.8	28.5	35.7	17.9	1.5	3.7	2.0	24.0	50.4	18.4
	2014	15.4	3.7	6.2	3.4	57.4	14.0	1.3	2.2	5.3	2.3	68.3	20.6
	2017-18	7.3	2.3	5.3	2.8	71.2	11.1	1.8	1.9	3.6	2.5	77.7	12.6

Long waiting times as, a reason for not seeking treatment have increased over the years, particularly for rural residents, highlighting a greater need for proximity to primary health facilities in rural compared to urban areas. For rural residents, the long waiting hours as a deterrent increased from 0.3% in 1986-87 to 5.7% in 2017-18, while for their urban counterparts rose from 1.1% to 3.83% during the same period.

Lack of faith or dissatisfaction with facilities was reported by 1.9% in 1986-87 by rural residents, remaining below 4% over the years and then decreasing to 1.5% in 2017-18. In urban areas, lack of faith as a reason decreased from 5.3% in 1995-96 to 0.97% in 2017-18.

The rural-urban disparity in medical facility availability is evident in the increasing percentage of respondents citing the unavailability of nearby medical facilities as a reason for not seeking medical help, which rose from 2.9% in 1986-87 to 15.4% in 2014 and then declined to 8.6% for rural India. In contrast, the unavailability of medical facility as a deterrent to medical care in urban areas has increased slightly from 0.1% in 1986-87 to 1.11% in 2018.

The rural-urban disparity is apparent across all states in the analysis, with the stated reason for not seeking medical care—lack of nearby medical facilities—being more prevalent in rural areas compared to urban areas. However, exceptions to this trend are observed in Gujarat and Karnataka in 2017-18, where there are no reports of the absence of nearby facilities as a reason for not seeking healthcare in both rural and urban areas.

In the urban areas of Haryana, Himachal Pradesh, Kerala, Odisha, Punjab, and Rajasthan, there are no reported instances of the lack of nearby facilities as a reason for not seeking healthcare. On the other hand, there is an increase in the percentage of people citing the unavailability of nearby facilities as a reason for not seeking health care from rural areas of Assam, Haryana, Himachal Pradesh, Kerala, Punjab, Rajasthan, and Tamil Nadu in 2017-18. Additionally, urban areas in Jammu & Kashmir and Bihar also witnessed an increase in the mentioned reason in 2017-18 when compared with 1986-87.

The states of Andhra Pradesh, Kerala, Madhya Pradesh, Bihar, Maharashtra, Odisha, and the urban regions of Haryana, Punjab, West Bengal, and Karnataka have mirrored the national trend, reporting an increase in the share of financial reasons as the stated cause for not availing treatment until 2004. Subsequently, these regions experienced a declining trend in 2014 and 2017-18. In contrast, financial reasons as the stated cause for not seeking treatment exhibited an increasing pattern until 2004, followed by a decrease in 2014, and then a resurgence in 2017-18 in both the rural and urban regions of Tamil Nadu and Uttar Pradesh, rural regions of Karnataka, and Assam. The trend for financial reasons as the stated cause for not availing of treatment consistently decreased in rural regions of Rajasthan and West Bengal. A fluctuating pattern can be observed in Gujarat, Jammu and Kashmir, rural areas of Punjab, Haryana, Himachal Pradesh, and urban areas of Rajasthan regarding financial reasons as the stated cause for not seeking treatment.

Thus, the cost and affordability of seeking care plays a significant role in whether or not the poor and vulnerable sections of the society seek medical attention. Among the poor, there is a clear evidence that in case of illness they tend to report more on the financial costs as justifications for skipping the care. According to a multivariate analysis done of the previous NSS round, about half of those in the lowest monthly expenditure quintile (the poorest) avoid seeking medical care due to financial constraints (Gumber 1997). Even at macro level, in some of the poorest states of India, the main barrier to receiving treatment was financial cost.

3.3. Reliance on Public Health Services for Inpatient Care

The reliance on private health care providers for treatment is considered to be a major determinant contributing to increased healthcare expenditure and the occurrence of catastrophic or impoverishing healthcare expenses (LOUTFI et al., 2018). Seeking treatment from public healthcare providers reduces the probability of experiencing catastrophic healthcare expenditure.

Table 4 illustrates the percentage share of public healthcare providers for inpatient care. The share of public providers for the inpatient treatment sought by the rural residents, decreased from 59.7% in 1986-87 to 41.7% in 2004, then rose to 50.3% in 2014 and further to 56.6% in 207-18. In urban areas, the share of public health providers decreased from 60.3% in 1986-87 to 35.5% in 2014 but rose to 39% in 2017-18. Thus rural population relies more on public healthcare providers for inpatient care than their urban counterparts.

Among Indian states, Andhra Pradesh, Bihar, and Tamil Nadu showed an increased share of public providers for rural residents in 2017-18 when compared with 1986-87. A consistent decrease in share of public providers is evident from 1986-87 to 2017-18 in rural population of West Bengal. States experiencing a revival in the share of public providers in inpatient care from 2004 to 2017-18 include rural areas of Madhya Pradesh, Punjab, Bihar, Tamil Nadu, and Haryana. There is a declining trend in the share of public providers for inpatient treatment till 2014, followed by a sudden increase in 2017-18 in rural populations of Kerala, Maharashtra, Karnataka, Himachal Pradesh, and Gujarat. Gujarat showed a significant progress in the share of public health providers for inpatient treatment for rural residents, followed by Tamil Nadu, Maharashtra, Bihar, and Andhra Pradesh from the period 2014 to 2017-18. In the same period in rural population, Assam showed a drastic decline in the share of public health providers for inpatient treatment, followed by Odisha, West Bengal, and Rajasthan.

Surprisingly for urban population, every state has witnessed a decline in the share of public providers for inpatient care in 2017-18 when compared with 1986-87. Amongst major states, a consistent decrease in their share is evident from 1986-87 to 2017-18 in urban populations of Rajasthan, Odisha, Karnataka, Jammu and Kashmir and Gujarat. There is a declining trend in the share of public providers for inpatient treatment till 2014, followed by a surge in 2017-18 in urban population of Haryana, Kerala, Madhya Pradesh, Maharashtra, and West Bengal. States experiencing a revival in the share of public providers in inpatient care from 2004 to 2017-18 include Uttar Pradesh and Punjab. For urban residents from 2014 to 2017-18, Assam mirroring the rural counterparts displayed a drastic decline, followed by Bihar, Jammu and Kashmir, Rajasthan, Odisha, Himachal Pradesh, Gujarat, and Karnataka. The top five progressions in the share of public health providers in inpatient care for urban residents were observed in Tamil Nadu, followed by Madhya Pradesh, Andhra Pradesh, Haryana, and West Bengal.

Table 4. Share of Public Providers in Treated Illnesses, 1986-87 to 2017-18 - Inpatient Care.

	Rural Residents					Urban Residents				
State	**1986- 87**	**1995-96**	**2004**	**2014**	**2017-18**	**1986-87**	**1995-96**	**2004**	**2014**	**2017-18**
Andhra Pradesh	30.8	22.2	27.4	26.7	34.6	41.7	35.4	35.8	23.7	24.4
Assam	89.8	69.2	75.0	91.7	84.1	82.4	63.0	55.2	62.6	57.1
Bihar	50.1	24.1	21.7	56.1	54.4	46.8	31.9	26.5	49.1	39.5
Gujarat	56.0	31.4	31.3	27.5	43.6	61.8	36.3	26.1	24.5	24.0
Haryana	54.1	30.3	20.6	39.9	43.9	56.7	37.0	29.0	23.2	29.7
Himachal Pradesh	88.0	86.5	78.1	77.3	78.6	78.9	91.3	89.7	75.5	70.4
Jammu & Kashmir	96.5	97.7	91.2	94.0	95.2	96.1	95.9	86.4	82.2	81.1
Karnataka	59.8	45.0	40.0	37.3	40.3	50.0	29.3	28.9	23.2	24.5
Kerala	43.6	39.5	35.6	34.4	35.5	56.3	37.3	34.6	33.0	31.3
Madhya Pradesh	80.4	40.4	57.2	67.4	69.7	79.0	54.7	48.7	48.2	50.7
Maharashtra	45.8	30.9	28.7	26.9	37.2	49.4	30.7	28.0	24.4	23.7
Odisha	90.7	84.2	79.1	84.2	78.2	82.2	77.9	73.1	61.4	60.6
Punjab	49.2	37.7	29.4	36.1	41.4	52.0	26.5	26.4	31.7	30.7
Rajasthan	81.0	63.3	52.1	65.6	60.5	86.5	72.1	63.7	58.0	50.0
Tamil Nadu	56.9	40.4	40.8	45.4	60.9	58.2	34.2	37.2	32.6	41.3
Uttar Pradesh	58.3	46.1	27.8	43.9	44.0	61.1	39.0	31.5	31.6	39.6
West Bengal	91.9	79.9	78.7	77.5	76.9	75.9	71.3	65.4	55.1	55.2
All-India	59.7	43.8	41.7	50.3	59.5	60.3	41.9	38.2	35.5	42.1

3.4. Reasons for Not Availing Public Facilities for Inpatient Care

Due to declining reliance on public hospitals for inpatient care by people in various states, the most recent round of the NSS (2017-18) probed further into the underlying reasons for not using public facility for inpatient care. Table 5 presents statistics for the reason for not availing of government facility for inpatient care in 2017-18 separately for rural and urban residents. The major reason for not availing of government facility/hospital for inpatient care is the unsatisfactory quality of the available services both reported by rural and urban population in India. Among the 43.4% of rural residents who availed of treatment from private and charitable/NGO hospitals, 40.7% cited the quality of available services at government hospitals were unsatisfactory. The share of patients utilising non-governmental services is much higher (60.9%) in urban areas, among them 34.6% reported unsatisfactory quality of government services. Another 22.4% patients residing in rural areas and 26.7% patients residing in urban areas stated preference for a trusted hospital or doctor as a reason to refrain from opting a government hospital. The unavailability of required specific service concerned 15.4% of rural residents and 11.8% of urban residents revealing shortcoming in rural health infrastructure compared to urban areas. Despite the availability of quality of service from government hospitals, the long waiting hours led patients to opt for private facilities over government facilities; 11.9% of rural residents and 15.4% of urban residents mentioned this as their rationale. The distant location of government facilities is mentioned as a factor by 4.5% of rural residents and 5.7% of urban residents. Financial constraints were not a significant factor in abstaining from government facilities, highlighting the affordability of the government health services both in rural and urban India.

Among the Indian states, Andhra Pradesh, Maharashtra, Punjab and Kerala have the highest percentage of rural residents seeking treatment from non-governmental facilities whereas Jammu and Kashmir, Assam and Odisha have the least dependence on private facilities. About 59.9% of rural residents in Bihar has reported the highest instances of refraining from utilizing government facilities for inpatient treatment due to unsatisfactory quality of available treatment; this is followed by Uttar Pradesh, Haryana and Jammu and Kashmir. This instance is least cited in Kerala (16.1%), indicating better quality of inpatient treatment in the state hospitals. The unavailability of required service concerns the rural residents of Karnataka (26.8%), Assam and Maharashtra the most, whereas those in Haryana (5.3%) reports the least impact. Government facilities are located too far away and long waiting hours as a factor is cited highest by rural residents of Himachal Pradesh (10.2% and 26.9% respectively). Kerala (37.3%) has the highest percentage of rural residents reporting preference for a trusted doctor or hospital as the reason for refraining government facility for inpatient treatment followed by West Bengal and Gujarat. Assam is the only state with significant percentage of rural population citing financial constraints as a cause of abstaining government services.

Table 5. Reason for not availing of Government Facility for Inpatient care by States[2], 2017-18.

Rural Residents								
State	**Required specific services not available**	**Available quality not satisfactory**	**quality satisfactory but facility too far**	**quality satisfactory but long waiting**	**financial constraints**	**preference for a trusted doctor/hospital**	**other**	**% of patients utilised non-government service**
Andhra Pradesh	12.9	40.8	4.5	14.5	0.0	23.8	3.6	67.6
Assam	24.1	28.2	8.7	4.0	7.1	22.0	6.0	14.8
Bihar	10.2	59.9	3.1	6.1	0.1	18.3	2.3	36.5
Gujarat	11.1	33.2	4.5	14.4	0.1	27.9	8.9	52.5
Haryana	5.3	46.1	0.6	25.8	0.0	20.6	1.6	53.5
Himachal Pradesh	9.9	29.5	10.2	26.9	0.1	22.3	1.0	21.8
Jammu & Kashmir	16.9	44.5	0.0	21.3	0.0	11.1	6.2	3.7
Karnataka	26.8	43.7	6.5	7.3	0.2	10.6	4.8	58.6
Kerala	16.1	16.1	7.2	13.1	0.1	37.3	10.2	61.3
Madhya Pradesh	20.1	39.7	4.1	15.0	0.0	10.5	10.7	31.8
Maharashtra	22.0	41.8	4.1	8.2	0.5	18.8	4.7	64.1
Odisha	19.3	26.4	3.2	18.0	0.3	26.5	6.2	20.7
Punjab	14.0	40.5	5.3	9.0	0.3	25.7	5.2	63.8
Rajasthan	12.9	43.5	3.2	22.6	0.2	14.8	2.9	35.1
Tamil Nadu	15.8	30.1	9.9	24.2	0.0	18.5	1.4	38.1
Uttar Pradesh	13.1	50.4	3.9	6.7	0.0	22.4	3.6	50.4
West Bengal	13.0	33.6	2.7	15.3	0.0	28.9	6.5	24.5
All-India	15.4	40.7	4.5	11.9	0.2	22.4	4.9	43.4
Urban Residents								
State	**Required specific services not available**	**Available but quality not satisfactory**	**quality satisfactory but facility too far**	**quality satisfactory but involves long waiting**	**financial constraints**	**preference for a trusted doctor/hospital**	**other**	**% of patients utilised non-government service**
Andhra Pradesh	12.02	36.44	3.59	16.63	0.14	26.2	4.98	66.82
Assam	10.8	27.7	5.9	4.0	0.5	42.5	8.7	43.7
Bihar	8.7	56.2	2.0	5.2	0.0	25.6	2.3	52.1
Gujarat	9.7	31.5	8.9	11.0	0.5	34.4	4.0	76.3
Haryana	14.7	30.4	7.9	24.1	0.1	19.0	3.7	72.4
Himachal Pradesh	19.6	25.8	3.9	23.0	0.0	23.9	3.9	26.1
Jammu & Kashmir	10.7	49.2	1.2	18.9	0.0	15.8	4.3	22.0
Karnataka	20.5	45.5	5.7	11.7	0.3	13.6	2.9	77.0
Kerala	17.8	9.9	5.9	15.6	0.0	39.5	11.4	64.6
Madhya Pradesh	10.1	42.6	2.9	17.1	0.0	20.7	6.5	42.7

[2] Note: * As there are no inter-state comparisons with previous NSS Rounds, we have not added in this table Chhattisgarh with Madhya Pradesh, Uttarakhand with Uttar Pradesh and Jharkhand with Bihar.

Maharashtra	9.5	28.2	8.0	16.7	0.4	30.4	6.9	75.0
Odisha	16.3	34.9	2.6	14.7	0.0	24.9	6.7	41.9
Punjab	10.0	27.3	4.3	18.9	0.0	29.6	9.9	67.5
Rajasthan	11.8	35.2	3.9	28.8	0.0	15.9	4.5	45.5
Tamil Nadu	14.7	31.1	6.6	23.1	0.2	21.5	2.9	56.8
Uttar Pradesh	8.3	49.5	4.2	9.9	0.0	25.9	2.2	67.9
West Bengal	8.0	36.5	3.0	15.6	0.2	27.3	9.4	40.5
All-India	11.8	34.6	5.7	15.4	0.3	26.7	5.6	60.9

Among urban residents, Karnataka, Gujarat and Maharashtra have the highest share of availing treatment from non-government facilities, in contrast the hilly northern states of Jammu and Kashmir and Himachal Pradesh have the least reliance on private facilities. The unsatisfactory quality of the service as the mentioned reason is highest in urban population of Bihar (56.2%), Uttar Pradesh and Jammu and Kashmir and least in Kerala (9.9%) similar to those of the rural residents. Urban population in Assam (42.5%) leads in instances of refraining from government services due to a preference for trusted doctor or hospital followed by Kerala (39.5%) and Gujarat (34.5%). Karnataka (20.5%) Tops the list in reported instances of avoiding government facility due to lack of availability of required services, followed by Himachal Pradesh (19.6%) and Kerala (17.8%) and this is the least reported in West Bengal (8%), Uttar Pradesh (8.3%) and Bihar (8.7%). Gujarat, Maharashtra and Haryana lead in citing the distant location of government facilities as the main reason. Rajasthan, Haryana, Tamil Nadu and Himachal Pradesh have witnessed the highest reporting of long waiting hours as a factor. Similar to reported by rural residents, there is no relevant mention of financial constraints by urban residents.

3.5. Share of Public Providers for Outpatient Care

Across all the five rounds, the reliance on public providers for outpatient care services is consistently much lower than the dependence on public health services for inpatient care. At all India level, the dependence of rural residents on public outpatient service has increased from 25.6% in 1986-87 to 32.4% in 2017-18 (See Table 6). Except for the years 1995-96, the percentage of rural residents availing public outpatient services has consistently increased. Among the states, rural residents in Tamil Nadu demonstrated the highest increase in terms of percentage use of public outpatient services in 2017-18 compared to 1986-87; this is followed by Kerala, Jammu & Kashmir, West Bengal, Madhya Pradesh, Haryana, Bihar, Himachal Pradesh, Uttar Pradesh, and Odisha. Among the states where utilization of outpatient services decreased in 2017-18 compared to 1986-87, Rajasthan displayed the most significant decline which is followed by Karnataka, Maharashtra, Gujarat, Assam, Andhra Pradesh, and Punjab. Haryana exhibited a continuous decline till 2014 but showed resilience in 2017-18. Maharashtra, Tamil Nadu, and West Bengal showed a consistent rise after 1995-96. Assam and Odisha have experienced an escalation in the utilization of public outpatient services from 1995-96 to 2014, but a notable decline in 2017-18 compared to 2014.

Rural residents are more prone to use public outpatient services than their urban counterparts. The percentage of urban residents relying on public providers for outpatient treatment has decreased from 27.2% in 1986-87 to 26.1% in 2017-18. Instead of a consistent decrease, the utilization of public outpatient care by urban residents witnessed a period of stagnation between 1995-1996 and 2004, followed by a marginal rise in 2014 and a 4.9% point increase in 2017-18. Among the states where the utilization of public outpatient services by urban residents increased from 1986-87 to 2017-18, Himachal Pradesh revealed a substantial surge followed by Odisha, Kerala, Tamil Nadu, Jammu & Kashmir, Punjab, and Andhra Pradesh. Rajasthan displays a notable downturn compared to 1986-87 followed by Karnataka, Maharashtra, Haryana, Assam, West Bengal, Uttar Pradesh. Gujarat, Bihar and Madhya Pradesh.

Table 6. Share of Public Providers in Treated Illnesses, 1986-87 to 2017-18 - Outpatient Care.

	Rural Residents					Urban Residents				
State	**1986-87**	**1995-96**	**2004**	**2014**	**2017-18**	**1986-87**	**1995-96**	**2004**	**2014**	**2017-18**
Andhra Pradesh	21.6	22.0	22.3	15.6	21.9	22.6	19.0	20.4	12.2	19.0
Assam	53.0	29.0	35.6	84.3	47.7	29.6	22.0	29.1	44.6	17.5
Bihar	16.9	13.0	7.8	13.9	22.4	18.0	33.0	16.9	12.3	21.5
Gujarat	35.1	25.0	22.0	23.7	29.1	19.6	22.0	18.0	15.0	17.2
Haryana	16.9	13.0	12.0	10.6	23.1	21.7	11.0	19.9	8.5	14.4
Himachal Pradesh	60.7	39.0	68.6	43.3	61.0	47.7	48.0	86.1	79.4	64.2
Jammu & Kashmir	59.8	44.0	53.8	48.4	78.6	47.4	28.0	50.9	41.0	52.8
Karnataka	36.4	26.0	34.6	26.1	31.8	31.3	17.0	16.7	14.5	16.5
Kerala	34.0	28.0	38.0	36.3	47.9	34.8	28.0	24.0	31.1	39.1
Madhya Pradesh	27.1	23.0	22.7	29.5	35.6	25.9	19.0	24.8	24.0	26.5
Maharashtra	36.5	16.0	17.4	20.2	25.5	35.3	17.0	11.7	14.6	17.1
Odisha	52.7	38.0	56.8	75.5	58.0	47.9	34.0	58.3	54.4	54.4
Punjab	13.4	7.0	17.6	16.8	15.1	15.6	6.0	18.9	22.5	12.3
Rajasthan	56.1	36.0	45.5	44.1	42.2	57.5	41.0	53.9	29.1	37.2
Tamil Nadu	38.7	25.0	30.7	42.3	50.7	35.5	28.0	22.1	28.6	36.2
Uttar Pradesh	10.4	8.0	11.7	14.6	16.7	17.2	9.0	15.3	16.1	18.1
West Bengal	19.6	15.0	21.1	22.5	32.7	25.3	19.0	21.4	14.8	22.3
All-India	25.6	19.0	24.1	28.3	37.1	27.2	20.0	20.0	21.2	28.0

3.6. Reasons for Not Availing Public Facilities for Outpatient Care

The share of patients availing treatment from non-governmental services (private hospitals/clinics, private doctors, informal treatment and Charitable hospitals/NGOs) is higher in outpatient care in both rural and urban areas (67.5% and 73%, respectively) compared to inpatient care (See Table 7). The highest cited reason for abstaining from government outpatient service by rural residents is the unsatisfactory quality of the available services there whereas preference for a trusted hospital/doctor is the prominent reason for choosing non-governmental facility by urban residents. Financial constraints are a very insignificant reported reason for both rural and urban residents. The unavailability of the required services is reported more by rural residents than by their urban counterparts. About 9% of rural residents cited unavailability of required service whereas only 4.9% of urban residents faced unavailability of required services.

Table 7. Reason for not availing of Government Facility for Outpatient care by States[3], 2017-18.

Rural Residents								
State	**Required specific services not available**	**Available but quality not satisfactory**	**quality satisfactory but facility too far**	**quality satisfactory but involves long waiting**	**financial constraints**	**preference for a trusted doctor/hospital**	**other**	**% of patients utilised non-government service**
Andhra Pradesh	3.3	33.7	6.9	21.4	0.0	32.0	2.6	80.9
Assam	7.6	15.1	18.3	0.6	0.6	19.8	38.0	49.4
Bihar	12.8	32.9	9.3	4.5	0.2	28.6	11.6	82.2
Gujarat	10.5	31.3	9.7	32.2	0.0	15.5	0.9	67.4
Haryana	6.7	22.6	20.0	30.4	0.0	19.9	0.4	74.7
Himachal Pradesh	13.3	14.1	22.0	22.5	0.0	25.4	2.7	33.3
Jammu & Kashmir	2.9	15.6	13.7	13.5	0.0	8.2	46.0	23.0
Karnataka	27.0	36.8	6.7	10.6	0.1	14.3	4.5	71.0
Kerala	10.2	9.5	4.0	20.3	0.0	47.9	8.1	48.2
Madhya Pradesh	9.2	41.4	7.4	12.2	0.0	26.1	3.6	66.2
Maharashtra	15.0	34.3	13.4	9.9	0.4	23.9	3.2	70.9
Odisha	7.4	8.0	23.8	13.8	5.8	35.1	6.3	44.7
Punjab	8.1	24.0	14.1	18.9	0.1	29.1	5.7	86.8
Rajasthan	10.5	46.6	12.3	13.6	0.0	14.8	2.2	57.2
Tamil Nadu	6.9	38.3	7.6	21.8	0.3	22.5	2.6	36.7
Uttar Pradesh	8.2	31.3	26.5	7.9	1.0	19.5	5.5	85.8
West Bengal	7.9	19.3	16.4	19.3	1.4	26.2	9.5	67.0
All-India	9.0	28.6	15.1	14.9	0.7	25.8	6.0	67.5

Urban Residents								
State	**Required specific services not available**	**Available but quality not satisfactory**	**quality satisfactory but facility too far**	**quality satisfactory but involves long waiting**	**financial constraints**	**preference for a trusted doctor/hospital**	**other**	**% of patients utilised non-government service**
Andhra Pradesh	4.0	34.9	5.5	28.1	0.6	24.7	2.1	73.2
Assam	5.6	23.1	0.4	34.4	0.0	34.8	1.6	77.4
Bihar	3.4	35.2	1.5	5.4	0.0	43.0	11.5	77.5
Gujarat	3.3	31.8	8.7	10.9	0.7	39.5	5.0	83.0
Haryana	0.2	31.3	13.8	37.1	0.9	16.0	0.8	90.4
Himachal Pradesh	1.9	8.1	2.4	48.4	0.0	22.7	16.4	26.6
Jammu & Kashmir	0.3	30.4	12.4	29.9	0.0	16.2	10.8	49.5
Karnataka	19.6	38.5	7.1	19.1	0.0	14.9	0.9	86.0

[3] Note: * As there are no inter-state comparisons with previous NSS Rounds, we have not added in this table Chhattisgarh with Madhya Pradesh, Uttarakhand with Uttar Pradesh and Jharkhand with Bihar.

Kerala	5.3	8.5	2.5	20.1	0.0	52.9	10.8	58.3
Madhya Pradesh	3.4	24.4	5.1	20.2	0.3	43.3	3.3	73.7
Maharashtra	4.4	16.6	5.5	16.6	0.6	49.7	6.7	77.9
Odisha	3.0	34.6	13.9	1.7	0.2	37.3	9.4	37.8
Punjab	4.0	19.1	8.8	23.1	0.1	37.5	7.3	83.1
Rajasthan	3.6	36.5	10.1	21.9	0.3	26.1	1.5	67.7
Tamil Nadu	10.0	21.2	7.0	34.6	0.0	23.8	3.3	59.5
Uttar Pradesh	4.6	42.5	10.8	13.4	0.1	25.1	3.5	86.0
West Bengal	2.3	22.4	3.2	30.4	0.0	37.6	4.2	78.7
All-India	4.9	25.3	7.2	21.2	0.3	36.2	5.0	73.8

Similarly, the distant location of the government facility concerned by 15.7% of rural residents, while only 7.2% of urban residents raised this concern. Long waiting hours were a more prominent reason in urban areas than rural areas; 14.9% of rural residents and 21.2% of urban residents cited long waiting hours as a rationale for not going to public facility..

Among the states, for rural residents Punjab (86.8%), Uttar Pradesh (85.8%) and Bihar (82.2%) have the highest reliance on non-governmental outpatient services, while Haryana (90.4%), Uttar Pradesh (86%), Karnataka (86%) and Punjab (83.1) tops the list for urban residents. Among the states Karnataka has the highest reported instances of unavailability of the required facility as a reason for opting non-governmental facilities both by rural (27%) and urban (19.6%) residents. Unavailability of the facility is least reported by rural residents of Jammu and Kashmir and Andhra Pradesh and urban residents of Haryana, Jammu and Kashmir and Himachal Pradesh. Unsatisfactory quality of the outpatient facility is prominent concern among most of the states, rural residents of Rajasthan (46.6%), Madhya Pradesh (41.4%) and Tamil Nadu (38.3%) and urban residents of Uttar Pradesh (42.5%), Karnataka (38.5%) and Rajasthan (36.5%) tops the list. Whereas rural residents of Odisha (8%) and Kerala (9.5%) and urban residents of Himachal Pradesh (8.1%) and Kerala (8.5%) least cited unsatisfactory quality of services as a reason. Government facility is located too far away as a reason reported highest by rural residents of Uttar Pradesh (26.5%) followed by Odisha (23%) and Himachal Pradesh (22%) and least cited by rural residents of Kerala (4%), Karnataka (6.7%) and Andhra Pradesh (6.9%). Urban residents of Odisha (13.9%), Haryana (13.8%) and Jammu and Kashmir (12.4%) has the highest citation of distant location of government facility as reason. It is least reported by urban residents of Assam (0.4%), Bihar (1.5%), Himachal Pradesh (2.4%) and Kerala (2.5%). Long waiting hours as a factor to refrain from government facility was reported highest by urban residents of Himachal Pradesh (48.4%), Haryana (37.1%), Tamil Nadu (34.6) and Assam (34.4%) and by rural residents of Gujarat (32.2%), Haryana (30.4%) and Himachal Pradesh (22.5%). It is reported least by rural residents of Assam (0.6%) and Bihar (4.5%) and by urban residents of Odisha (1.7%) and Bihar (5.4%). Kerala has the highest reported instances of preference for trusted doctors by both rural (47.9%) and urban residents (52.9%). It is mentioned least by rural residents of Jammu and Kashmir (8.2%) and urban residents of Karnataka (14.9%).

3.7. Provision of Free Health Services by the Public Sector

In the delivery of free healthcare services for both inpatient and outpatient care, private sector organisations have a very little role. As a result, free medical care is available to people who use government facilities. Table 8 gives data on the proportion of patients who received free hospital beds (as a proxy for free inpatient care) and Table 9 provides those of free medicine (as a proxy for free outpatient care).

For rural residents, the percentage of patients receiving free hospital beds has declined from 60% in 1986-87 to 54.9% in 2017-18. A decreasing trend can be traced till 2004 and a subsequent resilience in 2014 and 2017-18 in the proportion of patients receiving free hospital beds at all-India. Similar trends can be traced in Haryana, Jammu & Kashmir, Kerala, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. In 2017-18, Four states exhibited a rise in the percentage of patients receiving free hospital beds compared to 1986-87. Bihar led among the four states, followed by Gujarat, Andhra Pradesh, and Tamil Nadu. Bihar and Andhra Pradesh share a similar trend of decline in 1995-96 and a consistent upward trajectory thereafter. All other 13 states reveal a decline in the percentage of patients receiving free beds in 2017-18 compared to 1986-87, Assam has the highest decline followed by Karnataka, Punjab, and Himachal Pradesh. Assam had the highest percentage of patients receiving free hospital beds in 1986-87 (95.5%) but experienced a consistent decline till 2014.

The percentage of patients receiving free hospital beds by urban residents is lower than those by rural residents across all the rounds reflecting the pattern of dependence on public health providers. The trend in percentage change in urban patients receiving free hospital beds mirrors their rural counterparts. A decline in percentage till 2004, followed by a resurgence in 2014 and 2017-18. This pattern is seen in urban residents of Bihar, Gujarat, Kerala, Madhya Pradesh, Maharashtra, and Punjab. Nevertheless, there is no state indicating a rise in the percentage of patients receiving free hospital beds in 2017-18 compared to 1986-87. Among the states experiencing a decline in percentage greater than the national level, urban residents of Assam has the most substantial decrease in the percentage of patients receiving free hospital beds followed by Odisha, Rajasthan, Haryana, Uttar Pradesh, Punjab, and Madhya Pradesh. Andhra Pradesh and Rajasthan reveal a consistent declining trend from 1986-87 to 2017-18. West Bengal, Tamil Nadu, Odisha, and Jammu & Kashmir endured a decline till 2014, succeeded by an increase in the availability of free hospital beds. Urban residents of Haryana reveals a steadily growing trend in the availability of free hospital beds from 1995-96 onwards.

3.8. Provision of Free Medicines

People become prone to debt when they purchase medications, especially when they do so frequently for a chronic illness. Provision of free medications would significantly lessen this vulnerability. The percentage of rural patients receiving free medicines for outpatient care has declined from 17.5% in 1986-87 to 12.3% in 2017-18 (See Table 9). A decreasing trend can be traced till 2004 but a subsequent increase in 2014 and 2017-18, mirroring the trend of the percentage of rural patients availing free beds. Rural residents of Assam, Gujarat, Kerala, Madhya Pradesh, Maharashtra and Tamil Nadu follow the national trend. Tamil Nadu, Rajasthan and Gujarat are the only three states revealing significant rise in 2017-18 compared to 1986-87. Rural residents of Tamil Nadu has the highest percentage of receiving free medicine among the states across all five survey rounds. Rajasthan shows a substantial increase in the period 2004 to 2014 but exhibits decline in the percentage of patients availing free medicine in 2017-18 compared to 2014. The percentage points decline among states above the national average is highest in Assam followed by Odisha, Jammu and Kashmir, Himachal Pradesh, Karnataka, Madhya Pradesh, Andhra Pradesh, West Bengal and Kerala.

Table 8. Percentage of Patients Receiving Free Inpatient Care (Hospital Bed), 1986-87 to 2017-18.

	Rural Residents					Urban Residents				
State	1986-87	1995-96	2004	2014	2017-18	1986-87	1995-96	2004	2014	2017-18
Andhra Pradesh	33.3	21.9	31.1	32.8	37.0	41.3	36.8	33.9	30.1	26.6
Assam	95.5	76.5	60.2	50.6	54.2	76.1	58.0	41.3	42.9	32.3
Bihar	47.7	20.0	22.4	48.2	52.8	56.5	38.9	30.4	41.8	38.9
Gujarat	40.0	26.1	27.7	26.3	44.7	39.4	25.4	18.7	22.8	24.8
Haryana	54.0	29.6	11.6	32.8	43.3	53.3	16.7	20.1	22.2	28.0
Himachal Pradesh	86.5	79.0	74.1	70.0	71.7	77.3	71.0	80.5	48.3	61.5
Jammu & Kashmir	93.4	96.8	83.2	91.1	90.1	91.6	88.1	78.5	75.2	78.6
Karnataka	58.8	37.8	38.2	32.9	36.5	36.6	25.3	28.2	20.8	23.2
Kerala	45.1	37.5	33.6	35.4	33.5	45.2	31.7	29.5	31.3	28.7
Madhya Pradesh	77.2	39.2	49.1	64.6	67.3	73.3	49.1	41.6	47.0	49.5
Maharashtra	42.8	28.7	22.5	25.3	35.4	39.7	28.6	20.6	23.1	22.6
Odisha	88.7	83.1	78.8	78.8	77.7	88.0	75.2	65.1	55.2	60.3
Punjab	46.3	26.8	11.5	30.5	32.5	46.1	18.7	10.7	16.8	23.6
Rajasthan	81.8	65.8	50.8	66.9	62.1	84.9	70.5	61.3	56.0	51.1
Tamil Nadu	59.5	42.9	42.5	52.0	62.1	57.8	38.9	37.8	36.8	43.4
Uttar Pradesh	59.1	39.8	16.8	39.8	41.3	56.1	32.6	21.8	34.7	32.0
West Bengal	90.4	79.6	71.8	72.6	77.1	69.4	64.5	51.9	48.7	54.6
All-India	60.7	41.6	37.0	47.3	56.0	55.2	38.2	32.0	34.6	39.7

Urban residents show a similar trend as that of rural residents in receipt of free medicines, with a decrease till 2004 followed by an increase. The percentage of urban patients receiving free medicines has declined from 19.7% in 1986-87 to 11.8% in 2018. Andhra Pradesh, Kerala, Madhya Pradesh, Maharashtra, and Tamil Nadu follow the national trend - a decrease till 2004 followed by an increase in the proportion of receiving free medicine for outpatient care. Urban residents of Assam experienced a continuous decrease across all the rounds. Himachal Pradesh and Tamil Nadu are the only two states to experience a rise in receipt of free medicines by urban residents in 2017-18 compared to 1986-87. Among the states that have shown a higher decline percentage than the all-India level, Bihar reveals the highest decline followed by Odisha, Karnataka, Maharashtra, West Bengal, Jammu and Kashmir, and Andhra Pradesh. Assam and Odisha depict a consistent fall the proportion of receiving free medicine by urban residents across all the years. Bihar, Jammu & Kashmir, Karnataka and West Bengal demonstrates a continuous fall till 2014 and subsequent resilience in 2017-18 in receipt of free medicine.

Table 9. Percentage of Patients Receiving Free Outpatient Care (Medicine), 1986-87 to 2017-18.

	Rural Residents					Urban Residents				
State	1986-87	1995-96	2004	2014	2017-18	1986-87	1995-96	2004	2014	2017-18
Andhra Pradesh	20.8	20.1	10.3	9.3	14.0	24.2	8.5	6.9	7.5	11.3
Assam	31.0	12.6	2.7	2.6	7.9	10.5	6.0	5.6	3.9	5.2
Bihar	5.2	1.5	0.2	1.1	3.9	26.6	10.4	3.7	0.4	5.0
Gujarat	21.5	9.5	8.6	15.0	20.0	13.9	10.2	11.7	8.8	10.0
Haryana	8.2	3.7	1.3	0.4	7.1	12.2	1.7	3.2	2.0	4.8
Himachal Pradesh	24.1	4.5	3.6	0.9	6.7	8.8	6.8	9.0	0.5	7.8
Jammu & Kashmir	20.3	5.1	3.6	1.1	1.7	12.7	5.2	2.8	0.4	1.7
Karnataka	26.5	16.3	14.6	4.9	15.2	25.4	8.2	4.8	3.4	7.2
Kerala	29.8	9.3	11.1	14.4	21.5	25.4	8.7	6.6	9.3	17.7
Madhya Pradesh	24.5	3.3	2.9	12.2	14.1	17.9	7.8	7.7	8.2	10.9
Maharashtra	17.0	8.6	6.3	11.4	12.3	21.9	8.8	4.5	7.0	7.9
Odisha	25.0	8.0	7.8	4.9	4.9	24.6	5.0	5.1	4.2	2.5
Punjab	6.5	0.6	1.2	1.8	2.9	7.6	2.3	1.6	4.0	2.8
Rajasthan	15.6	0.1	3.2	24.5	21.4	17.5	9.8	7.5	17.8	15.9
Tamil Nadu	37.3	27.8	25.7	35.3	45.8	34.3	25.1	20.6	24.4	34.0
Uttar Pradesh	6.0	1.8	2.2	3.0	4.3	10.5	4.0	4.5	6.7	5.6
West Bengal	15.4	3.7	4.0	2.6	7.9	18.5	8.2	4.9	1.5	6.5
All-India	17.5*	7.7	6.4	9.4	13.7	19.7*	9.3	6.8	9.3	11.2

3.9. Cost and Burden of Treatment

This is well known fact that the cost of treatment is the main factor to take into account when deciding between a public and private provider, particularly needing management of chronic and serious illnesses. The National Health Policy 2015 states that 60% of inpatient care and 80% of outpatient care are provided by the private sector. Table 10 illustrates the extent to which private hospitals are pricier when compared to their public counterparts for inpatient services from1986–1987 and 2017-18. The ratio of the cost of treatment for inpatient care at constant prices witnessed a substantial surge from 1.6 in 1986-87 to 7 in 2017-18 for rural residents and more than doubled for urban residents from 2.4 in 1986-87 to 5.5 in 2017-18 at the national level in India. Between 1986-87 to 2004, the private-public cost ratio for inpatient care for urban residents was higher than that for rural residents. However, this trend has changed in 2014 and 2017-18, leading to the cost ratio for rural residents

surpassing those for urban residents. The cost ratio has witnessed a continuous increase over the years for both rural and urban residents.

It would be intriguing to explore the cost trend for both rural and urban residents across different states. Assam is the only state to experience an uninterrupted increase in the private-public cost ratio for inpatient care for the rural population during the period 1986–87 to 2017-18. The rural residents of Kerala and Rajasthan witnessed consistent upward trend till 2014, followed by a decline in 2017-18.Tamil Nadu distinguishes itself among the Indian states with the highest private -public cost ratio during the period of 1986-87 to 2014; however, it relinquished its leading position as the ratio dropped by half from a 24.8 in 2014 to 12 in 2017-18. Among the states with a private-public cost ratio higher than the national average for rural residents, Madhya Pradesh(17.2) has the highest ratio followed by Gujarat(14.7), Tamil Nadu , West Bengal, Jammu and Kashmir, Assam, Uttar Pradesh, Andhra Pradesh and Bihar in 2017-18. Himanchal Pradesh (2.6) has the least ratio followed by Rajasthan and Kerala in 2018 for the rural residents. Rural residents of Bihar, Jammu & Kashmir, Karnataka, Madhya Pradesh, Odisha, and Uttar Pradesh has reported lower cost ratios in 1995–96 compared to 1986–87, but then witnessed increasing trajectory. Gujarat has witnessed highest increase in the cost ratio from 2014 to 2017-18 (2.1 to 14.7) in contrast to its stable ratio between 1986-87 to 2014. Madhya Pradesh (8.8 to 17.2), west Bengal (3.6 to 10.5) and Assam (4.5 to 8.7) has also experienced more than double increase in their private-public cost ratio for rural residents from 2014 to 2018.

In contrast to 1986-87, every state has revealed an escalation in the private-public cost ratio for urban residents in 2017-18, except for Jammu and Kashmir (5.5 to 4.8) and Tamil Nadu (12.4 to 9). From the period of 1986-87 to 2018, urban residents of the state which has seen highest increase is Madhya Pradesh (2.8 to 11.3) followed by Assam (3.4 to 8.8) and Odisha (0.9 to 5.3). When compared to 2014, the cost ratio has decreased substantially in 2017-18 for urban residents of Tamil Nadu (17.9 to 12) followed by Kerala. Maharashtra, Karnataka, and Andhra Pradesh. Among the states which experienced significant increase in the cost ratio from 2014 to 2018 for urban residents, Madhya Pradesh has the highest increase (2.5 to 17.2), followed by Gujarat, Uttar Pradesh, Jammu and Kashmir, West Bengal, Bihar and Assam.

Table 10. Ratio of Cost of Treatment between Private and Public Provider for Inpatient Care , 1986-87 to 2017-18.

State	Rural Residents					Urban Residents				
	1986-87	**1995-96**	**2004**	**2014**	**2017-18**	**1986-87**	**1995-96**	**2004**	**2014**	**2017-18**
Andhra Pradesh	2.2	3.8	2.5	4.0	4.7	5.2	5.4	9.1	8.4	6.4
Assam	0.6	1.0	1.9	4.5	7.3	3.4	3.2	7.5	5.7	5.6
Bihar	1.3	1.2	1.6	3.6	5.7	1.6	1.6	0.9	3.5	3.0
Gujarat	2.3	2.2	2.8	2.1	12.1	2.9	2.2	2.6	2.9	3.5
Haryana	1.5	1.3	0.5	2.7	4.3	1.9	0.6	0.6	2.7	3.7
Himachal Pradesh	1.8	1.1	2.4	2.2	2.4	3.0	3.2	3.4	1.1	2.3
Jammu & Kashmir	2.1	1.0	2.3	6.2	7.0	5.5	2.6	5.5	4.3	4.3
Karnataka	2.8	2.3	3.1	5.2	4.1	3.3	2.9	6.2	6.4	4.2
Kerala	1.6	1.7	2.1	7.4	2.8	2.6	1.5	1.9	6.8	3.9
Madhya Pradesh	1.7	1.6	1.8	8.8	12.1	2.8	2.3	3.5	2.5	8.6
Maharashtra	2.9	2.5	3.2	6.1	4.5	5.1	3.7	3.8	7.6	3.2
Odisha	2.0	1.5	2.6	5.6	6.0	0.9	5.5	2.3	5.3	3.7
Punjab	1.3	1.7	1.4	3.4	4.9	2.1	1.1	2.2	2.5	2.8
Rajasthan	1.1	1.5	1.7	6.6	2.5	1.2	1.9	1.8	3.4	3.2
Tamil Nadu	9.0	5.8	13.4	24.8	8.1	12.4	6.2	10.5	17.9	7.2
Uttar Pradesh	1.4	1.1	1.2	4.1	6.5	1.5	1.3	2.4	2.2	3.5
West Bengal	6.0	2.1	4.3	3.6	7.9	5.6	5.8	4.0	5.5	5.1
All-India	1.6	2.1	2.8	4.5	5.2	2.4	2.4	3.1	4.1	4.4

The private-public cost ratio for outpatient treatment is much smaller as compared to those for the inpatient care. The increase in the cost gap between rural and urban residents in India as a whole has been slower during the time period under examination (See Table 11). Except for 1995-96, the cost difference of outpatient care is greater for urban residents as compared to rural residents. It is interesting to note that in 2017-18, the cost difference for outpatient care is greater for rural people of Tamil Nadu, Bihar, Andhra Pradesh, Kerala, Maharashtra, West Bengal, Haryana, Assam, Jammu and Kashmir, and Rajasthan, compared to their urban counterparts. Rural residents of Tamil Nadu have the highest private-public cost ratio among all the states, across all the rounds. For rural residents, the states that have a higher ratio than the national average include Tamil Nadu followed by Maharashtra, Kerala, Bihar, Andhra Pradesh, Madhya Pradesh, West Bengal, And Rajasthan in 2018. Urban residents of Tamil Nadu also demonstrated the highest private-public cost ratio in the period of 1986-87 to 2004, from the ratio of 13.6 in 2004 it experienced a drastic fall to 2.4 and 2 in 2014 and 2017-18, respectively. For the urban residents, among the states having a higher private-public cost ratio than the national average, Madhya Pradesh has the highest ratio followed by Maharashtra, Gujarat, Punjab, Rajasthan, Tamil Nadu and Kerala.

In certain states, the outpatient expenses at private health providers are less than the public facilities, regardless of any clear trend seen between rural and urban residents. In 2017-18, the urban residents of Assam and the rural residents of Himachal Pradesh, Punjab, and Uttar Pradesh experienced higher costs of outpatient treatment at public facilities compared to the private health providers.

Table 11. Ratio of Cost of Treatment between Private and Public Provider for Outpatient Care , 1986-87 to 2017-18.

State	Rural Residents					Urban Residents				
	1986-87	1995-96	2004	2014	2017-18	1986-87	1995-96	2004	2014	2017-18
Andhra Pradesh	1.8	4.1	1.8	2.4	2.8	4.2	2.3	2.6	1.8	1.5
Assam	0.8	0.6	1.5	1.6	1.0	0.4	0.9	0.9	5.5	0.8
Bihar	0.6	1.2	0.6	0.4	2.9	1.7	3.0	0.8	0.7	1.5
Gujarat	1.6	2.3	1.6	3.1	2.2	1.5	1.7	2.7	1.5	3.2
Haryana	1.6	0.8	1.4	1.1	1.5	1.9	0.5	1.1	1.6	1.1
Himachal Pradesh	0.8	NE	0.7	0.9	0.7	1.3	NE	1.7	0.9	1.2
Jammu & Kashmir	0.8	NE	1.2	1.3	1.4	1.0	NE	0.6	2.5	1.1
Karnataka	1.8	2.0	2.1	1.4	1.4	1.4	1.4	1.8	1.5	1.8
Kerala	1.5	1.6	1.3	1.9	3.4	1.6	1.6	1.2	1.9	2.1
Madhya Pradesh	1.7	1.7	1.0	1.1	2.4	1.9	0.5	1.8	2.3	2.9
Maharashtra	1.2	2.0	1.3	2.9	3.6	1.3	1.6	2.7	2.5	2.7
Odisha	0.7	1.2	1.0	1.0	1.1	1.9	0.9	0.6	2.1	1.6
Punjab	0.8	1.2	0.8	1.1	0.8	1.0	0.8	0.3	0.7	2.1
Rajasthan	0.9	0.8	0.4	2.2	2.7	1.0	1.3	1.1	0.8	2.5
Tamil Nadu	5.1	7.5	4.0	4.1	6.9	4.1	5.0	13.6	2.4	3.9
Uttar Pradesh	0.7	0.6	2.1	1.0	0.8	0.7	0.9	1.5	0.8	1.1
West Bengal	1.4	0.8	1.1	1.4	2.4	1.9	1.9	1.1	1.4	2.0
All-India	0.7	1.4	1.3	1.2	1.9	0.9	1.2	1.4	1.4	2.0

3.10. Cost of Inpatient Treatment

For each hospitalisation episode over all the five survey rounds, the average cost of treatment (including fees, medications, clinical and diagnostic tests, surgery, and hospital bed charges) were converted into real terms which is shown in Table 12. The average cost of inpatient treatment at constant prices has always been higher for urban India when compared to rural India. The average cost in real term incurred for hospitalisation episode has subsequently escalated for rural residents; however, surprisingly the urban residents witnessed a downfall in the real cost of inpatient treatment in 2017-18 compared to 2014 at all India level. The average cost of inpatient treatment at constant prices was Rs. 13721 for rural residents and Rs. 20794 for urban residents in 2017-18. Annual percentage change of inpatient treatment cost for rural residents declined from 5.4 % during the period 1986-87 to 2017-18 to 1.86% between 2004 and 2017-18 and subsequently, it rose to 2.07 between 2014 and 2017-18. For the urban residents, the annual percentage change has declined from 6.2% during 1986-87 to 2017-18 to -2.12 between 2014 and 2017-18 indicating a decline in cost of inpatient treatment.

For rural residents over the period of 1986-87 to 2017-18, the states which follow the national trend of continuous increase in the average inpatient cost of treatment include Himanchal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab and West Bengal. Among the states which has a higher annual percentage change in cost for rural residents than the national average of 5.4% between 1986-87 and 2017-18, Kerala (28.61) experienced the highest annual percentage change in inpatient cost followed by West Bengal (15.38), Tamil Nadu (12.99), Andhra Pradesh (9.86), Himachal Pradesh (7.78), Maharashtra (7.56), Punjab (7.25) and Madhya Pradesh (6.49). On the contrary, annual percentage change is lowest in Bihar (0.52), Haryana (2.08) and Jammu and Kashmir (2.37) between 1986-87 and 2017-18. Odisha is the only state which experienced a marginal decrease in the cost of inpatient treatment for rural residents in the year 1995-96 compared to 1986-87. Kerala, Himachal Pradesh, and West Bengal demonstrate the highest annual percentage change in costs for rural residents. On the contrary, Bihar (-1.06), Jammu & Kashmir (-0.16), and Andhra Pradesh (-0.03) revealed a negative yearly percentage change indicating a decrease in the cost of treatment between 1995-96 and 2017-18. During the period 2004 to 2017-18, Kerala, West Bengal, and Maharashtra encountered the most significant rise in the annual percentage change in cost for rural residents whereas Bihar, Jammu & Kashmir, Haryana, Rajasthan, Uttar Pradesh, and Assam saw a decrease. Annual percentage change is highest in West Bengal (10.7), Odisha (10.3) and Kerala (9.8) and negative in Haryana (-4.7), Bihar (-3.7), Tamil Nadu (-2.88), Gujarat (-2.59) and Jammu & Kashmir (-1.48) from 2014 to 2017-18. It is noteworthy that Kerala and West Bengal consistently held positions among the states with the highest annual percentage change in inpatient cost, while Bihar and Jammu and Kashmir consistently occupied positions among the states that experienced a decrease in inpatient cost. In 2017-18, Punjab (Rs.26189) incurred the highest inpatient cost for rural residents, followed by Kerala (Rs.24253), Himachal Pradesh (Rs.18749) and Maharashtra (Rs.17388).

Urban residents of Andhra Pradesh, Assam, Gujarat, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal mirror the national pattern of a continuous rise in the inpatient treatment cost at constant prices until 2014, followed by a subsequent decline in 2017-18. Kerala and Maharashtra witnessed a continuous increase in the cost of inpatient treatment over the years. Bihar and Punjab experienced an increase in the cost of treatment till 2004 and a subsequent fall thereafter. Jammu and Kashmir demonstrated a drop in the cost of treatment in 2014, followed by a rise. In 2017-18, Maharashtra, Haryana Assam, and Kerala had the highest inpatient cost for urban residents (Rs. 27337, Rs 26209, Rs.24668, and Rs.24546, respectively).

It is worth highlighting that Kerala has the highest annual percentage change in all the rounds for urban residents. During 1986-87 to 2017-18, the annual percentage change was the highest in urban residents of Kerala (26.2%) followed by Haryana (15.8%), Tamil Nadu (13.4), and Andhra Pradesh (12.68). During the same period, urban residents of Uttar Pradesh (4%), Bihar (4.8%) and Gujarat (4.9%) experienced the least

percentage change. Urban residents of Kerala, Maharashtra, and Himachal encountered the highest change from 1995 to 2017-18 and Uttar Pradesh, Haryana, and Punjab experienced the lowest increase. From 2004 to 2017-18, urban residents of Kerala, Maharashtra, and Odisha witnessed the highest increase in annual percentage change in cost whereas Punjab (-2,48), Bihar (-1.23), and Rajasthan (-0.18) experienced a negative change in percentage. Surprisingly, only three states- Kerala (12.38%), Jammu and Kashmir (10.57) and Maharashtra (1.5%) demonstrate an increase in the annual percentage change of inpatient cost for urban residents, while all other states undergo a negative shift [Madhya Pradesh (-8.8), Himachal Pradesh (-7.09), Assam (-6.1%) Tamil Nadu (-6.09%)].

Table 12. Average Cost of Treatment for Inpatient Care (in Rs), 1986-87 to 2018 (at 2011-12 prices).

State	**Cost of Treatment - Rural Residents**					**Annual Percentage Change**			
	1986-87	1995-96	2004	2014	2017-18	1986-2018	1995-2018	2004-2018	2014-2018
Andhra Pradesh	4125	16850	10999	13076	16734	9.86	-0.03	3.72	6.99
Assam	2876	5097	7110	5349	6767	4.36	1.49	-0.34	6.62
Bihar	6675	10117	12067	8960	7754	0.52	-1.06	-2.55	-3.37
Gujarat	4733	6979	10341	12309	11036	4.30	2.64	0.48	-2.59
Haryana	7791	8452	16288	15789	12812	2.08	2.34	-1.52	-4.71
Himachal Pradesh	5493	6631	15035	16307	18749	7.78	8.31	1.76	3.74
Jammu & Kashmir	3716	6679	9635	6851	6445	2.37	-0.16	-2.36	-1.48
Karnataka	5196	7855	11089	11865	12033	4.24	2.42	0.61	0.35
Kerala	2457	6011	7187	17739	24253	28.61	13.79	16.96	9.18
Madhya Pradesh	3851	5742	8647	10037	11599	6.49	4.64	2.44	3.89
Maharashtra	5202	8098	10980	17157	17388	7.56	5.22	4.17	0.34
Odisha	4324	4301	7861	8024	11331	5.23	7.43	3.15	10.30
Punjab	8065	13076	22874	23507	26189	7.25	4.56	1.04	2.85
Rajasthan	5931	7963	14268	10919	11802	3.19	2.19	-1.23	2.02
Tamil Nadu	2700	7446	9999	15345	13576	12.99	3.74	2.56	-2.88
Uttar Pradesh	7241	11399	16652	13466	15626	3.74	1.69	-0.44	4.01
West Bengal	2419	5129	7906	9810	13955	15.38	7.82	5.47	10.56
All-India	5129	8395	10891	12671	13722	5.40	2.88	1.86	2.07
	Cost of Treatment - Urban Residents					**Annual Percentage Change**			
Andhra Pradesh	4698	12808	17342	29489	23157	12.68	3.67	2.40	-5.37
Assam	5289	9935	19452	32656	24668	11.82	6.74	1.92	-6.11
Bihar	6340	9763	19023	18336	15758	4.79	2.79	-1.23	-3.52
Gujarat	6660	8721	15077	18145	16823	4.92	4.22	0.83	-1.82
Haryana	4445	17135	25459	28236	26209	15.79	2.41	0.21	-1.79
Himachal Pradesh	5950	6928	16691	24382	17470	6.25	6.92	0.33	-7.09
Jammu & Kashmir	3669	9469	13405	11006	15657	10.54	2.97	1.20	10.57
Karnataka	6871	9417	14249	20155	20002	6.17	5.11	2.88	-0.19
Kerala	2694	5052	9740	16416	24547	26.17	17.54	10.86	12.38
Madhya Pradesh	3327	7273	12015	20643	13310	9.68	3.77	0.77	-8.88
Maharashtra	8571	10478	17144	25795	27338	7.06	7.31	4.25	1.50
Odisha	4097	10140	11328	16854	16810	10.01	2.99	3.46	-0.06
Punjab	8932	14975	36283	26511	23664	5.32	2.64	-2.48	-2.68
Rajasthan	4247	8254	14434	14620	14066	7.46	3.20	-0.18	-0.95
Tamil Nadu	3982	10312	20385	27057	20469	13.36	4.48	0.03	-6.09
Uttar Pradesh	10437	15454	16889	27530	23417	4.01	2.34	2.76	-3.74
West Bengal	6116	8433	15582	21807	18632	6.60	5.50	1.40	-3.64
All-India	7117	10277	16847	22717	20795	6.20	4.65	1.67	-2.12

3.11. Cost of Outpatient Care

At all-India level, the cost of outpatient care for rural residents has increased from Rs.450 (1986-87) to Rs.581 (2004) and then subsequently decreased to Rs.553 in 2017-18 (See Table 13). Andhra Pradesh is the only state which mirrors the national trend. Rural residents of Bihar, Gujarat, Jammu and Kashmir, and Maharashtra witnessed a decline in the cost of treatment in 2017-18 compared to 1986-87. In 2017-18, the rural residents of Himachal Pradesh (Rs.820), Rajasthan (Rs. 809) and Assam (Rs. 719) incurred highest cost for outpatient treatment whereas rural residents of Gujarat, Jammu and Kashmir and Andhra Pradesh experienced the lowest cost for outpatient care. Annual percentage change was 0.74% in 1986-87 to 2017-18 slightly increased in the period between 1995-96 and 2017-18 to 0.92, thereafter reveals a negative trend (-0.34% in 2004 to 2017-18 and -0.39% in 2014 to 2017-18). Among the states Tamil Nadu, Karnataka and West Bengal had highest annual increase whereas Bihar, Jammu and Kashmir, Gujarat, and Maharashtra followed a negative trend between 1986-87 and 2017-18. Himanchal Pradesh exhibited a substantiate surge of 11.9 % in 1995-6 to 2017-18 followed by Tamil Nadu and Assam. During the same period, Jammu and Kashmir, Gujarat and Andhra Pradesh witnessed negative annual growth. In the period 2004 to 2017-18, expect for Himanchal Pradesh, Madhya Pradesh, Uttar Pradesh, Rajasthan, Assam, Punjab and Tamil Nadu, all other state demonstrated a negative annual growth in cost of treatment for outpatient care (Gujarat (-2.46%), Karnataka (-2.26%) and Jammu and Kashmir (-2.12%). In the period of 2014 to 2017-18, Assam depicts the highest annual percentage increase with 21.9% followed by Rajasthan, Himanchal Pradesh, Tamil Nadu, West Bengal, Karnataka, and Haryana. All other states followed a negative growth in this period [Jammu and Kashmir (-12.6%), Gujarat (-5.7%) and Odisha (-5.3%)]. Its noteworthy that Gujarat and Jammu and Kashmir had negative annual growth rate in all the rounds for rural residents.

Outpatient costs incurred by urban residents have been higher than their rural counterparts in all the rounds except in 2004. The average cost incurred for outpatient treatment for rural residents was Rs.581 while it was Rs.575 for urban residents. Urban residents have witnessed a consistent increase in the average cost of treatment for outpatient care until 2014. Treatment cost has risen from Rs.485 in 1986-87 to Rs.719 in 2014 and then declined to Rs.653. Urban residents of Andhra Pradesh, Assam, Karnataka, Kerala, and Odisha followed the national trend as the cost for outpatient treatment has escalated consistently till 2014 and then declined in 2017-18. Tamil Nadu is the only state which experienced a continuous increase in the cost of outpatient treatment for urban residents.

For urban residents, the annual percentage change was 1.11% during 1986-87 to 2017-18, it has turned to negative growth from 2014 to 2017-18. Assam (32.3%) experienced the highest increase in annual change from 1986-87 to 2017-18 followed by Tamil Nadu, Haryana, Kerala and Bihar. Himachal Pradesh (-1.2%), Jammu and Kashmir, Gujarat and Maharashtra witnessed a negative annual change from 1986-87 to 2017-18. For the period between 1995-96 to 2017-18, urban residents of Tamil Nadu (4.32%), Assam (3.3%) and Uttar Pradesh (3.06%) had recorded highest increase in annual change in outpatient cost whereas Haryana, Madhya Pradesh, Jammu and Kashmir and Gujarat had negative annual change.

While analysing the annual change between 2004 and 2017-18, urban residents of Haryana has secured highest increase followed by Uttar Pradesh and Bihar; the states which incurred negative annual change include Jammu and Kashmir, Gujarat, Himachal Pradesh, Odisha, Punjab, Andhra Pradesh and West Bengal. From 2014-2017-18, only Bihar, Gujarat, Tamil Nadu, Madhya Pradesh and West Bengal had increase in annual change in outpatient cost for their urban population. Among the states experiencing negative annual growth in cost for urban residents, the Jammu and Kashmir (-14.7%), Himanchal Pradesh (-14.3%) and Assam (13.4%) experienced the most significant decline.

Table 13. Average cost of Treatment for Outpatient Care, 1986-87 to 2018 (at 2011-12 prices).

	Cost of Treatment - Rural Residents					**Annual Percentage Change**			
State	**1986-87**	**1995-96**	**2004**	**2014**	**2018**	**1986-2018**	**1995-2018**	**2004-2018**	**2014-2018**
Andhra Pradesh	402.6	431.4	498.5	425.0	424.0	0.17	-0.08	-1.07	-0.06
Assam	504.9	396.3	588.0	383.5	719.6	1.37	3.71	1.60	21.91
Bihar	949.1	559.2	763.7	722.2	615.4	-1.13	0.46	-1.39	-3.70
Gujarat	492.1	412.2	578.4	492.1	379.6	-0.74	-0.36	-2.46	-5.72
Haryana	434.6	495.3	766.9	581.6	619.1	1.37	1.14	-1.38	1.61
Himachal Pradesh	789.3	226.9	447.4	572.0	820.7	0.13	11.90	5.96	10.87
Jammu & Kashmir	613.6	492.1	572.0	814.9	402.0	-1.11	-0.83	-2.12	-12.67
Karnataka	281.2	319.6	782.9	485.7	535.7	2.92	3.07	-2.26	2.57
Kerala	367.5	357.9	623.1	498.5	448.4	0.71	1.15	-2.00	-2.51
Madhya Pradesh	450.6	405.8	351.5	693.4	572.5	0.87	1.87	4.49	-4.36
Maharashtra	607.2	431.4	607.2	514.5	509.5	-0.52	0.82	-1.15	-0.24
Odisha	373.9	386.7	584.8	588.0	463.1	0.77	0.90	-1.49	-5.31
Punjab	492.1	460.2	498.5	552.8	539.1	0.31	0.78	0.58	-0.62
Rajasthan	600.8	501.7	635.9	536.9	809.6	1.12	2.79	1.95	12.70
Tamil Nadu	246.1	268.4	549.6	495.3	567.3	4.21	5.06	0.23	3.64
Uttar Pradesh	540.1	588.0	498.5	680.7	654.3	0.68	0.51	2.23	-0.97
West Bengal	313.2	341.9	623.1	479.3	532.1	2.25	2.53	-1.04	2.75
All-India	450.6	460.2	581.6	562.4	553.7	0.74	0.92	-0.34	-0.39
	Cost of Treatment - Urban Residents					**Annual Percentage Change**			
Andhra Pradesh	380.3	450.6	588.0	648.7	573.8	1.64	1.24	-0.17	-2.89
Assam	73.5	472.9	763.7	1748.0	809.5	32.30	3.23	0.43	-13.42
Bihar	559.2	556.0	578.4	594.4	914.2	2.05	2.93	4.15	13.45
Gujarat	559.2	572.0	766.9	466.6	527.0	-0.19	-0.36	-2.23	3.24
Haryana	428.2	1086.5	447.4	955.5	789.6	2.72	-1.24	5.46	-4.34
Himachal Pradesh	709.4	348.3	572.0	1041.8	444.2	-1.21	1.25	-1.60	-14.34
Jammu & Kashmir	492.1	389.9	782.9	846.8	347.6	-0.95	-0.49	-3.97	-14.74
Karnataka	396.3	450.6	623.1	658.3	631.9	1.92	1.83	0.10	-1.00
Kerala	306.8	313.2	351.5	607.2	510.0	2.14	2.86	3.22	-4.00
Madhya Pradesh	703.0	984.2	607.2	770.1	783.2	0.37	-0.93	2.07	0.42
Maharashtra	613.6	485.7	584.8	782.9	589.5	-0.13	0.97	0.06	-6.18
Odisha	354.7	357.9	498.5	680.7	416.4	0.56	0.74	-1.18	-9.71
Punjab	482.5	425.0	635.9	776.5	602.8	0.80	1.90	-0.37	-5.59
Rajasthan	661.5	517.7	549.6	1009.8	783.4	0.59	2.33	3.04	-5.61
Tamil Nadu	278.0	338.7	498.5	588.0	660.7	4.44	4.32	2.32	3.09
Uttar Pradesh	751.0	594.4	623.1	1051.3	993.9	1.04	3.06	4.25	-1.36
West Bengal	524.1	357.9	581.6	575.2	580.9	0.35	2.83	-0.01	0.25
All-India	485.7	508.1	575.2	719.0	653.0	1.11	1.30	0.97	-2.29

4. Summary and Conclusions

To reduce healthcare-seeking barriers and achieve global health improvement especially across developing countries the concept of Universal Health Coverage (UHC) was evolved by the WHO. To attain the UHC goal that 'all people and communities receive the quality health services they need without financial hardship' this paper is primarily focused on understanding the progress made by various Indian states in terms of providing healthcare access, and quality of health services. In this paper, we have analysed data from four NSS Rounds (1986-87 through 2018) on morbidity and health care utilisation for 17 major states by rural and urban areas whilst focusing on (a) trends in health-seeking behaviour of people, (b) reasons for not accessing health care,

(b) reliance on government and private health providers, (d) cost and burden of treatment.

Increased government health expenditure has reduced household out-of-pocket expenditures, easing the financial burden. The government's share of total health expenditure(THE) increased from 32.4% in 2016-17 to 40.8% in 2017-18, lowering OOPE from 58.7% to 48.8%. It signals a shift towards public healthcare funding.

The percentage of individuals seeking treatment for illnesses has increased over the years and the rural-urban divide and gender disparity have decreased by 2017-18. However, this trend is not consistent across states. The underlying reason for 'not seeking treatment' for their illness was financial constraints till 2004 and it has declined considerably in both rural and urban regions suggesting rise in government expenditure has made healthcare utilization more affordable. The rural-urban disparity is evident as there is a significant increase in the percentage of respondents citing the long waiting time and lack of nearby medical facilities being more prevalent in rural areas compared to urban areas. At the same time, the percentage of people reporting illnesses not serious enough to require treatment has declined over the survey periods, indicating better health-seeking behaviour of people in both rural and urban areas. Also, the increase in the availability of government hospital beds during the last decade particularly in rural areas improved considerably their health-seeking behaviour. With an increasing level of morbidity in the country over time, a better public health provision would bring down significantly the loss of workdays due to illness and thereby increase the income/livelihood opportunities and reduce the vulnerability of rural residents as well as the poor.

Our overall observation is that the public health providers played a major role in meeting health care needs in India in 1986-87. But the role is dwindling. Though several states have attempted to restore the public provision of health care by 2004, the gap seems to have widened in 2014, however, it has shown improvement in 2017-18 . Reliance on public health services is now restricted to 56.6% for rural residents and about 39% for urban residents in 2017-18. The prominent cited reason for not availing public health care for inpatient care is the unsatisfactory quality of the available services both in rural and urban India.

Over the years, especially in the post-liberalization phase, the government has also promoted private health providers through various schemes to meet the growing healthcare demand. The massive expansion of private providers since the 2000s has no doubt reduced reliance on public providers for outpatient care. However, they were not widely successful in reducing reliance on public providers for inpatient care because of cost considerations. The dependence on public providers for outpatient care services is consistently lower than the reliance on public inpatient health care services across all the rounds. The dependence of public outpatient care has increased over the years in the rural region, however, in the urban area the increase in the reliance of public outpatient service can only be traced from 2014 indicating a concentration of private healthcare providers in the urban area. In 2017-18, 67.5% of rural population and 73% of the urban population relied on non-governmental health providers for outpatient care. Rural residents cite the unsatisfactory quality of available services as the reason for not relying on government facilities whereas for urban residents it's a preference for a trusted hospital/doctor.

Throughout the country, the cost of private health provision for hospitalisation has remained substantially high as compared to the public providers. We do observe a progressive reduction in the gap between public and private providers with respect to the cost of providing treatment indicating the rising cost of treatment in public health facilities. This could partly be due to providing care to critical patients which the private sector hesitates to handle. The average cost in real term incurred for hospitalisation episodes has subsequently increased for rural residents; surprisingly urban residents witnessed a decrease in the real cost of inpatient treatment in 2017-18 compared to 2014 at the national level. The average cost of inpatient treatment at constant prices has always been higher for urban India than for rural India.

There is improvement in utilisation of public health facilities for inpatient care especially by rural population in different states which is directly associated with the expansion of government health infrastructure during the last decade. Some of these health infrastructure expansions are attributable to initiatives of financing undertaken under the National Rural Health Mission (NRHM). At the all-India level, a decreasing trend can be traced till 2004 and a subsequent resilience in 2014 and 2017-18 in the percentage of patients receiving free hospital beds and medicines in both rural and urban area. The limited budgets of the state governments can be effectively utilized if the state governments strictly follow an essential drug list and purchase the generic drugs through pooled procurement system. The central government's two recent proposals to get the prescriptions done only in generic names and to open a *janaushadhi* store in every district hospital, if implemented would reduce the out-of-pocket expenditure for the consumers.

In the context of foregoing analysis, effectiveness of the recently launched *Ayushman Bharat* or National Health Protection Scheme needs to be debated. While this scheme is focusing on secondary and tertiary hospitalisation expenses coverage up to Rs.500 000 per year per family, it is suggested that government expenditure should be increased on preventive and promotive health care to reduce risks of hospitalisations. With the growing prevalence of non-communicable diseases and associated co-morbidity rates, the public spending should be directed to behavioural lifestyle factors to prevent and manage the NCDs.

Another issue related to this national scheme is in regard to effective implementation by the state governments which already have their own health insurance schemes. The main challenge is in improving the physical infrastructure of the hospitals and the human resources that would facilitate better access to the consumers particularly by rural residents. As the health providers will be reimbursed for their services, faster implementation of the Clinical Establishment Act 2010 (CEA) uniformly in all the states would ensure that the services provided by all the hospitals are priced according to the standards set by the government. It would also ensure uniform standards and qualities are maintained in all the hospitals in both public and private sector. These initiatives would facilitate the effective implementation and uniform payments according to the standards prescribed. The cost difference between the public and private health providers may be reduced only by effective implementation of the CEA. Importantly while the scheme would address the post ill-health episodes, targeted resources will also need to be spent on primary and preventive health care to achieve the

SDG 3 which is to "ensure healthy lives and promote wellbeing for all at all ages".

References

Aashima, & Sharma, R. (2024). An examination of inter-state variation in utilization of healthcare services, associated financial burden and inequality: Evidence from a nationally representative survey in India. *International Journal of Social Determinants of Health and Health Services, 54*(3), 206–223.

ANI. (2024, October 1). Government spending on public health has tripled over last 10 years. *ANI News.* https://www.aninews.in/news/business/government-spending-on-public-health-has-tripled-over-last-10-years20241001144458/

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

Baru, R., Acharya, A., Acharya, S., Kumar, A. S., & Nagaraj, K. (2010). Inequities in access to health services in India: Caste, class and region. *Economic and Political Weekly, 45*(38), 49–58.

Berman, P., Ahuja, R., & Bhandari, L. (2010). The impoverishing effect of health care payments in India: New methodologies and findings. *Economic and Political Weekly, 45*(16), 65–71.

Bhat, R., & Jain, N. (2006). Analysis of public private healthcare expenditures. *Economic and Political Weekly, 41*(1), 57–68.

Dandona, L., Dandona, R., Kumar, G. A., Shukla, D. K., Paul, V. K., Balakrishnan, K., ... & Thakur, J. S. (2017). Nations within a nation: Variations in epidemiological transition across the states of India, 1990–2016 in the Global Burden of Disease Study. *The Lancet, 390*(10111), 2437–2460. https://doi.org/10.1016/S0140-6736(17)32804-0

Deolalikar, A., Jamison, D., Jha, P., & Laxminarayan, R. (2008). Financing health improvements in India. *Health Affairs, 27*(4), 978–990. https://doi.org/10.1377/hlthaff.27.4.978

Fan, V. Y., Karan, A., & Mahal, A. (2012). State health insurance and out-of-pocket health expenditures in Andhra Pradesh, India. *International Journal of Health Care Finance and Economics, 12*(3), 189–215. https://doi.org/10.1007/s10754-012-9110-5

Fullman, N., Yearwood, J., Abay, S. M., Abbafati, C., Abd-Allah, F., Abdela, J., ... & Chang, H. Y. (2018). Measuring performance on the Healthcare Access and Quality Index for 195 countries and territories and selected subnational locations: A systematic analysis from the Global Burden of Disease Study 2016. *The Lancet, 391*(10136), 2236–2271. https://doi.org/10.1016/S0140-6736(18)30994-2

Global Burden of Disease Collaborative Network. (2024). *Global Burden of Disease Study 2021.* Institute for Health Metrics and Evaluation (IHME).

Government of India. (1989). *Consumer expenditure for all India, 42nd round (Report No. 355/2).* National Sample Survey Organisation, Department of Statistics.

Government of India. (1998). *Morbidity and treatment of ailments, 52nd round (Report No. 441).* National Sample Survey Organisation, Department of Statistics.

Government of India. (2005). *Report of the National Commission on Macroeconomics and Health.* Ministry of Health and Family Welfare.

Government of India. (2006). *Social consumption: Healthcare and condition of the aged, 60th round (Report No. 507).* National Sample Survey Organisation, Ministry of Statistics and Programme Implementation.

Government of India. (2016). *Health in India, NSS 71st round (January–June 2014, Report No. 574).* National Sample Survey Organisation, Ministry of Statistics and Programme Implementation.

Government of India. (2018). *National health profile 2018.* Directorate General of Health Services, Ministry of Health and Family Welfare.

Government of India. (2019a). *Executive summary on report—Health in India, NSS 75th round.* Ministry of Statistics and Programme Implementation. https://mospi.gov.in/announcements/executive-summary-report-health-india-nss-75th-round

Government of India. (2019b). *Key indicators of social consumption in India: Health, NSS 75th round (July 2017–June 2018, Report No. NSS KI 75/25.0).* National Sample Survey Organisation, Ministry of Statistics & Programme Implementation.

Government of India. (2022). *National health accounts estimates for India 2018–19.* Ministry of Health and Family Welfare.

Ghosh, S. (2014). Equity in the utilization of healthcare services in India: Evidence from National Sample Survey. *International Journal of Health Policy and Management, 2*(1), 29–38. https://doi.org/10.15171/ijhpm.2014.06

Ghosh, S. (2011). Publicly-financed health insurance for the poor: Understanding RSBY in Maharashtra. *Economic and Political Weekly, 46*(20), 56–63.

Gumber, A. (1997). Burden of disease and cost of ill health in India: Setting priorities for health interventions during the Ninth Plan. *Margin, 29*(2), 133–172.

Gumber, A. (2000). Health care burden on households in the informal sector: Implications for social security assistance. *Indian Journal of Labour Economics, 43*(2), 277–291.

Gumber, A. (2002). Economic reforms and the health sector: Towards health equity in India. In Institute of Applied Manpower Research (Ed.), *Reform and employment* (pp. 235–284). Concept Publishing House.

Gumber, A. (2021). Equity in healthcare utilisation and cost of treatment in Western India. *Journal of Social and Economic Development, 23*(1), 131–152. https://doi.org/10.1007/s40847-020-00138-w

Gumber, A., Lalitha, N., & Dhak, B. (2017). *Rising healthcare costs and universal health coverage in India: An analysis of national sample surveys, 1986–2014* (GIDR Working Paper No. 246). Gujarat Institute of Development Research.

Hazarika, I. (2013). Health workforce in India: Assessment of availability, production and distribution. *WHO South-East Asia Journal of Public Health, 2*(2), 106–112. https://doi.org/10.4103/2224-3151.122944

Hooda, S. K. (2015). *Private sector in healthcare delivery market in India: Structure, growth and implications* (ISID Working Paper No. 185). Institute for Studies in Industrial Development.

Jakab, M., & Krishnan, C. (2001). *Community involvement in health care: A survey of the literature on the impact, strengths and weaknesses.* World Health Organization.

Karan, A., Negandhi, H., Hussain, S., Zapata, T., Mairembam, D., De Graeve, H., ... & Zodpey, S. (2021). Size, composition and distribution of health workforce in India: Why, and where to invest? *Human Resources for Health, 19*(39), 1–14. https://doi.org/10.1186/s12960-021-00579-0

Lalitha, N. (2009). Access to medicines in public health care: Lessons from Tamil Nadu. In G. Kumar (Ed.), *Health sector reforms in India* (pp. 87–113). Manohar Publishers and Centre de Sciences Humaines.

Loutfi, D., Levesque, J. F., & Mukherjee, S. (2018). Impact of the elderly on household health expenditure in Bihar and Kerala, India. *Journal of Health Management, 20*(1), 1–14. https://doi.org/10.1177/0972063417750789

Mahapatro, S. R., James, K. S., & Mishra, U. S. (2021). Intersection of class, caste, gender and unmet healthcare needs in India: Implications for health policy. *Health Policy OPEN, 2,* 100040. https://doi.org/10.1016/j.hpopen.2021.100040

Pandey, A., Kumar, G. A., Dandona, R., & Dandona, L. (2018). Variations in catastrophic health expenditure across the states of India: 2004 to 2014. *PLoS One, 13*(10), e0205510. https://doi.org/10.1371/journal.pone.0205510

Patel, R., & Chauhan, S. (2020). Gender differential in health care utilisation in India. *Clinical Epidemiology and Global Health, 8*(2), 526–530. https://doi.org/10.1016/j.cegh.2019.11.007

Rajasekhar, D., Berg, E., Ghatak, M., Manjula, R., & Roy, S. (2011). Implementing health insurance: The rollout of Rashtriya Swasthya Bima Yojana in Karnataka. *Economic and Political Weekly, 46*(20), 56–63.

Reddy, K. S., Patel, V., Jha, P., Paul, V. K., Kumar, A. S., & Dandona, L. (2011). Towards achievement of universal health care in India by 2020: A call to action. *The Lancet, 377*(9767), 760–768. https://doi.org/10.1016/S0140-6736(10)61960-5

Rout, S. K., Sahu, K. S., & Mahapatra, S. (2019). Utilization of health care services in public and private healthcare in India: Causes and determinants. *International Journal of Healthcare Management, 14*(2), 509–516. https://doi.org/10.1080/20479700.2019.1665882

Saikia, N., Moradhvaj, & Bora, J. K. (2016). Gender difference in health-care expenditure: Evidence from India Human Development Survey. *PLoS ONE, 11*(7), e0158332. https://doi.org/10.1371/journal.pone.0158332

Selvaraj, S., & Karan, A. (2009). Deepening health insecurity in India: Evidence from national sample surveys since 1980s. *Economic and Political Weekly*, *44*(40), 55–60.

Selvaraj, S., Karan, K. A., Srivastava, S., Bhan, N., Mukhopadhyay, I., & World Health Organization. (2022). *India: Health system review* (Vol. 11, No. 1). World Health Organization, Regional Office for South-East Asia.

Sen, G. (2003). Inequalities and health in India. *Development*, *46*(2), 18–20. https://doi.org/10.1057/palgrave.development.1110444

Sen, G., Iyer, A., & George, A. (2002). Structural reforms and health equity: A comparison of NSS surveys 1986–87 and 1995–96. *Economic and Political Weekly*, *37*(14), 1342–1352.

Shariff, A., & Mondal, S. K. (2009). User fee in public health care institutions. In G. Mondal (Ed.), *Health sector reforms in India* (pp. 147–168). Manohar Publishers and Centre de Sciences Humaines.

Shukla, A., Pawar, K., & More, A. (2021). *Analysing regulation of private healthcare in India*. Oxfam India. https://www.oxfamindia.org/knowledgehub/workingpaper/analysing-regulation-private-healthcare-india

Sundararaman, T., & Muraleedharan, V. R. (2015). Falling sick, paying the price: NSS 71st round on morbidity and costs of healthcare. *Economic and Political Weekly*, *50*(33), 17–20.

van Doorslaer, E., O'Donnell, O., Rannan-Eliya, R. P., Somanathan, A., ... & Zhao, Y. (2006). Effect of payments for health care on poverty estimates in 11 countries in Asia: An analysis of household survey data. *The Lancet*, *368*(9544), 1357–1364. https://doi.org/10.1016/S0140-6736(06)69560-3

World Bank. (2001). *India—Raising the sights: Better health systems for India's poor*. World Bank.

Yadav, S., & Arokiasamy, P. (2014). Understanding epidemiological transition in India. *Global Health Action*, *7*(1), 23248. https://doi.org/10.3402/gha.v7.23248