Breaking Down Barriers: The Promise of Health Insurance for India's Urban and Rural Poor

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Abstract

The objective of this study is to evaluate the coverage of existing health insurance schemes for the Indian urban and rural poor and identify the socioeconomic barriers that prevent households from accessing health insurance. The study uses two rounds of National Family Health Survey (NFHS) data (NFHS-4 and NFHS-5). First, the distribution of insurance coverage among the urban and rural poor households is examined. Second, a logistic regression model is applied to identify the socioeconomic determinants of the coverage. Finally, the Fairlie decomposition technique is employed to identify the factors contributing to disparities in insurance coverage among the urban and rural poor households in NFHS-4 and NFHS-5. The study reveals that health insurance coverage is not evenly distributed across socioeconomic backgrounds, with a significant difference in coverage between poor households in both urban and rural areas. In both surveys, older household heads, Islam religion, Scheduled tribes, households with below-poverty line (BPL) cards, and aspirational districts are significantly contributing to the insurance coverage gap between the urban and rural poor. Further, this study provides important implications for expanding health insurance coverage in India, thus suggesting the need for more equitable distribution of health insurance coverage and targeted interventions to address the disparities.

Keywords

Ayushman Bharat Yojana; health insurance; PM-JAY; rural poor; universal health coverage; urban poor

Introduction

The Alma-Ata Declaration of 1978 established a vision for making primary healthcare services universally accessible (World Health Organization [WHO], 1978). Since then, achieving universal health coverage (UHC) has become a primary goal for governments worldwide. The objective is to ensure everyone has access to quality healthcare under UHC to promote well-being across society.

India's healthcare insurance landscape has a mix of public and private involvement. Health insurance has been present even before economic reforms in the late 1990s. However, private health insurance remains expensive for most citizens. The government has addressed this issue by offering schemes like Rashtriya Swasthya Bima Yojana (RSBY) specifically for underprivileged families. In 2018, India has taken a significant step towards UHC by launching Pradhan Mantri Jan Arogya Yojana (PM-JAY). This ambitious public health insurance scheme launched by the Government of India targets the bottom 50% of India's population with the aim of reducing the financial burden of healthcare on households. Studies suggest that PM-JAY has the potential to significantly decrease out-of-pocket medical expenses for the poor, thus preventing them from falling into poverty due to healthcare costs (Kastor & Mohanty, 2018; Prinja et al., 2019).

The PM-JAY is a big step towards achieving UHC by implementing a comprehensive health program for the underprivileged section of society. Despite this effort, household out-of-pocket (OOP) spending on healthcare sometimes increases. According to Sarwal and Kumar (2020), healthcare payments account for almost 60% of spending in India, among the highest in the world. Loganathan et al. (2017) conducted a study in the Wardha district of Maharashtra. They found that though the health insurance coverage of households is adequately high, around twenty percent of the households have to spend calamitously on health. Further, location/distance from the healthcare facility is essential for catastrophic health expenditure. Studies also show that the out-of-pocket healthcare expenditure continues to burden the family members of the patient despite being enrolled under insurance schemes (Ravindran et al., 2020).

Despite India's efforts to improve its healthcare system, the accessibility to quality care remains a hurdle, particularly for the urban and rural poor. This challenge intensifies owing to the increased privatization of secondary and tertiary healthcare services. Currently, around 62% of the healthcare sector falls under private management. While private providers offer advanced medical technologies and specialized treatments, the lack of government regulation on pricing often leads to inflated costs. These inflated expenses force many to pay OOP, risking financial hardship and poverty. This situation has made health insurance a preferred method for the Indian government to finance healthcare (Kuwawenaruwa et al., 2019). Ideally, health insurance acts as a household safety net by eliminating affordability barriers and guaranteeing access to various hospitals.

The issue of OOP spending is a double threat, as it can lead to financial burdens for individuals and families and a lack of utilization of essential healthcare services due to cost concerns. Moreover, the challenges related to OOP healthcare expenses can vary between rural and urban poor populations, as each group faces unique challenges based on their healthcare needs, access to services, and financial resources. Considering these challenges, PM-JAY can help to achieve UHC through the accomplishment of the principles outlined in

the Alma-Ata Declaration regarding the promotion of fairness in access to care and efficiency in service delivery. The study on health insurance in India has found that schemes positively impact healthcare utilization and financial protection for low-income people. For example, Devadasan et al. (2013) found the Rashtriya Swasthya Bima Yojana has increased utilization by 23% and reduced out-of-pocket costs by 62% for those below the poverty line through improved inpatient care access. However, many individuals still face significant out-of-pocket expenditures despite insurance availability. Further, Sood and Wagner (2018) found that the average healthcare spending is about 7.8% of household budgets. Farooqui et al. (2022) observed that high out-of-pocket expenditure on healthcare is a significant financial burden for households, especially those below the poverty line.

The existing literature on the determinants of health insurance in India is either area-specific or scheme-specific. Few studies have used nationally representative health databases such as NFHS-3 and NFHS-4 to investigate coverage and determinants of insurance choice. Using the National Family Health Survey (NFHS), studies have found that merely 29% of people in India have health insurance (Khan et al., 2021; Yadav & Mohanty, 2021). Similarly, our study utilizes the latest NFHS-4 (2015–2016) and NFHS-5 (2019–2021) data for all districts to understand the coverage gaps among the urban and rural poor. The findings can help in designing informed policies to improve insurance coverage and reduce household financial burden.

The Government's health insurance schemes benefit both the urban and rural poor. However, they are not able to fully utilize the facility. Bhat et al. (2018) found that the paucity of access to public healthcare facilities and healthcare providers in urban areas results in excessive out-of-pocket expenditure, which in turn compels the urban poor to ignore their health benefits. Moreover, India's urban population below the poverty line has increased from 15.8% to 23.2% (Planning Commission, 2009). Hence, the growing poor urban population needs affordable healthcare.

Furthermore, the NFHS data demonstrates a gap between urban and rural poor in health insurance coverage. Despite efforts to increase health insurance coverage in India, accessing health insurance remains a significant barrier for the country's urban and rural poor. With the target to accomplish universal health coverage for its entire population by 2030, India recognizes the critical role of health insurance in achieving this goal and Sustainable Development Goal 3, Target 3.8.

Thus, this study aims to evaluate the coverage of existing health insurance schemes among the urban and rural poor and identify socioeconomic barriers that prevent households from accessing health insurance using the data of NFHS-4 and NFHS-5. Additionally, the study seeks to examine the role of different socioeconomic variables on the urban and rural health insurance gap in both surveys. Ultimately, the objective of this research is to provide insights into the potential of health insurance in improving healthcare access for India's urban and rural poor and help policymakers in designing policies for achieving universal health coverage.

Data and methodology

Data

The research utilizes NFHS-4 (2015–2016) (International Institute for Population Sciences [IIPS] & ICF, 2017) and NFHS-5 (2019–2021) (IIPS & ICF, 2022) data seeing as it is a comprehensive and nationally representative survey conducted across India to collect data on various health indicators. It is a multi-round survey that provides crucial estimates of fertility, mortality, family planning, maternal and child health, reproductive health, household environment, and sanitation over the period. The survey records the socioeconomic characteristics of the household along with water, sanitation and hygiene conditions, health insurance coverage, disabilities, land ownership, and the number of deaths in the household in the three years preceding the survey. This study utilizes information on health insurance coverage for members of 601,509 households in NFHS-4 and 636,699 households in NFHS-5 in India. The large-scale and representative nature of the survey makes the data a vital source for researchers to analyze health indicators and health insurance coverage in India.

Methodology

With the increase in healthcare costs and lifestyle diseases in India, health insurance is crucial for individuals as a medical emergency can have a significant impact on the individual and their family members. While gathering data through NFHS-4 and NFHS-5, household heads are enquired regarding availing of health insurance and health schemes for any member of the household. The response variable is coded as "1" if at least one household member is insured and "0" if none of the members is insured. In both the urban and rural areas, the lowest quantiles (poorest and poor) of household wealth index are combined to segregate the poor households. This study considers various covariates such as gender and age of the household head, household size, religion, caste, and whether the household has a BPL card. Further, the districts are divided into two categories, aspirational and non-aspirational, wherein aspirational districts are identified as significant predictors of health insurance. The Aspirational Districts Program was launched in January 2018 by the Government of India, led by NITI Aayog, with the aim of transforming 112 underdeveloped districts in India based on their performance with respect to the five socioeconomic themes, i.e., health and nutrition, education, agriculture, and water resources, financial inclusion and skill development, and infrastructure.

The data analysis in this study is carried out in three steps. First, a simple percentage distribution is used to examine the background characteristics of households with and without health insurance coverage. This has provided a descriptive overview of the insurance coverage scenario among different groups. Second, a logistic regression model is applied to identify the significant predictors of health insurance coverage after controlling for various factors in NFHS-4 and NFHS-5. The following formula estimates the likelihood of having health insurance coverage:

$$logitp = \ln\left(\frac{p}{1-p}\right) = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + \cdots + b_ix_i + e \text{ (Equation 1)}$$

Where $b_1, b_2, b_3, \ldots\ldots, b_i$ represents the coefficient of each predictor variable included in the model, and 'e' is the error term.

Third, the difference in health insurance coverage between the urban poor and rural poor is computed. The differentials are decomposed into their separate underlying factors for both surveys. Fairlie's (1999, 2005) decomposition technique is employed for the decomposition

analysis, as it is particularly suited for calculating gaps in the binary outcomes, i.e., health insurance coverage in the present study.

$$\bar{y}^R - \bar{y}^U = \left[\sum_{i=1}^{N^R} \frac{F(X_i^R \hat{\beta}^R)}{N^R} - \sum_{i=1}^{N^U} \frac{F(X_i^U \hat{\beta}^U)}{N^U}\right] + \left[\sum_{i=1}^{N^U} \frac{F(X_i^U \hat{\beta}^R)}{N^U} - \sum_{i=1}^{N^U} \frac{F(X_i^U \hat{\beta}^U)}{N^U}\right] \text{(Equation 2)}$$

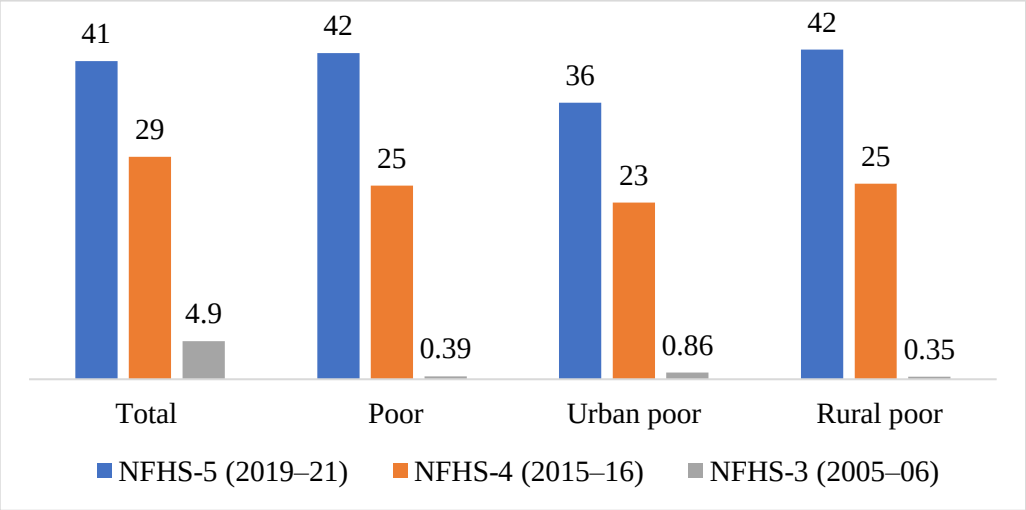
In the above equation, the first part represents the gap between urban poor and rural poor, considering the group differences related to distributions of characteristics of the independent variables X'_S, also known as the "explained part." The second part represents the urban-rural differences among people experiencing poverty owing to variations in the coefficients or "returns" to the exogenous covariates (Cain, 1986; Jones, 1983).

Results

Health insurance coverage disparities in India: Analyzing the impact of socioeconomic backgrounds

Figure 1 shows the evolution of health insurance coverage among households in India as documented in NFHS-3, NFHS-4, and NFHS-5. In NFHS-3, merely 4.9% of total households had at least one member insured, which dramatically increased to 29% in NFHS-4 and further surged to 41% in the latest survey period of NFHS-5. Urban and rural poor households have exhibited similar growth patterns, as is evident from the surge in insurance coverage, i.e., rising from less than 1% in NFHS-3 to 36% and 42%, respectively, in NFHS-5. The data reveals a positive trend among poor households and signifies a substantial improvement in health insurance penetration nationwide.

Figure 1: Percentage of Indian Households with Health Scheme Coverage, NFHS-3 (2005–2006) to NFHS-5 (2019–2021)



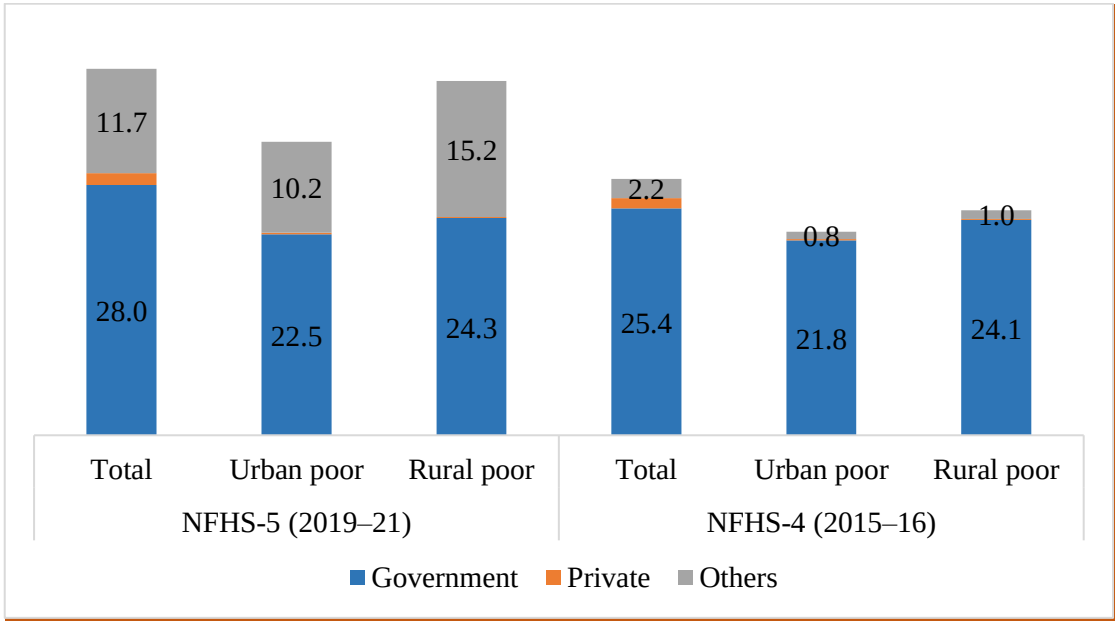
Considering the surge in health insurance coverage, examining the various schemes the households are availing of is crucial. Figure 2 shows the percentage of health scheme coverage across various schemes in India, comparing data from NFHS-4 and NFHS-5. Government

schemes have emerged as the primary source of insurance coverage, with rates slightly increasing from 25.4% in NFHS-4 to 28.0% in NFHS-5. The urban and rural poor populations have shown a preference for the government schemes, which reached 22.5% and 24.3%, respectively, in NFHS-5, thereby maintaining the highest coverage rates. Conversely, private schemes exhibit lower coverage rates, i.e., only 1.4% of households in NFHS-5, slightly more than 1.2% in NFHS-4. This data highlights the continued prominence of government schemes in providing health coverage, particularly for people experiencing poverty.

The availability of a trained and skilled workforce is a crucial prerequisite for the effective and efficient functioning of rural health services. As of March 31, 2021, the healthcare infrastructure in India included a total functional network of 764 district hospitals and 1,224 sub-district hospitals. These sub-district and district hospitals constituted 15,274 and 26,929 doctors and 42,073 and 90,435 paramedical staff, respectively. In addition, 148,608 and 284,227 beds were available at the sub-district and district hospitals, respectively (National Health Mission, 2022b).

According to the latest data, there is an overall shortfall of 2.9% in Health Workers (HWs)/Auxiliary Nurse Midwives (ANMs) posts. The Primary Health Centre (PHC) is the first contact point between the rural community and the Medical Officer. It requires a team of paramedical and other support staff, with a shortage of 72.2% of Health Assistants in PHCs. The situation is equally alarming for the specialist workforce at Community Health Centers (CHCs), which provide specialized medical care for a range of conditions. Approximately 68% of the sanctioned posts of specialists at CHCs remain vacant, thus indicating a severe deficit of qualified and trained medical personnel. These shortages of trained personnel highlight the urgent need for policy interventions to address the staffing crisis in rural health services in India concerning universal health coverage (National Health Mission, 2022b).

Figure 2: Health Scheme Coverage Percentage Across Various Scheme Types, NFHS-4 (2015–2016) to NFHS-5 (2019–2021)



Similarly, there is a shortage of healthcare personnel in the urban areas. Based on urban population norms, there is a deficit of 44.2% in operational Urban Primary Health Centers (U-PHC). In addition, the vacancy for healthcare workers at the PHC and U-PHC levels is high,

with shortfalls in all positions, including doctors, pharmacists, lab technicians, and staff nurses. Similarly, several positions for specialists, General Duty Medical Officers (GDMOs), radiographers, pharmacists, lab technicians, and staff nurses at Urban Community Health Centers (U-CHCs) are vacant. Hence, the accessibility of healthcare services by people with low incomes in India is a critical concern that needs urgent attention. Despite the launch of public-funded health insurance schemes like PM-JAY, the coverage and accessibility of healthcare services remain a substantial challenge.

Table 1: The Percentage Distribution of Health Insurance Across Various Socioeconomic Backgrounds in India, NFHS-4 (2015–2016) and NFHS-5 (2019–2021)

	Any of the household members covered by a health insurance scheme in NFHS-5 (2019–2021)			**Any of the household members covered by a health insurance scheme in NFHS-4 (2015–2016)**		
Background Characteristics	**All households**	**Urban Poor**	**Rural Poor**	**All households**	**Urban Poor**	**Rural Poor**
Gender of the household head						
Male	42.54	34.72	42.44	25.10	21.77	23.55
Female	42.89	38.58	42.49	30.67	27.11	27.82
Age of the household head						
< 30	31.75	24.42	32.24	17.88	12.54	16.18
30–59	43.65	36.30	43.87	26.96	22.00	25.00
60 & above	42.78	38.62	42.42	25.53	23.25	23.91
Household size						
Four members	42.81	36.19	42.23	27.40	21.40	24.93
5–7 members	42.70	34.92	43.05	25.17	21.37	23.42
Eight or more members	40.56	33.02	41.04	20.84	18.00	19.99
Religion						
Hindu	44.77	37.88	44.33	26.57	23.36	24.83
Islam	31.88	26.89	33.38	14.40	13.05	11.89
Christian	44.85	37.22	41.37	35.42	25.16	28.51
Others	30.80	21.52	31.63	27.39	10.96	27.32
Caste						
General	35.41	24.40	34.01	20.20	13.56	16.58
Scheduled Caste	43.50	36.29	43.24	26.90	24.16	25.15
Scheduled Tribe	46.63	37.82	46.37	33.45	25.08	30.97
Other Backward Class	44.23	39.16	40.32	25.84	21.20	20.61
BPL card						
No	36.50	27.28	34.21	20.28	12.65	15.01
Yes	49.02	43.52	47.57	34.87	32.42	31.77
Aspirational districts						
No	41.96	34.58	41.46	25.92	21.01	23.62
Yes	45.86	40.60	45.68	25.50	21.60	24.44
Total	42.60	35.62	42.45	25.86	21.11	23.81

Distribution of health insurance coverage

The distribution of health insurance coverage across various socioeconomic backgrounds in India needs consideration, as it can reveal disparities in access to healthcare and financial protection. Table 1 presents the analysis of health insurance coverage by people from different socioeconomic backgrounds in India. Overall, 42.6% of households have health insurance coverage, but the distribution is uneven concerning socioeconomic backgrounds. Moreover, there is a significant difference in health insurance coverage among poor households in urban (35.62%) and rural (42.45%) areas. This disparity may be due to differences in access to health facilities, awareness about insurance schemes, and affordability of insurance premiums.

Interestingly, in both surveys, health insurance coverage is higher in female-headed households than in male-headed households. In NFHS-5, the coverage is substantially higher for female-headed households (38.58%) compared to male-headed households (34.72%) among urban-poor households, which is almost similar to the rural poor households. This could be attributed to the fact that women are more likely to prioritize the health of their family members and are more aware of the importance of health insurance. The results also show that the age of the household head influences health insurance coverage. Coverage is higher (43.65% and 42.78%) in households with a head of age more than 30 years compared to households with a head of age less than 30 years (31.75%). The urban and rural poor represent the same scenario in both surveys. The probable reason could be awareness about health insurance and prioritization of health issues by older household heads.

Furthermore, religion also significantly impacts health insurance coverage in both surveys. The coverage is higher among Hindu and Christian households compared to their counterparts (Islam and others). The coverage is lowest among poor Islamic households, which may be due to a lack of awareness about health insurance schemes.

The results also show that insurance coverage is higher among households in Scheduled Castes, Scheduled Tribe, or Other Backward Class than in the General category. In NFHS-4 and NFHS-5, the coverage is low in households belonging to the General category of urban and rural poor households compared to the other castes. Further, the coverage is higher for Scheduled Caste and Scheduled Tribe among the rural poor households than urban poor households. The BPL cards have played a primary role in augmenting insurance coverage among people experiencing poverty, as government health schemes insure households with BPL cards. In India, 49.02% (NFHS-5) of BPL card holder ho holder households are insured with a health scheme, which has increased from 34.87% in NFHS-4. The insurance coverage in NFHS-4 is almost the same among urban and rural poor BPL card holders. Still, the percentage of health insurance coverage of BPL card holders is higher among rural-poor households (47.57%) than urban-poor households (43.52%) in NFHS-5.

Moreover, the results imply that the government's emphasis on improving socioeconomic and health indicators in the aspirational districts shows positive results, as insurance coverage has increased significantly in NFHS-5 compared to NFHS-4. Further, the insurance coverage in households belonging to the aspirational districts is higher (45.85%) than those in the non-aspirational districts (41.96%). Poor households in the aspirational districts of both the urban (40.60%) and rural (45.68%) areas are highly insured (compared to households in the non-aspirational districts (34.58% in the urban areas and 41.46% in the rural areas). It can be seen that the distribution of health insurance coverage across different socioeconomic backgrounds in India is not equitable.

Table 2: Odds Ratio Estimation of Health Insurance Between India's Urban-Poor and Rural-Poor, NFHS-4 (2015–2016) and NFHS-5 (2019–2021)

	All households		Urban poor		Rural poor	
	NFHS-5 (2019–2021)	NFHS-4 (2015–2016)	NFHS-5 (2019–2021)	NFHS-4 (2015–2016)	NFHS-5 (2019–2021)	NFHS-4 (2015–2016)
Background Characteristics	**AOR**	**AOR**	**AOR**	**AOR**	**AOR**	**AOR**
Gender of the household head						
Male	1	1	1	1	1	1
Female	0.977 (0.96–0.00)*	1.207 (1.18–1.23)*	1.051 (0.97–1.13)	1.174 (1.06–1.30)*	1.014 (0.99–1.04)	1.135 (1.10–1.17)*
Age of the household head	1.064 (1.06–1.07)*	1.068 (1.06–1.07)*	1.065 (1.05–1.08)*	1.067 (1.05–1.09)*	1.059 (1.06–1.06)*	1.066 (1.06–1.07*
Age square	0.999 (1.00–1.00)*	0.999 (1.00–1.00)*	0.999 (1.00–1.00)*	0.999 (1.00–1.00)*	0.9991.00–1.00)*	0.999 (1.00–1.00)*
Household size						
Four members	1	1	1	1	1	1
5–7 members	0.979 (0.97–0.99)*	0.870 (0.86–0.88)*	0.917 (0.85–0.98)***	0.939 (0.86–1.02)	1.010 (0.99–1.03)	0.896 (0.88–0.92)*
Eight or more members	0.872 (0.85–0.89)*	0.680 (0.66–0.70)*	0.783 (0.68–0.90)*	0.691 (0.59–0.81)*	0.908 (0.88–0.94)*	0.723 (0.70–0.75)*
Religion						
Hindu	1	1	1	1	1	1
Islam	0.511 (0.50–0.52)*	0.525 (0.51–0.54)*	0.572 (0.51–0.64)*	0.566 (0.50–0.65)*	0.435 (0.42–0.45)*	0.462 (0.44–0.49)*
Christian	0.882 (0.86–0.90)*	1.371 (1.33–1.41)*	0.969 (0.85–1.10)	1.244 (1.03–1.50)***	0.723 (0.70–0.75)*	1.014 (0.97–1.06)
Others	0.560 (0.55–0.57)*	1.018 (0.99–1.05)	0.495 (0.40–0.62)*	0.343 (0.25–0.47)*	0.514 (0.49–0.54)*	0.860 (0.81–0.91)*
Caste						
General	1	1	1	1	1	1
Scheduled Caste	1.203 (1.18–1.22)*	1.204 (1.18–1.23)*	1.436 (1.28–1.61)*	1.605 (1.38–1.87)*	1.210 (1.17–1.25)*	1.308 (1.25–1.37)*
Scheduled Tribe	1.378 (1.35–1.40)*	1.417 (1.38–1.45)*	1.478 (1.30–1.68)*	1.643 (1.39–1.94)*	1.465 (1.42–1.51)*	1.697 (1.63–1.77)*
Other Backward Class	1.288 (1.27–1.31)*	1.258 (1.23–1.28)*	1.705 (1.53–1.90)*	1.404 (1.22–1.62)*	1.126 (1.09–1.16)*	1.108 (1.06–1.15)*
BPL card						
No	1	1	1	1	1	1
Yes	1.573 (1.56–1.59)*	2.082 (2.05–2.11)*	1.865 (1.75–1.99)*	2.975 (2.74–3.23)*	1.648 (1.62–1.68)*	2.506 (2.45–2.56)*
Aspirational districts						
No	1	1	1	1	1	1
Yes	1.076 (1.06–1.09)*	0.937 (0.92–0.95)*	1.162 (1.07–1.26)*	1.012 (0.91–1.12)	1.114 (1.09–1.14)*	1.024 (1.00–1.05)
Constant	0.106 (0.10–0.11)	0.044 (0.04–0.05)	0.055 (0.04–0.08)	0.026 (0.02–0.04)	0.111 (0.10–0.12)	0.033 (0.03–0.04)

*Note: AOR-adjusted odds ratio; Significance level set at *p < .001, **p < .01, ***p < .05*

Insights into health insurance coverage in India: Logistic regression analysis of covariates

The results of logistic regression analysis, presented in Table 2, provide valuable insights into the odds ratios of insurance coverage for different categories of covariates. Two key hypotheses have been tested in this study, and the findings offer important implications for health insurance coverage in India. Our analysis reveals that female-headed households are less likely to have insurance coverage than male-headed households (AOR = 0.977, $p < .001$) in the overall population as per the NFHS-5 data. However, insurance coverage is likely higher for female-headed households than male-headed households among both rural-poor and urban-poor populations. The plausible reason may be the Government launched insurance policies that prioritize people experiencing poverty without considering gender. In NFHS-4, the likelihood of insurance coverage in the overall population (AOR = 1.207, $p < .001$), among urban (AOR = 1.174, $p < .001$) and rural poor (AOR = 1.135, $p < .001$) is higher among female-headed households than males.

Further, the age of the household head is found to be a significant factor in insurance coverage. Both surveys have found that the likelihood of any household member being covered by any insurance scheme increases with the age of the household head, and the scenario is the same for the urban and rural poor. Furthermore, our analysis shows that the likelihood of insurance coverage decreases as the household size increases. According to NFHS-4, households with eight or more members are 32% less likely (AOR = 0.680, $p < .001$) to have insurance coverage compared to households with four members, and in NFHS-5, the likelihood of coverage is 12.8% less (AOR = 0.872, $p < .001$) among the same group than their counterparts. In both the surveys, poor households with eight or more members of the urban areas (AOR = 0.691, $p < .001$ in NFHS-4; AOR = 0.783, $p < .001$ in NFHS-5) as well as of the rural areas (AOR = 0.723, $p < .001$ in NFHS-4; AOR = 0.908, $p < .001$ in NFHS-5) are less likely to have insurance coverage than their counterparts with four members. This result substantiates the finding of Jensen and Saupe (1987), who observed that larger household size is a significant predictor of lack of coverage. Mantey and Horioka (2022) also found household size to be an essential household attribute that strongly influences health insurance coverage because households with more members are less likely to be covered by any health insurance scheme.

Caste is crucial in accessing healthcare and health outcomes in India (Khan et al., 2021); as such, caste-based discrimination results in poverty and poor health outcomes. This is evident from the findings of the study, which show that NFHS-4 and NFHS-5 households belonging to the Scheduled castes, Scheduled tribes, and Other Backward classes are more likely to have insurance coverage than the General caste households. In NFHS-5, urban-poor households belonging to the Scheduled Castes are 43.6% (AOR = 1.436, $p < .001$), the Scheduled Tribes are 47.8% (AOR = 1.478, $p < .001$), and Other Backward Classes are 70.5% (AOR = 1.705, $p < .001$) respectively more likely to have insurance coverage than the households belonging to the General caste. The scenario is almost similar among rural-poor households, but the likelihood of coverage among Scheduled tribe households is higher (AOR = 1.465, $p < .001$) than the other castes. Ambade et al. (2022) also found that the enrolment for RSBY is higher among the weaker socioeconomic status of low-caste households. Furthermore, our analysis also reveals that the religion of the household head has a significant influence on insurance coverage. Households belonging to the Islam religion are less likely (AOR = 0.525, $p < .001$ in NFHS-4; AOR = 0.511, $p < .001$ in NFHS-5) to have insurance coverage compared to Hindu households in the overall population. Concerning NFHS-5, the urban-poor and rural-poor households belonging to the Islamic community are 42.8% (AOR = 0.572, $p < .001$) and 56.5% (AOR =

0.435, $p < .001$) less likely to have insurance coverage than their Hindu counterparts. The likelihood of insurance coverage among households belonging to Christian and other religions is also less than that of Hindu households.

Further, our analysis of the NFHS-4 and NFHS-5 data shows that households with a BPL card are significantly more likely to have insurance coverage than those who do not have a card. In NFHS-5, households with a BPL card are 57.3% more likely (AOR = 1.573, $p < .001$) to have insurance coverage than those without a BPL card in the overall population. Poor households in the urban and rural areas are respectively 86.5% (AOR = 1.865, $p < .001$) and 64.8% (AOR = 1.648, $p < .001$) more likely to have insurance coverage than those without a BPL card. The findings also reveal that households in aspirational districts are more likely to have insurance coverage in both periods than in non-aspirational districts. Concerning NFHS-5, the likelihood of having insurance coverage is 16.2% more (AOR = 1.162, $p < .001$) in urban aspirational districts and 11.4% more (AOR = 1.114, $p < .001$) in rural aspirational districts compared to their non-aspirational counterparts. Overall, our multiple regression analysis findings demonstrate a significant association between health insurance coverage and several covariates, including age of household head, household size, religion, caste, availability of BPL card, and aspirational districts. These findings provide valuable insights for policymakers and stakeholders to improve health insurance coverage and ensure equitable access to healthcare facilities in India.

Factors contributing to disparities in health insurance coverage between urban-poor and rural-poor

The Fairlie (1999) decomposition analysis, as presented in Table 3, provides crucial insights into the disparities in health insurance coverage between urban-poor and rural-poor populations in India. The set of covariates explains 213.4% of the overall gap in NFHS-4 and 48.7% of the overall gap in NFHS-5, thus indicating the presence of other factors beyond poverty. The Fairlie decomposition analysis reveals that factors such as the age of the household head, household size, religion, caste, households having BPL cards, and aspirational districts play a significant role in explaining the gap. Further, the analysis reveals that households with heads over 60 contribute 10.3% to the explained difference in insurance coverage between the urban-poor and rural-poor groups in NFHS-4 and 5.7% in NFHS-5.

Moreover, the contribution of religion of the household head is significant, as households where the head follows Islam religion contribute 24.3% of the explained difference in NFHS-4 and 29.4% in NFHS-5. Scheduled tribe households also significantly contribute (47.2% in NFHS-4 and 34.7% in NFHS-5) to the explained difference. The contribution of households with BPL cards is considerable and significant (65.3%) in explaining the gap between urban-poor and rural-poor, while aspirational districts contribute only 1.02% of the explained gap in NFHS-4. Likewise, households with BPL cards contribute 45.7%, and aspirational districts contribute 4.8 % to the health insurance coverage gap between urban-poor and rural-poor in NFHS-5. These statistical values provide rigorous evidence about the key factors influencing the difference in health insurance coverage between urban-poor and rural-poor populations in India. By understanding these factors, policymakers can develop targeted interventions to improve health insurance coverage for the most vulnerable populations in rural and urban areas.

Table 3: Fairlie's Decomposition Analysis of Factors Causing Disparities in Health Insurance Coverage between Urban-Rural Poor, NFHS-4 (2015–2016) & NFHS-5 (2019–2021)

	NFHS-5 (2019–2021)		**NFHS-4 (2015–2016)**	
	Total difference explained	**Difference Unexplained**	**Total difference explained**	**Difference Unexplained**
	0.03	**0.032**	**0.025**	**-0.013**
In percent	**48.742**	**51.258**	**213.444**	**-113.444**
Background Characteristic	**% contribution in explained difference**	***p* > z**	**% contribution in explained difference**	***p* > z**
Gender of the household head				
Male				
Female	-0.596	0.135	-7.256	0.000
Age of the household head				
< 30				
30–59	-3.543	0.000	-16.095	0.000
60 & above	5.719	0.000	10.382	0.000
Household size				
Four members				
5–7 members	-0.103	0.766	-3.253	0.000
Eight or more members	-0.946	0.000	-4.501	0.000
Religion				
Hindu				
Islam	29.475	0.000	24.397	0.000
Christian	0.44	0.000	0.099	0.623
Others	-4.454	0.000	-0.546	0.000
Caste				
General				
Scheduled Caste	-9.938	0.000	-15.099	0.000
Scheduled Tribe	34.799	0.000	47.215	0.000
Other Backward Class	-1.64	0.000	-2.166	0.000
BPL card				
No				
Yes	45.71	0.000	65.330	0.000
Aspirational districts				
No				
Yes	4.875	0.000	1.028	0.056

Conclusion

The contribution of state-funded health insurance schemes plays a crucial role in increasing coverage among people experiencing poverty. The study shows that despite a significant increase in health insurance coverage from 4.9% in NFHS-3 to 41% in NFHS-5, the coverage is not evenly distributed across different socioeconomic backgrounds. Also, there exists a

significant difference in coverage between poor households in urban and rural areas, as the coverage is high among rural poor compared to their urban counterparts. The coverage is higher in female-headed households and increases with the age of the household head. However, religion is also a significant factor, with higher coverage among households where the household head is Hindu and Christian. The BPL card has a prominent role in augmenting insurance coverage among people experiencing poverty.

Moreover, the shortage in infrastructure, including the shortfall in Urban PHCs and U-CHCs, may negatively impact the effectiveness and reach of the PM-JAY universal health coverage program. Further, with fewer health facilities and health workers, there is probably a limited ability to provide necessary healthcare services to those in need. Hence, addressing the infrastructure shortage is crucial for the success of PM-JAY and for attaining the overall goal of providing universal health coverage in India. Further, the periodic assessment of health insurance schemes may ensure improved services to the beneficiaries. Hence, the shortage of healthcare infrastructure in India is a heart-wrenching issue that demands immediate attention. The lives of millions of people are at stake despite having insurance coverage, and the government must take swift action to alleviate their suffering. The Ministry of Health and Family Welfare (2023) recommended providing grants to strengthen healthcare systems for better coverage to the population.

Furthermore, the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) scheme aims to develop healthcare facilities at various levels. It can be beneficial for those left behind by the system. With the government's Ayushman Bharat Digital Mission (ABDM) scheme, technology can be harnessed to bring efficiency to healthcare services and improve the lives of countless people (National Health Authority, 2020; National Health Mission, 2022a). The government's moral obligation is to ensure everyone can access quality healthcare services. The government can bring hope to the neglected urban and rural poor by implementing these measures. It is time to come together and work towards a brighter future where everyone can access quality healthcare regardless of socioeconomic background.

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