Coverage and correlates of health insurance in the north-eastern states of India

Coverage and
correlates of
health
insurance

Moirangthem Hemanta Meitei and Haobijam Bonny Singh
Department of Economics, Manipur University, Imphal, India

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Abstract

Purpose – The paper aims to analyze the coverage of health insurance and its correlates in the north-eastern region of India.

Design/methodology/approach – The study accessed the raw data of the National Family Health Survey (NFHS-4) (2015–16), which was an extensive, multiround survey conducted in a representative sample of households throughout India, which included socioeconomic, demographic and information on coverage of health insurance of any member of the household. The multivariate analysis of logistic regression was adopted to find the correlates of health insurance for all the eight (8) north-eastern states of India.

Findings – The results observed that among the north-eastern states, the coverage of health insurance was highest in Arunachal Pradesh (59%) followed by Tripura (58%), Mizoram (47%) surpassing the all India level of 27%, whereas the lowest was in Manipur (4%) followed by Nagaland (6%) and Assam (10%). The multivariate analysis of logistic regression found that the socioeconomic and demographic factors, households with a bank account and below poverty line (BPL) cardholders played a significant role in the coverage of health insurance in the north-eastern states of India.

Research limitations/implications – The study focuses only on the coverage and correlates of health insurance. Further evaluation studies on each scheme of the social health insurance are needed for proper assessment of the health insurance schemes in the region.

Practical implications – There has been evidence around the world (South Korea, Taiwan and Thailand) that health insurance could be a protective shield from the entrapment into poverty due to high health expenditure. The NFHS-4 put up the finding that in the north-eastern part of India, the coverage of health insurance had been low. This implied that the region could fall into poverty due to high medical expenses on health. Taking account of multiple health insurance providers, risk pooling and consolidation of health insurance providers have become the need of the hour.

Originality/value – The study is different from other studies of health insurance since it covered all the eight (8) north-eastern states of India, which are ethnically, culturally and historically distinct from the rest of India in general and within the region and states in particular and examines the impact of each of the independent variables with the dependent variables. The study has shown that the variation in health insurance coverage associated with socioeconomic and other household-level demographic attributes (although not very strong).

Keywords Out-of-pocket expenditure, Financial hardship, North-eastern region, Social health insurance

Paper type Research paper

Introduction

One of the essential goals for any health system is to protect the household from incurring financial hardship arising out of high medical expenses and prevent the loss of income from

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Data availability statement: The dataset was obtained from the Demographic and Health Survey (DHS), which was made publicly available after registration, authorization and disclosure of the directives and requirements for using the data from the website (https://dhsprogram.com/data/dataset/India_Standard-DHS_2015.cfm?flag=1) for secondary analysis.

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the health shock, and this has become one of the agenda of the Sustainable Development Goal (SDG-3) for any health system [1], especially among the low and middle-income countries. A major challenging issue of the health system around the world has been how a typical household faces health shock and incurs not only high out-of-pocket expenditure (OOP) but being pushed into poverty (impoverishment) [2]. Globally, every year around 150 million suffer a financial catastrophe, and 100 million people face impoverishment due to high out-of-pocket medical expenses, of which around 90% of them reside in low-income countries [3]. The coverage of health insurance, as a means of health financing, can address this issue.

Health insurance is one of the social security measures by which community members have certain benefits of both maintenances of health and medical care when they fall sick [4]. The evolution of the health insurance movement was mainly associated with the industrial revolution and the medical field revolution. However, the coverage of health insurance in India is low and voluntary, which mainly comprises of Employers State Insurance Scheme (ESIS), Central Government Health Scheme (CGHS) and other private providers [5]. Formal health insurance coverage (excluding subsidized public facilities) was restricted to less than 10% of the people and focused on the formal sector [6]. Hence, the distribution of health insurance patterns is mainly confined to the economy's organized sector, while a vast majority of workers (around 90%) engaged in the informal or unorganized sector remained untouchable to risk pooling mechanism or health insurance coverage [7]. Sound health financing is a key policy objective in the country's postliberalization era, and it has been incorporated in the National Health Mission and National Health Policy 2017.

A plethora of studies has found various models of health insurance viz. community health insurance (CHI) which works under the principle of social capital, whereas social health insurance (SHI) and other private insurance (PHI) operates on the ability to pay principle. All these insurance mechanisms lower the burden of high out-of-pocket health expenditures of both inpatient and outpatient and accelerates hospital services utilization (keeping aside the cases of both moral hazard and adverse selection), which were operating in both developed and developing countries with different health financing models adopted by health systems. Moreover, the demand for health insurance has a strong relationship with households' socioeconomic status, especially in developing countries where health insurance is more a choice for an individual/household than a norm.

Community health insurance (CHI)

CHI studies in various parts of India show that it has been prevalent in poor resource-setting countries. It highlighted the ability to protect the vulnerable, increase healthcare services utilization, reduce out-of-pocket payment for health and ensure better public health and monetary outcomes based on socioeconomic variations and medical episodes [8] regardless of household socioeconomic status (SES). It is also a viable model for delivering high-quality services through accountability and local management.

Social health insurance (SHI)

The wave of SHI became more visible, particularly in developing countries when the World Health Assembly incorporated SHI as a strategy to mobilize more resources for health, pooled risks and equal access to health care for the poor and delivering better health care as a policy resolution for the World Health Organization (WHO). The WHO encourages its member states to move ahead with SHI, providing technical support for nations to develop SHI [9].

Recently, some of India's SHI evaluation studies in the form of state health insurance give a positive result in reducing inpatient cost among the enrolled households [10] and also help reduced borrowing as means for financing the hospitalization cost among the poor in the rural areas [11].

Rashtriya Swasthya Bima Yojana (RSBY), a centrally sponsored SHI scheme in India, was launched in 2008 to improve healthcare utilization and provide financial protection to poor households living below the poverty line (also known as BPL) households. However, a study found that the scheme failed to reduce the financial burden of poor households for both outpatients and inpatients. They cited admission to the non-RSBY-linked hospital or denial of treatment at RSBY linked hospital and the low insured amount limit (Rs. 30,000) as the possible reasons for inefficiency [12]. Moreover, high supplier-induced demand for expensive drugs and diagnostics and huge hospital charges exceeding the maximum limit of the schemes [13] were also operating against the schemes.

Private health insurance (PHI)

Private Health Insurance (PHI) is based on the principle of risk exposure. However, India witnessed its inequitable impact, with the high administrative costs of PHI (20–32%) undermining its efficiency compared to SHI schemes (5–14.6%), such as ESIS and CGHS. The emergence of numerous private health insurance companies would undoubtedly impact health care, fairness in healthcare financing, value and cost-effectiveness [14].

The north-eastern region of India

The north-eastern region of India consists of eight states: Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. It is located to the east of India and shares porous international borders with Bangladesh, Myanmar, Nepal, China and Bhutan, connected with mainland India by a very narrow strip called “chicken neck.” The region covers approximately 46 million people, accounting for approximately 3.8% of India’s total population [15]. The region is ethnically, culturally and historically distinct from the rest of India in general and within the region and states in particular. The remoteness, the rugged terrain, the infrastructural gaps and the unfriendly neighbors are the biggest obstacle to regional development [16]. Both the Central and State Governments have introduced several policies to boost developmental schemes, including healthcare delivery in the region. Despite schemes of ESIC, CGHS, employer backup health financing system, the recent RSBY and State-specific schemes in the country, health insurance coverage is still in the nascent stage in the region. There has been little systematic research on health insurance coverage in this region. As a result, the current study aims to highlight health insurance coverage in the north-eastern region and examine the correlates of socioeconomic and demographic factors influencing health insurance.

Methodology

Data and statistics

In order to accomplish the objective of the study, the present study accessed the secondary data of the National Family Health Survey (NFHS-4) extracted from the data repository of the International Institute for Population Sciences (IIPS) [17]. The survey took place during 2015 and 2016. The raw data had a question on the enrolment of health insurance for any member of the household and type of health insurance (Q 54 and 55) [18]. Fortunately, there was no missing response in the data on the question of enrolment of health insurance. Overall a total of 89,992 households were included from the eight north-eastern states. This household data examined the coverage of health insurance within the north-eastern states. Bivariate relationship between the coverage of health insurance and socioeconomic, demographic factors of the sample households was examined. Further, the outcome variable was binary that had a question of any person or member in the household having any form of health insurance (No for 0 and Yes for 1). So multivariate logistic regression analysis was adopted to examine the impact of each of the independent variables. The household was the unit of analysis. All the statistical analyses were done in Stata 15.1 (Stata Corp, USA).

Ethical consideration

NFHS-4 framework has been authorized by the International Institute for Population Sciences (IIPS) and ICF International Institutional Review Boards. No additional ethical approval was required since this study was based on public use data that was untraceable and had no identifiable information on the study participants.

Results

Table 1 shows the coverage of health insurance in India's north-eastern states. The NFHS-4 data clearly demonstrated that health insurance coverage in the region was neither adequate nor comparable to the national level. This means that approximately one-fourth of the households in the region (26.6%) had health insurance, implying that many households have yet to be brought into the fold of health insurance. Five states, namely Arunachal Pradesh (58.28%), Tripura (58.12%), Mizoram (45.80%), Meghalaya (34.63%) and Sikkim (30.33%), had higher coverage of health insurance than the national level (25.1%), while Manipur, Nagaland and Assam were at the bottom. Within the households having health insurance, the maximum share comes from (1) state health insurance (Arunachal Pradesh, 93.1%, Sikkim, 77.93%), and (2) centrally sponsored schemes such as RSBY (Tripura, 98.48% and Mizoram, 84.91%). In other words, the targeted intervention of the state (state-specific schemes) and center covered approximately 89% of the households with health insurance (erstwhile RSBY). Other health insurance schemes, particularly ESIS, CHIS, insurance through an employer, CHI and PHI, had a negligible share in India's north-eastern region.

Bivariate analysis

Table 2 presents the bivariate relationship between socioeconomic, demographic factors and health insurance coverage in the north-eastern states of India. Rural and urban characteristics revealed that Tripura had the highest variation in the coverage of health insurance among the rural (69.50%) and urban region (31.73%), followed by Meghalaya with rural (37.89%) and urban (23.21%), Mizoram (rural 50.49%, urban 42.26%) and Arunachal Pradesh (rural 59.66%, urban 54.39%). There was almost no variation by gender of the head of the household in each respective state. The marital status of the head of the household revealed a systematic relationship in which the never-married had the lowest coverage compared to the ever married. Within the social group, the dominant group within the states had a better chance of enrolling the health insurance whereby the scheduled tribes (ST) category had the highest in Arunachal Pradesh and Tripura (65%), Meghalaya and Sikkim (36 to 34%) and Mizoram (46.85%). By religion, Christians and other religious groups had the highest share of health insurance coverage with statistical significance in almost all states. The only exceptions were Manipur, Assam and Tripura, where a variety of religious groups coexist. Christians in Manipur and Muslims in Nagaland, Mizoram and Arunachal Pradesh had lower health insurance coverage. When the region as a whole was examined, Muslims had the lowest coverage, followed by Hindus. The result is not surprising given the dispersion of Hindu populations, with the highest concentrations in Assam, Manipur and Tripura. By the age of head of the household, the most productive age group, 35–59, had higher coverage while the lower and the upper age did not have that level of coverage in the region. This pattern prevailed in all the states.

There was no significant disparity in health insurance coverage observed in the region based on household economic well-being, with the exception of the most deprived (poorest) group having the lowest coverage compared to higher strata. This experience, however, varies greatly across states. Household wealth and health insurance coverage were found to be positively associated in Manipur, Sikkim, Assam and Arunachal Pradesh, but completely

Coverage of health insurance		Source of health insurance								Community health insurance	Private health insurance
North-eastern states	Percentage of households having health insurance	Social health insurance				Medical reimbursement from the employer	Community health insurance	Private health insurance	Others		
		State health insurance scheme	Rashtriya swasthya bima yojana (RSBY)	Other health insurance through employer							
Arunachal Pradesh	58.28	ESIS	CGHS	93.18	1.70	0.20	0.06	0.14	0.28	0.50	
Assam	10.37	6.46	9.30	7.02	56.32	4.00	4.60	2.22	9.87	1.79	
Manipur	3.60	8.17	13.05	2.84	35.57	1.13	17.82	0.12	16.22	5.93	
Meghalaya	34.63	1.12	1.35	36.75	58.56	0.13	0.15	0.09	0.63	1.83	
Mizoram	45.80	1.23	2.90	8.94	84.91	0.34	2.47	0.02	0.99	0.45	
Nagaland	6.07	3.10	7.30	6.06	70.28	1.44	0.76	2.52	2.67	6.45	
Sikkim	30.33	5.88	4.46	77.93	0.16	0.88	12.98	0.16	8.86	0.36	
Tripura	58.12	0.12	0.18	0.33	98.48	0.15	0.00	0.05	0.22	0.47	
NER region	26.62	2.37	3.42	44.57	44.69	0.71	2.17	0.39	2.34	1.02	
All India	25.10	4.81	5.36	43.71	38.94	1.56	1.79	0.60	3.80	3.62	

Source(s): Authors' calculation from NFHS-4 raw data

Source(s): Authors' calculation from NFHS-4 raw data

Table 1. Distribution of health insurance coverage in the north-eastern region of India

Table 2.
Bivariate relationship
between the
socioeconomic
demographic factors
and health insurance
coverage among the
north-eastern states
of India

Characteristics	North-eastern states of India									All India
	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura	North-eastern region	
Type of residence										
Rural	59.66	9.97	3.70	37.89	50.49	6.98	29.20	69.50	27.10	25.28
Urban	54.39	12.55	3.45	23.21	42.26	4.33	32.61	31.73	25.52	24.73
Sex of head										
Male	58.60	10.49	3.59	35.44	46.36	6.19	30.17	58.30	26.87	25.23
Female	55.78	9.65	3.66	32.70	43.58	5.39	31.30	56.92	25.35	24.34
Marital status										
Married	59.41	10.58	3.56	35.43	46.90	6.24	30.91	58.68	27.08	25.22
Widowed/Separated/Divorced	56.50	9.93	3.82	35.90	46.51	5.86	28.48	60.98	26.06	25.46
Never married	45.35	7.09	3.49	9.68	28.62	4.38	26.06	30.30	20.13	18.61
Social group										
SC	43.06	9.14	2.56	28.96	26.80	2.21	26.54	64.73	22.88	26.21
ST	64.85	7.58	1.82	36.20	46.85	6.39	33.91	64.77	35.07	32.04
OBC	37.46	9.99	5.54	22.45	20.63	4.80	34.06	54.05	16.93	25.45
None of the above	44.72	10.97	4.20	11.38	1.39	8.86	23.13	39.74	14.16	20.45
Religion										
Hindu	45.80	10.18	4.40	27.16	22.64	7.56	29.07	57.19	20.71	25.95
Muslim	22.65	10.78	4.27	24.73	10.16	1.00	26.42	66.44	12.36	13.91
Christian	64.02	9.43	1.85	35.36	48.45	6.14	28.55	56.55	31.99	33.81
Others	64.10	18.71	4.47	45.95	15.92	3.37	33.40	64.61	43.50	26.47
Age of household head										
<35	50.18	7.25	2.12	26.07	37.33	4.50	25.29	53.46	23.53	19.63
35-44	58.67	9.61	3.71	34.71	45.69	5.75	28.96	61.10	26.96	25.16
45-59	62.70	11.94	4.06	39.68	46.64	6.70	35.04	59.20	29.13	27.85
60-100	60.59	11.59	3.69	35.63	49.80	6.77	29.36	56.78	24.90	25.17
(continued)										

(continued)

Characteristics	North-eastern states of India								North-eastern region	All India
	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura		
<i>Wealth index</i>										
Poorest	45.54	6.45	1.45	23.10	37.83	5.79	17.44	69.01	21.03	23.32
Poor	57.21	8.72	1.81	34.73	54.01	7.66	22.90	79.58	27.75	25.55
Middle	62.02	10.07	2.94	41.75	51.22	5.93	30.77	70.65	29.00	25.39
Rich	61.36	9.49	4.80	40.54	46.72	5.13	34.12	53.16	24.47	24.47
Richest	65.02	16.92	7.38	33.54	38.68	5.88	45.49	19.72	27.93	26.90
<i>Educational level of household head</i>										
No education	53.78	9.02	2.02	36.43	33.80	5.28	24.00	70.76	25.44	23.63
Incomplete primary	58.24	9.42	2.69	36.29	49.81	6.62	23.81	72.04	28.43	29.39
Complete primary	58.15	8.66	2.94	32.04	47.90	5.78	27.64	79.44	29.44	25.07
Incomplete secondary	60.31	9.45	3.54	32.71	50.02	6.23	31.22	55.56	25.85	24.43
Complete secondary	63.21	13.95	3.17	38.23	35.47	6.10	41.33	20.99	28.19	24.13
Higher secondary and above	62.59	21.44	6.21	29.57	36.69	6.63	48.63	18.66	26.72	28.40
<i>Bank account</i>										
No	37.59	4.81	1.03	28.56	19.38	4.57	20.59	32.16	13.16	14.22
Yes	62.54	11.46	4.38	36.22	47.70	6.71	31.30	59.21	29.43	26.44
<i>BPL card</i>										
No	51.58	10.21	3.57	31.57	43.03	4.68	32.52	46.29	23.78	19.95
Yes	67.28	10.58	3.72	46.75	53.80	9.98	25.85	81.18	32.37	33.96
Overall total	58.28	10.37	3.60	34.63	45.80	6.07	30.33	58.12	26.62	25.10
Source(s): Authors' calculation from NFHS-4 raw data										

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Table 2.

opposite in Tripura. Other states, such as Mizoram, Nagaland and Meghalaya, did not follow a systematic approach. Education of the head of the household has no effect on the region as a whole, but it does have an effect on individual states. In some cases, the common assumption that higher education should be accompanied by higher health insurance coverage does not appear to be operational.

Further, there was a strong suspicion of a positive impact on health insurance coverage by the wealth index and education of the household head. These variables did not have much variation in insurance coverage in the region at the macro level. In contrast, Arunachal Pradesh, Assam and Manipur positively correlated health insurance coverage and these two variables, while the rest did not have any relationship consistency. Modernization (having a bank account) also demonstrated a clear relationship with health insurance coverage. Despite the fact that the financial institution's spread and penetration are not particularly impressive in the region, wherever a household had a bank account, there was a vibrant relationship with health insurance coverage in all states. The targeted intervention of health schemes such as RSBY and other state-sponsored schemes influenced health insurance coverage in the region. The NFHS data supported the hypothesis that households with a BPL card had higher coverage of health insurance in the region.

Multivariate analysis

In the analysis of health insurance coverage, the multivariate logistic regression technique was used. The dependent variable had only two outcomes, either being covered by health insurance or not (binary in nature, yes or no), while the independent variables remained unchanged from the bivariate relationship. The logistic regression result showed that rural households had 15% more health insurance coverage than their urban counterparts (Table 3), but in some states, this was much higher (Manipur, Meghalaya and Tripura). Compared to males, the household's female head was also less likely to cover health insurance in the NER region. Social groups did not have much impact, and while compared to the SCs, neither OBC nor the remaining groups did not differ much, and the relationship across the states was not also uniform. Among the religious group, compared with the Hindus, Muslims across the states and the region as a whole had less likelihood of health insurance, but other religious groups had a better chance of having health insurance. The older and mature head of household had a higher likelihood of joining health insurance than the youngest age (less than 35 years) in the NER region, and this pattern held factual in almost all the states of the region. In the wealth index group, all categories of wealth index poor, middle, rich and the richest category had shown an increasing trend of odds ratio with significant p -value (<0.050) against the poorest. Further, the richest wealth index category had 50% more likely than the poorest category to have health insurance in the NER region, in which the state of Manipur and Sikkim had the highest odds ratio of 3.4 times more likely to cover with health insurance among the north-eastern states. Nagaland is noteworthy since it showed a deviant nature of the wealth index, and health insurance coverage was lower with a higher wealth index. The educational level of the household head is expected to have a systematic relationship with health insurance coverage. The household head with a complete secondary level of education was 12% less likely to have health insurance with a significant level of p -value less than 5% in the NER region. Among the north-eastern states, Sikkim had the highest odds ratio of 2.0 times more likely to cover health insurance among the complete secondary and above categories than no education as a reference against other states. Access to banking had 2.7 times more likely to cover with health insurance against the household with no bank account across all the states. In the NER region, the household having BPL (Below Poverty Line) card also had 55% more likely to have health insurance coverage against

Characteristics	NER region (Odds ratio) coef	Arunachal Pradesh (Odds ratio) coef	Assam (Odds ratio) coef	Manipur (Odds ratio) coef	Meghalaya (Odds ratio) coef	Mizoram (Odds ratio) coef	Nagaland (Odds ratio) coef	Sikkim (Odds ratio) coef	Tripura (Odds ratio) coef
<i>Type of residence</i>									
Rural (urban reference)	1.146**	1.333***	1.253**	2.269***	2.221***	1.761***	1.677***	1.341*	2.355***
<i>Sex of head</i>									
Female (male reference)	0.839***	0.923	0.895	0.922	0.808**	0.889	0.922	1.220	0.922
<i>Marital status</i>									
Married (never married reference)	1.472***	1.518***	1.575**	0.579	3.445***	1.674***	1.175	1.579**	1.898**
Widowed/Separated/ Divorced	1.578***	1.464***	1.661**	0.869	3.728***	1.662**	1.205	1.335	1.740
<i>Social group</i>									
ST (SC reference)	1.648***	1.687***	0.815	1.062	1.269	0.829	7.929**	1.3400	0.909
OBC	0.648***	0.794	1.046	1.796	0.956	0.641	2.006	1.290	0.683**
None of the above	0.616***	1.071	1.182	1.340	0.346**	0.019	3.932*	0.616**	0.699**
<i>Religion</i>									
Muslim (Hindu reference)	0.552***	0.560**	0.927	1.191	1.765	0.169**	0.211*	1.346	0.866
Christian	1.136	1.465***	1.304	0.564	1.088	2.474	0.142**	0.916	0.780
Others	2.231***	1.585***	1.903**	1.165	1.952**	0.504	0.114**	0.955	0.892
<i>Age of household head</i>									
35–44 ages (<35 ages reference)	1.090***	1.346***	1.146	1.523*	1.361***	1.280**	1.115	1.149	1.458***
45–59	1.110***	1.603***	1.332***	1.434	1.532***	1.406***	1.227	1.605***	1.345**
60–100	0.852***	1.569***	1.163	1.049	1.244*	1.543***	1.293	1.610***	1.325*
<i>Wealth index</i>									
Poor (poorest reference)	1.261***	1.159	1.118	0.912	1.739***	1.492***	1.031	1.311*	1.608***
Middle	1.357***	1.500***	1.458***	1.476	2.521***	1.588***	0.704*	1.995***	1.073
(continued)									

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Table 3.
Multivariate analysis
using logistic
regression

Characteristics	NER region (Odds ratio)	Arunachal Pradesh (Odds ratio)	Assam (Odds ratio)	Manipur (Odds ratio)	Meghalaya (Odds ratio)	Mizoram (Odds ratio)	Nagaland (Odds ratio)	Sikkim (Odds ratio)	Tripura (Odds ratio)
	coef	coef	coef	coef	coef	coef	coef	coef	coef
<i>Richer</i>	1.365***	1.747***	1.396***	2.378***	2.875***	1.420**	0.625**	2.494***	0.754
<i>Richest</i>	1.547***	2.057***	2.642***	3.372***	3.032***	1.173	0.668*	3.474***	0.303***
<i>Educational level of household head</i>									
Incomplete primary (no education as reference)	1.080	1.326***	0.974	1.172	1.019	1.366**	1.213	1.073	1.301*
Complete primary	1.012	1.172	0.908	1.402	0.757*	1.363***	1.126	1.275*	1.530**
Incomplete secondary	0.826***	1.282***	0.881	1.399	0.890	1.559***	1.301**	1.438***	1.017
Complete secondary	0.878**	1.378***	1.155	0.956	1.133	0.996	1.442	2.044***	0.489***
Higher secondary and above	0.843***	1.371***	1.866***	1.627	0.766	1.183	1.675**	2.868***	0.430***
<i>Bank account</i>									
Yes (no reference)	2.708***	2.159***	1.823***	2.405***	1.149	3.518***	1.829***	1.210	5.488***
<i>BBPL card</i>									
Yes (no reference)	1.550***	1.656***	1.189***	1.15	1.831***	1.606***	2.158***	0.966	2.764***
Constant	0.053	0.077	0.016	0.004	0.019	0.027	0.014	0.051	0.069

Note(s): Statistically significant *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source(s): Authors' calculation from NFHS-4 raw data

the non-BPL households. Lastly, six north-eastern states had a higher likelihood of having health insurance with high statistical significance.

Discussion

The health sector is a state responsibility, and many states have attempted to meet health expenditure at the state level. According to the findings of the analysis, health insurance coverage is very low in some north-eastern states (Manipur, Nagaland and Assam), while it is very high in others (Arunachal Pradesh and Tripura). Other states, such as Mizoram, Meghalaya and Sikkim, had moderately high coverage that exceeded the national average. Health insurance coverage in the region as a whole was comparable to the national level, where only one-fourth of households had health insurance. Arunachal Pradesh and Tripura emerged as the region's top performers, owing to their superior performance and incorporation of state initiatives and centrally sponsored health insurance schemes such as RSBY. Nonetheless, states such as Assam, Manipur and Nagaland must accelerate to meet the health financing needs without putting too much strain on household resources. Poor implementation of national and state health schemes will plunge poor households into poverty, and it is expected that the states will perform better to meet the challenges of mass coverage of health insurance.

Furthermore, the logistic regression results revealed that the NER region as a whole, and states, in particular, had more health insurance coverage in rural areas, indicating that efforts were made to reach out to poor rural households. Our findings also confirmed that poorer and more desperate households, such as widowed/separated/divorced households living in rural areas and possessing a BPL card, had more health insurance coverage. Our study also found that variation in health insurance coverage was related to socioeconomic and other household-level demographic factors (though not very strong). A similar finding was also observed in an Indian study, where there was a substantial difference in RSBY coverage among the states (Andhra Pradesh 71%, Mizoram 26%, Uttarakhand 12%, Meghalaya 12%, Sikkim 11%, West Bengal 9%), between rural and urban residents (more rural households were covered with RSBY than urban households) and also within the wealth index cluster of households (poorest wealth index of households had the highest coverage of RSBY than other wealth index cluster households) [19].

In a nutshell, targeted intervention schemes had a substantial impact on health insurance besides the demographic, social and economic factors, as shown by the possession of below poverty line (BPL) cards and households in the rural areas. The current study has presented that except in Nagaland, health insurance coverage was skewed towards the better-off households, posing a challenge to the region's health insurance schemes' implementation. This implies that a significant portion of the benefit of such a scheme had been siphoned off towards a better household. Our research provides guidance on how to ensure that targeted schemes reach the appropriate population. Also, this finding was supported by the level of education of the head of the household, with better-educated household heads having a higher likelihood of enrolling in health insurance.

The study focuses only on the coverage and correlates of health insurance. Further evaluation studies on each scheme of social health insurance are needed to assess the health insurance schemes in the regions properly.

Conclusion

India witnessed a high poverty rate that led to underfunding the health system resulting in a very poor universal health coverage incidence. Increasing privatization, the rising cost of health care and inadequate insurance coverage lead to an increasing number of people falling

into poverty due to health expenditure. As a result, the unprotected and unassumingly high out-of-pocket payment for health care has been a regular phenomenon in the country at a large and also in the north-eastern region. Before the RSBY and the recent Pradhan Mantri Jan Arogya Yojana (PMJAY), India's social health insurance was limited and covered by the ESIS, CGHS and other health insurance schemes. Despite the multiplicity of private health insurance players, government-sponsored health schemes had higher coverage among the north-eastern region states. There is a need to integrate health insurance in the country and the region to control the high administrative cost. The benefit of the consolidation of health insurance for achieving universal health coverage has been experienced earlier in some other countries like South Korea [20] and Thailand [21]. The current analysis has also revealed a fundamental fact that irrespective of socioeconomic factors, a few factors such as wealth, educational level of the head of the household, access to banking facility and gender of the head of household posed a challenging issue of coverage of health insurance in the region. The state-sponsored health schemes were intended to reach the poor and deprived ones, but well informed and economically better-off households had a higher coverage of health insurance. It is also worth noting that the welfare-based approach, regardless of public or private health financing, is the need of the hour for ensuring the Universal Health Coverage (UHC). The region will also endorse the national agenda of achieving the health goals outlined in the national health policies with higher coverage of health insurance to fend from the deep out-of-pocket health expenditure.

Conflict of Interest: None

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Corresponding author

Haobijam Bonny Singh can be contacted at: bonny.haobi@gmail.com