A study on trends and differentials in health insurance coverage in Bihar

Submitted by

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Dedicated to My loving parents and sisters

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CHAPTER – I

INTRODUCTION

1.1 INTRODUCTION

The landscape of healthcare financing in India is a complex interplay of multiple factors, prominently marked by the challenges of Out-of-Pocket Expenditure (OOPE) . Health spending has driven over a hundred million people into poverty, highlighting the critical importance of risk pooling as an essential of health insurance. In India, Out-of-pocket expenses accounts for about 62.6% of total health expenditure - one of the highest in the world. Lack of health insurance coverage and inadequate coverage are important reasons for high out-of-pocket health expenditures.[1]

Out-of-Pocket spending as the main method for financing healthcare in India leads to severe financial strain on families. Without adequate health insurance, many households find themselves in dire situations, having to borrow money or sell their assets to cover these healthcare expenses.[2] Achieving Universal Health Coverage (UHC) is an important goal for almost every nation in the world. Bihar, as one of India's most populous states, presents a compelling case for examining the intricacies of health insurance coverage. Despite substantial economic progress in recent years, Bihar continues to grapple with challenges such as poverty, limited healthcare infrastructure, and varying levels of literacy[3], all of which contribute to disparities in health insurance coverage.
The National Family Health Survey (NFHS) -5 (2019-21) shows in Bihar, 15% of households have some form of health insurance or financing scheme, with a slightly higher coverage in rural areas (15%) compared to urban areas (12%). The predominant schemes include Rashtriya Swasthya Bima Yojana (RSBY) with

17.7% coverage, Central Government Health Scheme (CGHS) at 8.4%, Employees' State Insurance Scheme (ESIS) at 1.5%, and State health insurance scheme at 1.4%, alongside a significant portion, 70.4%, covered by other types of insurance[4].

1.1.2 Bihar at a Glance

Bihar reflects significant figures in its healthcare and demographic profile. The state has an infant mortality rate of 27 per 1000 live births, suggesting challenges in child healthcare. The total fertility rate stands at 3, indicating the average number of children a woman would have during her lifetime. Life expectancy is marginally higher for females (71.8 years) than for males (70.9 years), illustrating a small gender gap in lifespan. The death rate, at 5.4 per 1000 people, and the crude birth rate, at 23.5 per 1000 people, further encapsulate the state's population dynamics.[5]

In terms of healthcare infrastructure, Bihar has a ratio of 26 hospital beds per 100,000 population[6], which gives a rough idea of the healthcare resources available to the public. Financially, the out-of-pocket expenditure per in-patient case stands at 11588[7], which could be a substantial economic burden on households. Government institutions handle 37.8% of hospitalized cases, signifying the role of public healthcare services. Additionally, the average population served per allopathic doctor is 2853[8], which provides insight into the availability of medical professionals to the populace.

Bihar is administratively divided into 38 districts, with Patna being the most populous.

1.2 Literature Review

In India, despite improvements in access to health care, inequalities are related to socioeconomic status, geography, and gender, and are compounded by high out-of-pocket expenditures, with more than three-quarters of the increasing financial burden of health care being met by households. Health-care expenditures exacerbate poverty, with about 39 million additional people falling into poverty every year as a result of such expenditures.[9]

EAG states experience a higher percentage of catastrophic expenditure compared to others, indicating the need for health system reforms tailored to specific state needs rather than a "one-size-fits-all" approach.[10]

Financial turmoil or substantial economic difficulties can affect nations of every income level. However, the consequences are most severe in countries with lower incomes, and the intensity of the impact increases from middle-income to high-income countries. There's an inverse correlation between the number of people encountering financial disaster and how much countries rely on upfront funding methods, such as taxation or insurance, for their healthcare systems.[11]

Ayushman Bharat Yojona (ABY) scheme, launched in 2018, to mitigate place-based disparities in health insurance coverage. By targeting reductions in state, district, and community-level variations in coverage, the ABY scheme has the potential to enhance health insurance equity across India, especially among rural, less educated, and economically disadvantaged households.[12]

Studies highlight that health insurance plays a critical role in mitigating the adverse effects of out-of-pocket (OOP) health expenditures, which can deepen poverty levels. For instance, in the mid-90s, OOP expenses pushed an estimated 2.2% of India's population into poverty, and such figures only grew in subsequent years [8].

The study found that a household's socio-economic status, including caste and economic conditions, did not significantly inhibit uptake of insurance. In some instances, households from scheduled castes/tribes were more likely to enrol. This suggests that community-based health insurance (CBHI) schemes in rural areas of Bihar and Uttar Pradesh are accessible even to lower-income groups.[13]

1.3 Need for Study

The following points brings out the importance of this study which investigates the potential as well as coverage of health insurance coverage in Bihar:

1. Though health insurance including government funded schemes are seen as a major source for financing health care in India [8], only a few studies on health insurance coverage in Bihar is available in the public domain.
2. No comprehensive knowledge exists on the feasibility of health insurance for the medically underserved populations like Bihar.
3. Understanding the viability of health insurance in these contexts is crucial for the effective planning and implementation of Public Funded Health Insurance (PFHI) schemes [14].

1.4 Objectives

The specific objectives for this study are as follows.

a) To analyse the trend in health insurance coverage in Bihar.
b) To examine the determinants of health insurance.
c) To explore the differentials in consumption of inpatient treatment and its financial consequences between insured and non-insured individuals.

1.5 Organization of the Dissertation

Chapter I: ***Introduction***
Chapter II: ***Methods and Material***
Chapter III: ***Trends of health Insurance in Bihar***
Chapter IV: ***Correlates of Health Insurance coverage in Bihar***
Chapter V: ***Utilization of Health Insurance for inpatient care***
Chapter VI:- ***Summary and Conclusion***

Chapter – II

Methods and Material

2.1 Introduction

Previous chapter give the context of the study, literature review, need for the study and objectives framed for the study, this chapter gives description of the data used for the study and the methods adopted to analyze.

2.2 Data Source

The study used the data from NFHS-4 and NFHS-5 conducted during 2015-16 and 2019-21, respectively. Ministry of Health and Family Welfare, Government of India (MOHFW) conducted the study managed by the International Institute of Population Sciences (IIPS), Mumbai. Using a two-stage stratified random sampling method in each phase, NFHS-4 (2015–16) conducted interviews with 699,686 women aged 15–49 years across 572,000 households. In comparison, NFHS-5 interviewed 724,115 women aged 15–49 years from a total of 636,669 household [4], [15].

This study also used 75th round and 71st of NSSO data on health. The 71st round (January 2014 – June 2014) of NSS is devoted to the subject of Social Consumption and earmarked for surveys on Health and Education and 75th round on Household Social Consumption related to Health during the period July 2017 to June 2018. In 71st round covered a total of 65,932 households and

333,104 individuals and in 75th round survey all India 113823 households, with 64552 rural and 49271 urban households were selected.
The National Sample Survey (NSSO) data collection is done through a descriptive cross-sectional study sampling techniques to select the sample household [16, 17].

The third data source was the data from the Handbook of Indian Insurance Statistics released by the Insurance Regulatory and Development Authority of India (IRDA). from IRDAI we took data of no of insured from public funded and private funded health insurance (2014-2023)[18].

2.3 Variable

2.3.1 Dependent variable

In this study, Insurance is categorise into two sub group , Any health Insurance and Government funded health insurance . In our analysis we took anyone of the family member in the household is covered by health insurance or health security scheme and covered by public funded health insurance scheme. All the insurance question have been asked in dichotomous form as ‘yes’ and ‘no’.

2.3.2 Independent Variable

For objective-1 and 2 the following variables were taken into consideration:-
Education is categorized into No education, primary, secondary and higher education. Age is categorized four categories, i.e., 15-19 years, 20-24 years, 25-34 years and 35-49 years. Social group is categorized into four groups SC, ST, OBC and Others. Sex into two male and female. Religion into three Hindu, Muslim and Others. Type of residence into two rural and urban. We categorised Bihar into two region based on government of Bihar state profile i.e. South Bihar and North Bihar

For objective 3 Where Proportion Hospitalization rate, Utilization of private sector, Out-of-Pocket expenditure and Catastrophic health expenditure are the key variables.

2.4 Methods

Descriptive statistics are used to understand the sample distribution and to find the preliminary results. The bivariate analysis enabled the investigation of the relationship between insurance and sociodemographic variables. The chi-square test examines the significance of the associations between sociodemographic variables and Insurance . Further, the study used logistic regression to examine the determinants of health insurance. The specific methodology Chapter wise for this study are as follows.

a) In Chapter third, Data triangulation was used using sources National Family Health Survey (NFHS), Insurance Regulatory and Development Authority of India (IRDAI) and National Sample Survey (NSS) to ensure comprehensive and reliable results. We designated IRDAI data as the primary benchmark in this analysis. The Insurance shows non-secular trends and significant fluctuations. Relying on a single data source for the inference might result in inaccuracies; thus, we engaged multiple data sources to secure a thorough and trustworthy outcome. Since the IRDAI does not provide direct data on insurance coverage, we computed coverage using the formula (Number of Insured Individuals / Total Population) × 100, where the total population was derived from population projections[19].

b) In Chapter four, bivariate and multivariate analysis is performed to explore the relationship between Any type of Health Insurance coverage and Public funded Health Insurance with key socio-economic and demographic

variables using NFHS-5 (2019-21). Here NSS data on Health insurance is the most credible source for analysing health insurance coverage, yet its limited percentage made research challenging. Thus, we opted for the NFHS women's file, which exhibited a similar trend.

c) In Chapter five, Descriptive analysis is employed among insured and non-insured individuals, Where Proportion Hospitalization rate, Utilization of private sector, Out-of-Pocket expenditure and Catastrophic health expenditure are the key variables.

CHAPTER – III

TRENDS OF HEALTH INSURANCE IN BIHAR

3.1 Introduction

In the evolving landscape of healthcare in India, the state of Bihar presents a unique case study in the examination of health insurance coverage trends. As a region marked by its dynamic sociopolitical and varied demographic landscape, Bihar's strides in health insurance penetration reflect the interplay of targeted policy interventions, economic growth, and social development initiatives. This chapter delves into the empirical evidence derived from successive National Family Health Surveys (NFHS), National Sample Survey NSS and IRDAI, capturing the trajectory of health insurance coverage across diverse strata of Bihar's population.

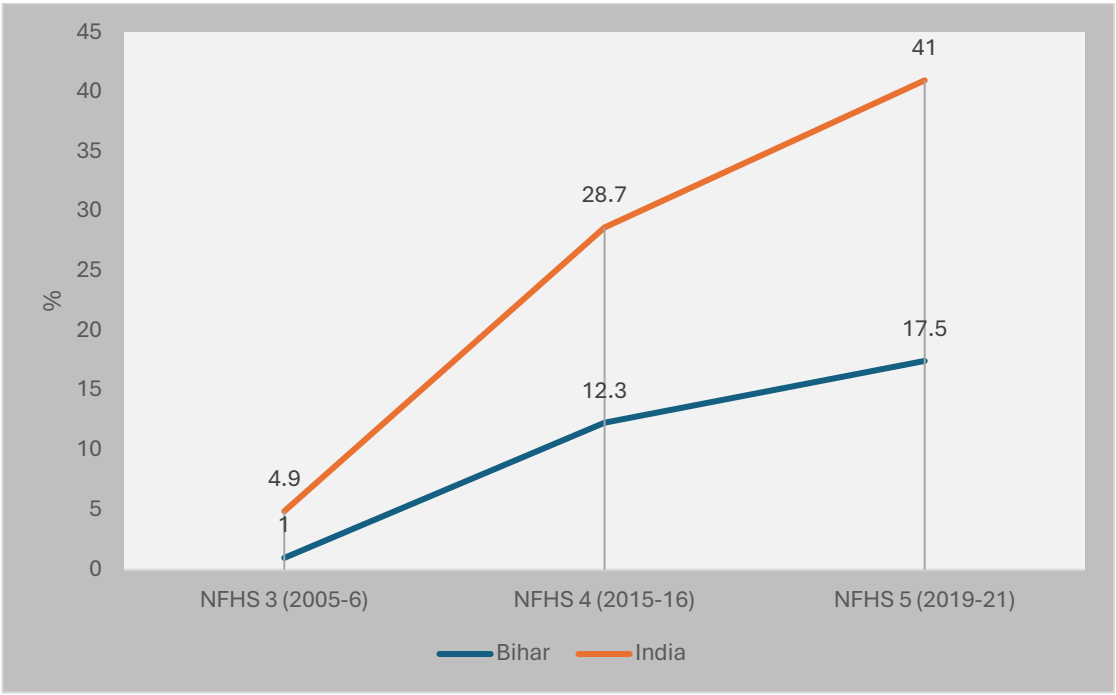
The chapter aims to analyze the uptick in coverage through age, gender, urban-rural divide, caste, and religious backgrounds. By illuminating the trends and patterns that have emerged over the period, this chapter aim to provide a comprehensive overview of the progress made and the challenges that persist.

3.2 Coverage of Health Insurance: Evidence from NFHS

Figure 1.1 depicts the percentage of households in which at least one usual member is covered by a health scheme or health insurance, comparing the data

for Bihar with that of India overall across three different time points corresponding to the National Family Health Survey (NFHS) rounds 3, 4, and 5.

Figure -1.1: ***Percent households in which at least one usual member is covered by a health insurance or health security scheme, 2005-04, 2015-16 & 2019-21***



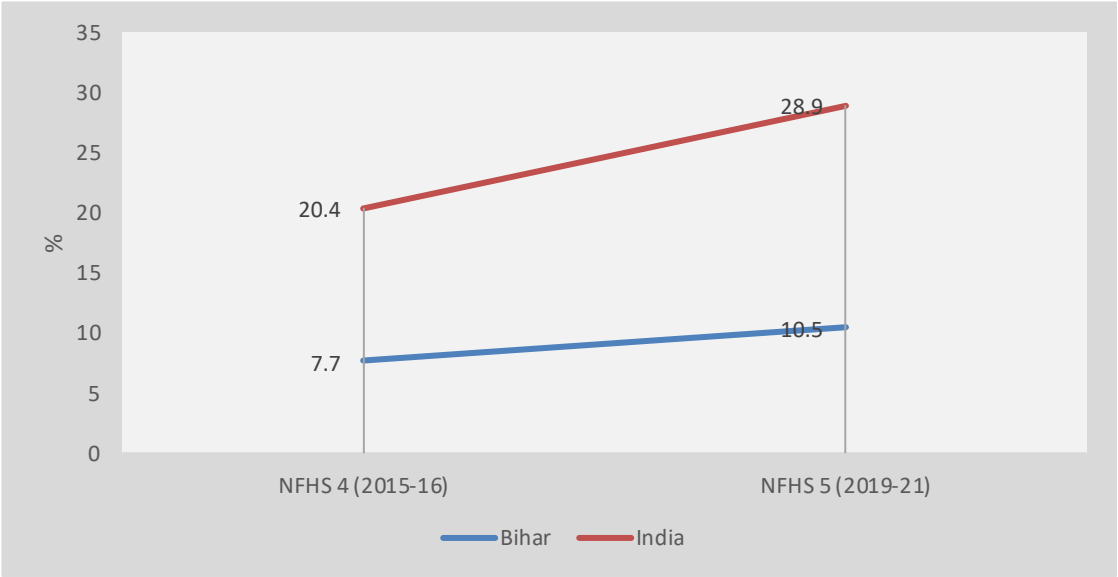
Source: NFHS

From NFHS 3 (2005-06) to NFHS 5 (2019-21), both Bihar and India show an upward trend in the percentage of households with health insurance coverage. In NFHS 3, Bihar had a notably low coverage at only 1%, which was significantly below the national average of 4.9%. By NFHS 4 (2015-16), coverage in Bihar increased to 12.3%, showing a substantial rise but still trailing behind the national average of 28.7%. The latest data from NFHS 5 indicates a considerable increase in coverage, with Bihar reaching 17.5% and India as a whole at 41%.

This trajectory suggests that while the proportion of households with health insurance coverage is increasing in both Bihar and India, Bihar remains behind the national average. However, the rate of increase in coverage in Bihar from

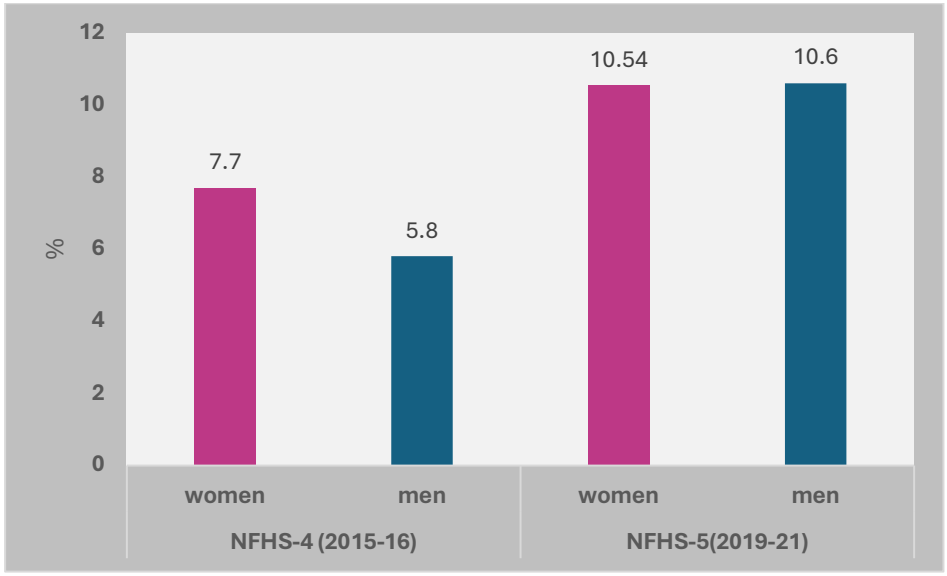
NFHS 3 to NFHS 5 is notable, indicating that efforts to expand health insurance coverage are having an impact, albeit more slowly than the national rate.

Figure -1.2: ***Percent of women covered by health Insurance or any health security scheme in Bihar and India, 2015-16 and 2019-21.***



In NFHS 4, the percentage of insured women in Bihar was significantly lower than the national average, with Bihar at 7.7% compared to India's 20.4%. By NFHS 5, both Bihar and India had seen an increase in coverage, with Bihar reaching 10.5% and the national average climbing to 28.9%. While both the state and the nation show positive trends in insurance coverage for women, there is a clear and consistent gap between Bihar and the national average.

Figure - 1.3: ***Any type of health insurance coverage among women and men in Bihar, 2015-16 & 2019-21.***



Source: NFHS

During NFHS 4, a smaller percentage of men (5.8%) had health coverage compared to women (7.7%) in Bihar. By the time of NFHS 5, there has been a notable increase in coverage for both genders, with the percentage for women slightly higher at 10.54% compared to 10.6% for men. This near parity in the latest survey suggests that gender disparity in health insurance coverage in Bihar has essentially been eliminated over the four-year period between the two surveys.

Table - 1.1: **Percent** ***of men and women covered by any health security scheme in Bihar, 2015-16 & 2019-21.***

	NFHS-4 (2015-16)		NFHS-5 (2019-2021)	
	women	**men**	**women**	**men**
Age				
15-19	5.6	2.7	9.0	9.9
20-24	4.9	3.4	6.2	7.1
25-34	8.0	6.3	10.3	8.7
35-49	10.4	8.6	14.5	14.5
Residence				
Urban	6.2	3.9	8.1	7.7
Rural	7.9	6.2	11.0	11.4
Religion				
Hindu	7.8	6.2	11.2	10.5
Muslim	7.2	3.6	6.7	10.7
Other	15.7	*	10.5	23.1
Caste/tribe				
Scheduled caste	10.3	7.6	14.9	16.6
Scheduled tribe	7.3	0.0	11.1	8.7
Other backward class	7.4	5.7	9.6	9.4
Other	5.9	5.2	7.7	6.9
Don't know	3.1	*	5.4	*
Total	**7.7**	**5.8**	**10.5**	**10.6**
*** value is less than 0.01**				

In Table-1.1 Starting with age groups, both men and women saw an increase in coverage across all age categories from NFHS-4 to NFHS-5. Notably, the 35-49 age group for both genders saw the highest coverage at 14.5% in NFHS-5, indicating a focus on or preference for insurance in this more economically active bracket.

In terms of residence, rural areas displayed a higher percentage of coverage compared to urban areas in both surveys, with a significant increase by NFHS-5. This could suggest effective outreach or policy implementation in rural areas.

When broken down by religion, there was an overall increase in health coverage across all religious groups. The 'Other' category had a considerable rise from

15.7% to 23.1% among women, and from 0 to 8.7% among men, which could reflect targeted health policy interventions. Hindu and Muslim communities also saw increases, with the latter having more than tripled for women from 3.6% to 10.7%.

Caste and tribe distinctions reveal disparities in coverage, with Scheduled Castes and Scheduled Tribes generally experiencing a significant increase in health insurance coverage from NFHS-4 to NFHS-5. This is particularly true for Scheduled Tribes, where women had no reported coverage in NFHS-4, jumping to 11.1% in NFHS-5.

3.3 Coverage of Health Insurance: Evidence from NSS

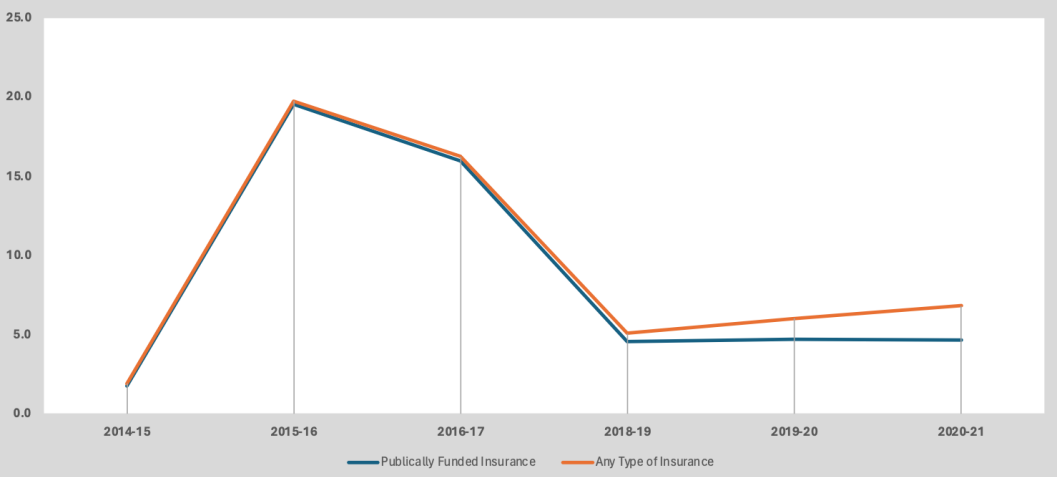
Table - 1.2: ***Percent of men and women covered by any health security scheme in Bihar, 2014 & 2017-18***

	NSS 71st (2014)			NSS 75th (2017-18)		
	women	**men**	**person**	**women**	**men**	**person**
Age						
15-19	7.4	8.5	7.4	0.3	0.1	0.2
20-24	4.9	4.2	4.9	0.1	0.2	0.2
25-34	4.0	3.7	4.0	0.2	0.7	0.4
35-49	6.2	8.0	6.2	0.6	0.3	0.4
Residence						
Urban	3.5	3.3	3.4	1.9	1.7	1.8
Rural	6.1	7.0	6.5	0.2	0.3	0.2
Religion						
Hindu	5.3	5.5	5.4	0.4	0.5	0.4
Muslim	9.1	12.2	10.7	0.1	0.1	0.1
Others	*	*	*	*	*	*
Caste/tribe						
Scheduled caste	6.9	9.4	2.5	0.0	0.0	0.0
Scheduled tribe	2.2	3.0	8.1	0.0	0.0	0.0
Other backward class	6.9	7.5	7.2	0.5	0.5	0.5
Other	0.7	0.5	0.6	0.6	0.6	0.6
Total	**5.8**	**6.6**	**6.2**	**0.4**	**0.4**	**0.4**
*** value is less than 0.01**						

In table 1.2 Highlight a stark decrease in health security scheme coverage among both men and women across various demographics in Bihar. In 2014, the highest coverage was observed in the younger (15-19 years) and older (35-49 years) age groups, with a slightly higher percentage for men than women. By 2017-18, the coverage across all age groups had drastically reduced, with the 35-49 age group retaining the highest coverage at a mere 0.4%. A rural-urban analysis shows that rural areas initially had better coverage than urban areas; however, by 2017-18, coverage had fallen across the board, with urban areas slightly outpacing rural areas at 1.8% coverage compared to 0.2%. Religiously, the Muslim community exhibited the highest coverage in 2014, particularly among men, but by 2017-18, the coverage for both Hindus and Muslims plummeted to 0.4% or less. The decline in coverage is also notable across caste divisions, with Scheduled Castes, Scheduled Tribes, and Other Backward Classes experiencing a significant reduction to virtually no coverage or a marginal 0.5% by 2017-18. Overall, the total coverage dropped from 6.6% for men and 5.8% for women in 2014 to an equal 0.4% for both genders by the end of 2017-18.

3.4 Coverage of Health Insurance: Evidence from IRDAI

Figure - 1.4: ***Trends of Insurance Coverage in Bihar, 2014-21***

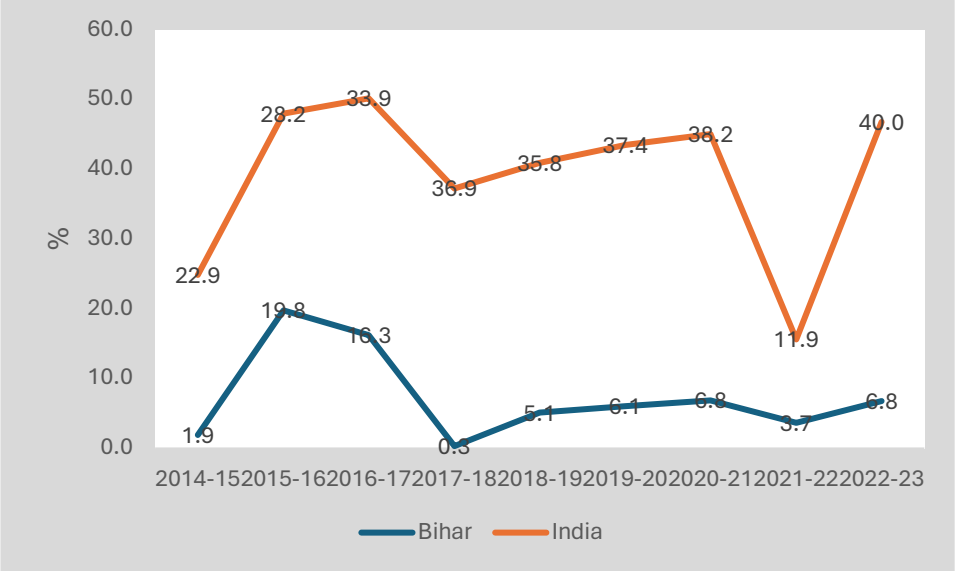


Trend of Insurance coverage in Bihar						
	2014-15	2015-16	2016-17	2018-19	2019-20	2020-21
Publically Funded Insurance	1.8	19.6	16.0	4.6	4.7	4.7
Any Type of Insurance	1.9	19.8	16.3	5.1	6.1	6.8

Source: IRDAI

The trends of insurance coverage in Bihar from 2014-15 to 2020-21, as reported by IRDAI, show significant fluctuations over the years. Initially, both publicly funded insurance and any type of insurance saw a sharp rise from 1.8% and 1.9%, respectively, in 2014-15 to nearly 20% in the following year. However, this growth did not sustain, as evidenced by a decrease in 2016-17, with publicly funded insurance coverage at 16.0% and any type of insurance at 16.3%. There was a dramatic drop in 2018-19, where coverage rates fell to 4.6% for publicly funded insurance and 5.1% for any type of insur. The subsequent years saw only a modest recovery, with both categories of insurance coverage hovering around 4.7% in 2019-20 and showing a slight increase in 2020-21 to 6.8% for any type of insurance.

Figure - 1.5: ***Trends of Health Insurance Coverage, 2014-23***

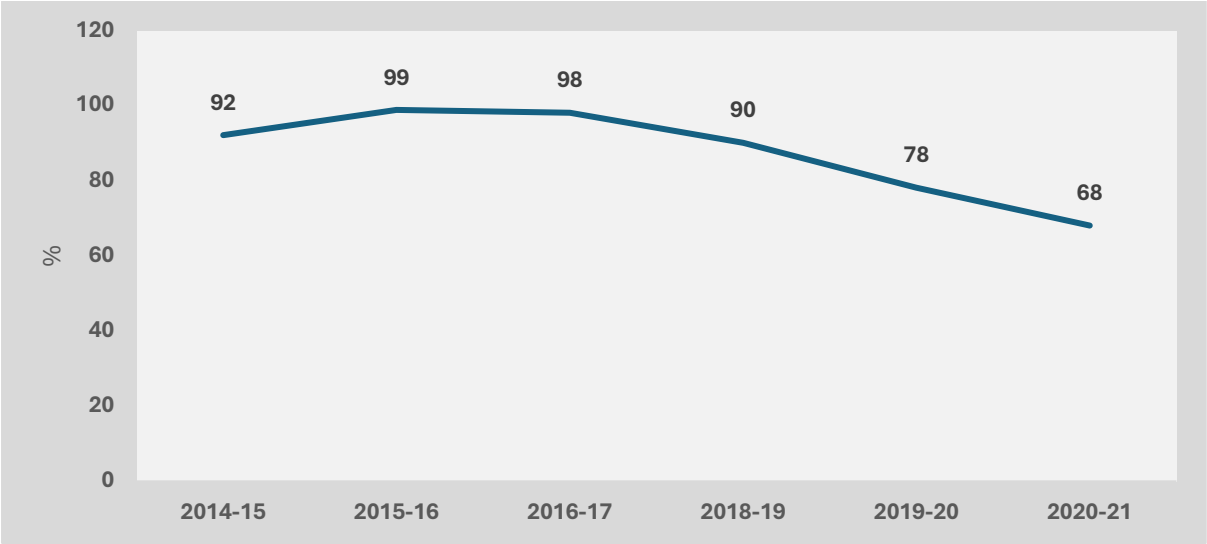


Source: IRDAI

In the initial year, 2014-15, Bihar's insurance coverage was at a mere 1.9%, dramatically lower than the national average of 22.9%. The following year saw a substantial increase in Bihar to 19.8%,. However, in 2016-17, coverage in Bihar experienced a significant drop to 16.3%, followed by a precipitous decline to 0.3% in 2017-18. This sudden decrease can be attributed to the transition from RSBY to PMJAY, which likely involved a restructuring of health insurance schemes and could have temporarily affected the coverage statistics due to the switch in programs and potential delays in enrolment.

In subsequent years, both Bihar and India show an upward trend in coverage, with Bihar demonstrating a slow but steady increase from the 2017-18 low point, reaching 6.8% in 2022-23. The national trend exhibits a similar pattern until 2020-21, with a peak at 38.2%. , however health insurance coverage in Bihar were lack the initial pace as it was before.

Figure – 1.6: ***Share of Publicly Funded beneficiary to Total Insured, Bihar 2015-21***



Source: IRDAI

The graph depicts the percentage of publicly funded health insurance (PFHI) beneficiaries relative to the total insured population in Bihar from 2014-15 to 2020-21. Initially, in 2014-15, PFHI beneficiaries made up 92% of the total insured. This proportion rose slightly to peak at 99% in 2015-16 and remained nearly as high at 98% in 2016-17, indicating that almost all the insured were beneficiaries of publicly funded schemes. However, there's a downward trend starting in 2018-19, where the share of PFHI beneficiaries dropped to 90%, followed by a steeper decline to 78% in 2019-20, and then to 68% in 2020-21. This downward trend suggests a decrease in the reliance on publicly funded health insurance schemes relative to other forms of insurance over the given period.

CHAPTER – IV

CORRELATES OF HEALTH INSURANCE COVERAGE IN BIHAR

3.1 Introduction

Delving into the selected determinants of health insurance coverage in Bihar, this chapter unravels the relationship between socio-economic factors and any type of health insurance or health security scheme and government funded health insurance or health security scheme.

3.2 Findings

Table-2.1: ***Result from logistic regression analysis for health insurance coverage among women aged 15-49 in Bihar, NFHS 2019-21***

	Odds ratio	**P>z**	**CI**	
Type of Residence				
Urban *				
Rural	0.93	0.22	0.82	1.04
Sex of head of the HH				
Male *				
female	1.03	0.43	0.96	1.11
Caste				
Sc	1.80	0.00	1.60	2.03
ST	1.31	0.01	1.08	1.59
OBC	1.19	0.00	1.07	1.33
Others *				
Religion				
Hindu*				

Muslim	0.65	0.00	0.58	0.73
Others	0.91	0.82	0.41	2.01
Age				
15-19*				
20-24	0.69	0.00	0.62	0.78
25-34	1.10	0.07	0.99	1.21
35-49	1.63	0.00	1.48	1.81
Education level				
No Education*				
primary	1.06	0.31	0.95	1.18
secondary	0.97	0.44	0.89	1.05
higher	0.86	0.10	0.72	1.03
Wealth Quintile				
poorest	1.54	0.00	1.25	1.91
poorer	1.44	0.00	1.17	1.78
middle	1.07	0.56	0.86	1.32
richer	1.01	0.96	0.81	1.25
richest*				
Bihar_region				
South Bihar	0.99	0.69	0.92	1.05
North Bihar *				
**reference*				

The logistic regression analysis (Table 2.1) reveals a nuanced understanding of the demographic and socioeconomic factors that significantly correlate with the likelihood of having health insurance coverage in the area under study. Individuals from Scheduled Castes (SC) are notably more likely to have health insurance coverage, with 80% greater odds compared to the reference group. Similarly, those from Scheduled Tribes (ST) and Other Backward Classes (OBC) also show increased odds of having coverage, at 31% and 19% respectively, indicating that social groups traditionally disadvantaged are more likely to be insured, possibly reflecting the success of targeted insurance policies aimed at these communities.

In terms of religion, Hindus are less likely to have health insurance compared to members of other religions, with 35% lower odds of being insured. This significant discrepancy suggests that there may be cultural, economic, or policy-related factors that influence the uptake of health insurance differently among Hindu populations.

The analysis also points out that age is a significant determinant; particularly, individuals in the 35-49 age bracket are 63% more likely to be covered by health insurance compared to the youngest age group assessed. This higher likelihood among older age groups may reflect an increased awareness of health issues and the need for insurance as individuals approach middle age.

When examining the impact of economic status, the data indicates an inverse relationship between wealth and the likelihood of having health insurance for those not in the richest quintile. The poorest quintile has 54% higher odds, and the 'poorer' quintile has 44% higher odds of having insurance, suggesting that public or subsidized insurance schemes are more prevalent among the less affluent, whereas individuals in the richer quintiles might opt for other forms of insurance or none.

Table-2.2: ***Result from logistic regression analysis for public funded health insurance coverage among women aged 15-49 in Bihar, NFHS 2019-21***

	Odds ratio	**P>z**	**CI**	
Type of Residence				
Urban *				
Rural	1.28	0.09	0.96	1.71
Sex of head of the HH				
Male *				
female	0.95	0.58	0.80	1.13

Caste				
Sc	1.87	0.00	1.43	2.45
ST	1.64	0.02	1.07	2.52
OBC	1.35	0.02	1.06	1.73
Others *				
Religion				
Hindu*				
Muslim	1.04	0.74	0.83	1.30
Others	0.72	0.75	0.10	5.26
Age				
15-19*				
20-24	0.86	0.27	0.67	1.12
25-34	1.26	0.04	1.01	1.58
35-49	1.57	0.00	1.25	1.98
Education level				
No Education*				
primary	1.00	0.99	0.79	1.27
secondary	0.93	0.46	0.76	1.13
higher	0.58	0.02	0.37	0.91
Wealth Quintile				
poorest	1.40	0.20	0.84	2.33
poorer	1.38	0.22	0.83	2.28
middle	1.08	0.76	0.65	1.81
richer	1.11	0.70	0.65	1.88
richest*				
Bihar_region				
South Bihar	1.18	0.03	1.02	1.37
North Bihar *				
**reference*				

In table 2.2 individuals belonging to Scheduled Castes (SC) and Scheduled Tribes (ST) have a significantly higher probability of being covered by government-funded health insurance, with odds ratios of 1.87 and 1.64, respectively. This suggests effective targeting of government-funded health insurance schemes towards these communities, which have historically been marginalized.

For the Other Backward Classes (OBC), the likelihood of having government-funded insurance is also higher (odds ratio of 1.35), although less so compared to the SC and ST groups. This reinforces the view that government schemes are reaching the disadvantaged castes more effectively than the general population.

Age is another significant factor, with individuals aged 35-49 being 57% more likely to have government-funded health insurance compared to the 15-19 age group. This higher coverage in the older age group may reflect a greater perceived need for health insurance as people age and potentially experience more health issues.

A noteworthy finding is the lower odds of higher education individuals having government-funded health insurance (odds ratio of 0.58). This could suggest that those with higher education levels are either opting for private insurance or are less in need of government-funded schemes, possibly due to higher incomes or better job benefits.

Lastly, the region of residence within Bihar is significant, with individuals from South Bihar having 18% higher odds of being covered compared to those from North Bihar. This regional difference points to varying effectiveness or availability of government health insurance programs across the state.

CHAPTER – V

Utilization of Health Insurance for inpatient care

4.1 Introduction

After examining the trend and correlates on health insurance coverage in previous chapters, we now examine the utilization of health insurance among the beneficiary population in Bihar. This was performed by examining differentials in the consumption of inpatient treatment and its financial consequences between insured and non-insured individuals, offering a nuanced exploration within a broader study on health insurance trends and differentials in the region. As health insurance plays a pivotal role in determining access to and affordability of healthcare, this section highlights the tangible effects of insurance—or the lack thereof—on individuals' health-seeking behaviour and financial stability. Analysis is important as it enables us to understand if the existing beneficiaries even if low in percentage, are able to improve their access to hospitalization care, including reduction of out-of-pocket expenditures.

4.2 Utilization of hospitalization services

Results of this analysis based on NNS 75th round (2017-18) is presented in sections below.

Table 3.1: ***Proportion hospitalized per 1000 persons in last one year by health insurance cover, Bihar 2017-18***

	No. per 1000 persons hospitalized (95 % CI)	
	Not covered	**Covered**
Sex		
Males	10.5 (CI 9-12)	32 (CI 7-129)
Females*	48 (CI 45-52)	88 (CI 35-201)
Place of residence		
Rural	28 (CI 26-30)	73 (CI 28-179)
Urban	26 (CI 21-33)	44 (CI 12-147)
Combined	**28 (CI 26-30)**	**59 (CI 27-123)**
No of cases	27912	203

* includes hospitalizations for child births in the reference period

In table 3.1 for the total there are 28 per 1000 individuals in not covered by health security scheme On the other hand, in the insured there are 59 per 1000 individuals it may point towards complex dynamics such as moral hazard in insurance or an increase in access to health infrastructure. Moral hazard could imply that individuals with coverage may engage in riskier behaviours or utilize more health services because they are insulated from the full cost, leading to a higher rate of reported incidents. Alternatively, increased access to health services for the covered group might result in more frequent utilization of healthcare facilities, and consequently, a higher hospitalization rate.

4.2 Utilization of private sector by insured and non-insured.

Table 3.2: ***Percent seeking impatient care from private sector in last one year by health insurance cover , Bihar NSS 2017-18.***

	percent using private sector (95 % CI)	
	Not covered	**Covered**
Sex		
Males	65 (CI 62-69)	37 (CI 13-71)
Females	31 (CI 29-33)	32 (CI 16-53)
Place of residence		
Rural	37 (CI 35-38)	10 (CI 2-33)
Urban	51 (CI 46-56)	74 (CI 42-92)
Reason for hospitalization		
Institutional birth	20 (CI 18-22)	27 (CI 11-54)
Other causes	63 (CI 60-65)	39 (CI 19-64)
Total	**38 (CI 36-40)**	**33(CI 19-51)**
No of cases	3709	51

* includes hospitalizations for child births in the reference period

From table 4.2 the data from Bihar for 2017-18 indicates a distinct preference for private healthcare among the insured population, particularly in urban settings. Insured urban residents utilize private healthcare at a notably high rate of 74%, while the rural insured show a much lower preference at 10%. This urban-rural divide in healthcare choice is not as pronounced among the uninsured, with 37% of rural and 51% of urban residents seeking private sector care

4.3 Household out of pocket expenditure and catastrophic health expenditure.

Table 3.3: ***Out of pocket expenditure on medical care, percentage selling assets or borrowing and catastrophic health expenditure due to inpatient care by health insurance cover, Bihar NSS 2017-18***

	health insurance	
	Not covered	Covered
Mean out of pocket expenditure on medical care (in INR)	10,106	33,524
Median out of pocket expenditure on medical care (in INR)	4200	9500
Percentage borrowing or selling assets to finance inpatient care treatment (95 % CI)	28 (27-30)	11 (4-20)
Percentage with catastrophic health expenditure (95 % CI)	24 (23-25)	21 (10-39)
No of cases	3709	51

From the table 3.3 data from Bihar for 2017-18 presents a counterintuitive scenario regarding health insurance coverage and its financial implications. Despite having health insurance, the covered group reports a mean out-of-pocket expenditure on medical care that is more than three times higher than that of the uninsured group. The median expenditure tells a similar story, with insured individuals incurring more than double the costs of their uninsured counterparts. A smaller percentage of insured individuals resort to borrowing or selling assets to finance inpatient care treatment and face catastrophic health expenditures compared to the uninsured. However, the difference is not as stark as one might expect, given the protective intent of health insurance.

Overall, the data does not seem to support any substantial comparative financial advantage for those with health insurance in terms of out-of-pocket expenditure, borrowing, or selling assets, or in preventing catastrophic health expenditures, at least within the scope of this sample from Bihar for inpatient care.

CHAPTER – VI

DISCUSSION AND CONCLUSION

5.1 INTRODUCTION

The present chapter deals with Discussion of the main findings of the study and conclusions emerged from the study. Important policy implications emerging from the study.

5.2 DISCUSSION

Exploring health insurance coverage in Bihar, a state in India known for its dense population, emerges as a critical endeavor due to a significant dearth of research in this domain. Prior to this study, a comprehensive understanding of how health insurance penetrates and functions among the medically underserved in Bihar was conspicuously missing. This lack of data created a substantial barrier to fully grasping the nuances of insurance dynamics, hindering the development of policies aimed at bolstering health infrastructure in these communities.

To address this shortfall, the current study embarked on a mission with clear objectives: to chart the trends in health insurance coverage, to delve into the factors influencing such coverage, and to scrutinize the differences in inpatient treatment usage—and its ensuing financial implications—between insured and uninsured individuals. The initial findings uncovered a pattern of insurance coverage that has been anything but stable since 2014-15, marked by an initial surge in enrollments which subsequently waned. This oscillation closely reflects the policy shift from the Rashtriya Swasthya Bima Yojana (RSBY) to the Pradhan

Mantri Jan Arogya Yojana (PMJAY), a transition that disproportionately impacted marginalized communities, especially those belonging to the Scheduled Castes (SC) and Scheduled Tribes (ST). This trend underscores the vulnerability of these groups amidst policy alterations.

Such insights underline the importance of exercising caution during transitions between public health schemes, to safeguard continuous and stable coverage, particularly for the disadvantaged segments most susceptible to such fluctuations. A noteworthy finding from the study is that insured populations exhibit a higher hospitalization rate compared to their uninsured counterparts, shedding light on health insurance's pivotal role in enhancing access to inpatient care. This increased accessibility is likely underpinned by the financial safety net insurance provides, emboldening insured individuals to seek hospital care as needed without the fear of prohibitive medical expenses. Specifically, in urban Bihar, there is a pronounced preference among the insured for private sector inpatient care. This preference points to a significant variation in healthcare-seeking behaviors influenced by various factors, including the quality and availability of healthcare facilities, and socio-economic considerations. Urban environments offer private healthcare options that promise more advanced services and shorter waiting times, making them a preferable choice for those with insurance, who can afford these services.

However, the study's limited sample size calls for caution against making broad generalizations from these observations. Despite the observable trend towards higher hospitalization rates and a preference for private healthcare among the insured, especially in urban areas, the data falls short of establishing a clear comparative advantage in health outcomes for the insured. This suggests that while insurance may influence healthcare access and preferences, it does not unambiguously lead to improved health outcomes. Such a conclusion may be

shaped by several factors, including the quality of accessible healthcare services, inherent differences in health status between insured and non-insured groups, or systemic inefficiencies within the healthcare framework.

5.3 CONCLUSION

The study emphasizes the importance of understanding the role of health insurance within Bihar's complex socio-economic context. The fluctuations in insurance coverage underline the health sector's vulnerability to policy changes, significantly impacting the most at-risk populations. Identifying these patterns is crucial for future policy making, aiming to establish an inclusive health insurance system that not only broadens coverage but also promotes fairness and longevity. It becomes clear that public funded health insurance schemes in Bihar need a tailored approach, considering the state's socio-economic and demographic diversity to boost the effectiveness and scope of health insurance coverage.

5.4 POLICY AND IMPLICATIONS

In Bihar, a region grappling with underdeveloped health facilities and limited economic strength, the role of health insurance as a mechanism to mitigate out-of-pocket health expenditures seems to be a multifaceted challenge. The current state suggests that the populace might not be fully prepared to adopt health insurance as a financial buffer against healthcare costs. This stems from a combination of factors, including insufficient awareness about the benefits of health insurance, inadequate healthcare services, and a general lack of affordability.

To foster a more resilient healthcare environment, it is essential to fortify public health care systems. Strengthening these systems is pivotal for enhancing hospital care accessibility and for curtailing the often-crippling out-of-pocket health expenses that families face. Such a reinforcement would entail not only an improvement in physical health facilities but also in patient education, insurance literacy, and financial assistance programs.

Policy evolution in the realm of healthcare requires careful deliberation and a measured approach, especially considering the potential repercussions for those in precarious social and economic conditions. Any future policy adjustments must be meticulously planned and executed with an emphasis on protecting the interests of the most vulnerable populations, to avoid exacerbating existing disparities and to truly make healthcare accessible and affordable for all.

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