

# STUDYING THE COVERAGE OF HEALTH INSURANCE AMONG WOMEN IN MIZORAM

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## Abstract

Health insurance provides security against risks incurred due to health care expenses in individuals. In the present day context, where health care cost is increasing, it becomes necessary to study the extent of coverage of health insurance, especially to the underprivileged sections of the society. With this motivation, the authors, in the present study try to undertake a pilot study to understand the level of penetration of the of health insurance coverage in the highly literate state of Mizoram.

This coverage was studied by background characteristics of women using data from NFHS 4. Cross tabulation was used to exploit preliminary information proportion of women insured by educational, wealth status and by residential status. These were statistically verified by the use of binary logistic regression.

The findings reveal that women in urban areas almost half times less likely to have health insurance coverage compared to those in rural areas. Also women with no educational attainment are almost half times less likely to have health insurance coverage compared to those with higher educational attainment. Finally women with poorest wealth index are one third less likely to have health insurance coverage than those with the richest wealth index.

**Keywords.** Insurance, Residences, Educational status, Wealth index.

## INTRODUCTION

Risk aversion is normal as people often seek security in terms of meeting economic needs. Future, being highly unpredictable and uncertain, it is important to be prepared against the odds of health related issues. Health insurance provides insurance against risks incurred due to health care expenses in individuals.

**Health Insurance** is a type of insurance coverage that covers the cost of an insured individual's medical and surgical expenses. The "insured" is the owner of the health insurance policy or the person with the Health Insurance Coverage. Health insurance helps protect you from the high costs of health care. It helps you pay for

doctor visits, hospital stays, prescription drugs and important preventive care. Health Insurance can reimburse the insured for expenses incurred from illness or injury, or pay the care provider directly. Health insurance works by estimating the overall "risk" of healthcare expenses and developing a routine finance structure that will ensure that money is available to pay for the healthcare benefits specified in the insurance agreement. The healthcare benefit is administered by a central organization, which is most often either a government agency, or a private or not-for-profit entity operating a health plan.

In short, healthcare insurance provides a cushion against medical emergencies. The concept of insurance is closely concerned with security. Insurance acts as a shield against risks and unforeseen circumstances.

The **importance** of Health Insurance can never be undervalued for it provides security to human life which is of prime importance to any individual. Closely bonds Insurance Companies, Hospitals, Policyholders and TPAs together for the benefit of the masses. Health Insurance provides an answer to the solution of uncertainties and risks that is prevalent and ever-pervading in human life and leads to access to quality healthcare. It also provides financial stability in life and reduces tensions and stress caused on account of hospitalization.

Health Insurance is more important these days as compared to Old days. Health Insurance is a human right, which has also been accepted in the constitution. Its accessibility and affordability has to be insured. While the well-off segment of the population both in rural & urban areas have acceptability and affordability towards medical care, at the same time cannot be said about the people who belong to poor segment of the society. It is well known that more than 75% of the population utilizes private sectors for medical care unfortunately medical care becoming costlier day by day and it has become almost out of reach of the poor people. Today there is need for substantial resources in the health sectors to ensure affordability of medical care to all.

## LITERATURE REVIEW

**NFHS-4 report (2015-16)**, we can see that **Health insurance coverage in India** is still far from satisfactory. Less than one-third (29%) of households have at least one usual member covered under health insurance or health scheme. Only 20% of women age 15-49 and 23 percent of men age 15-49 are covered by health insurance or a health scheme. Half of those with insurance are covered by a state health insurance scheme and more than one-third are covered by *ashtriyaSwasthyaBimaYojana (RSBY)*. 4% of women and 3-5% of men are covered by the Employee State Insurance Scheme (ESIS) or the Central Government Health Scheme (CGHS). The highest proportion of households covered under health insurance or a health scheme is found in Andhra Pradesh (75%) and the lowest coverage (less than 5%) is in Lakshadweep, Manipur, and Jammu & Kashmir.

In accordance to the **NFHS-4(2015-16)** report on **the Health Insurance in Mizoram**, despite the emergence of a number of health insurance programmes and health schemes, less than half of households (45%) in Mizoram have any kind of health insurance that covers at least one member of the household. Only 17 percent of

women age 15-49 years in Mizoram is covered by any health scheme or health insurance. Health scheme or health insurance coverage increases with age for women in Mizoram.

According to **Das, Hammer and Leonard(2008)**, each year, approximately 150 million people experience financial catastrophe, meaning they are obliged to spend on health care more than 40% of the income available to them after meeting their basic needs(WHO Factsheet N°320, 2007). Low income and high medical expenses can also lead to debt, sale of assets, and removal of children from school, especially in poor nations. A short-term health shock can thus contribute to long-term poverty. At the same time, because households often cannot borrow easily, they may instead forego high-value care. When they do access care it will often be of low quality which can lead to poor health outcomes.

We see from **Cameron, Trivedi, Piggott et al. (1988)** 's findings that rich and well educated households typically have both better health and better health insurance coverage but the positive correlation between health and insurance status tells us nothing about the impact of insurance. On the other hand, those in poor health may be more likely to pay for health insurance but finding that the insured tend to be sicker would not imply that insurance causes illness.

Another study by **Gumber and Kulkarni (2000)** conducted in India explored the availability of health insurance coverage for the poor, especially women, their needs and expectations from a health insurance system and likely constraints in extending current health insurance benefits to workers in the informal sector. The study made a comparative analysis of different forms of health insurance. They analyzed the relative advantage of different forms of health insurance in meeting the health care burden of the people in the informal sector and also estimated the demand and willingness to pay for the health insurance. The households subscribing to some sort of insurance generally belonged to the higher income strata and their average annual income were twice that of the households who did not have any sort of insurance coverage.

**Cutler and Zeckhaus (1998)** did studies in wealthier nations and find evidence that people with higher expected medical expenditures (measured in a variety of ways across studies) are more likely to buy insurance or pay for health insurance at higher premiums than those with lower expected medical expenditures. However, the extent of variety of selection in health and other insurance is often found to be minimal or non-existent.

The review done by **Scotton, Cameron, Trivedi et al. (1988,1999)**, shows that income/wealth is one of the important determinants of purchase of health insurance. Income has been found to be having a positive association with health insurance purchase decision consistently in different studies conducted in different countries in Australia and in USA.

According to **Maximillian(2014)**'s work, the framework of health insurance coverage incorporates four dimensions of access: geographic accessibility, availability, financial accessibility, acceptability of services to identify important areas to look for barriers of access to healthcare, any of which may be the most important factor

in a given time and place. This framework implies that many of the factors affecting access to health care are to do with the way policies are designed and implemented locally, and are subject to change over time. The worry is that the poor are consistently at a disadvantage in many of the dimensions of access to health care services.

A study by **Mathiyazhagan (1998)** about the willingness to pay for a rural health insurance scheme through people's participation in rural areas suggests that most of the people are willing to join and pay. However, the probability of willingness to join was found to be greater than the probability of willingness to pay. Further, the study reveals that socio-economic factors and physical accessibility to quality health services are significant determinants of willingness to join and pay for such a scheme.

**Reshmi et al., (2007)** investigated the awareness of health insurance in the urban population of South India. Awareness about health insurance was prevalent among 64% of the urban samples. Media has been found to play a role in spreading the awareness as 45% of respondents responded that came to know about health insurance through the media. Further, government health insurance perhaps due to its reliability has been favored by the middle and low socioeconomic groups when compared to private health insurance.

## OBJECTIVE

The main objectives to this project are:

1. To study the extent of coverage of Health Insurance among women in Mizoram using NFHS-4.
2. To study the coverage of Health Insurance among women in Mizoram by background characteristics using NFHS-4.

## DATA SOURCES

In this project, secondary data is used. Data already collected through NFHS-4, conducted in 2015-16 survey was used in this project, and focuses mainly on the data collected from Mizoram among women.

The National Family Health Survey (NFHS) is a large-scale, multi-round survey conducted in a representative sample of households throughout India. IIPS, the nodal agency, collaborated with a number of Field Organizations (FO) for survey implementation. Each FO was responsible for conducting survey activities in one or more states covered by the NFHS. The National Family Health Survey has been conducted 4 times, NFHS-1 in 1992-93, NFHS-2 in 1998-99, NFHS-3 in 2005-06 and NFHS-4 in 2015-16.

The 2015-16 National Family Health Survey (NFHS-4), the fourth in the NFHS series, provides information on population, health, and nutrition for India and each state and union territory. All four NFHS surveys have been conducted under the stewardship of the Ministry of Health and Family Welfare (MoHFW), Government of India. NFHS-4 fieldwork was conducted by 14 Field Agencies (FAs).

For NFHS-4, a total of 628,900 households were selected for the sample, of which 616,346 were occupied. Of the occupied households, 601,509 were successfully interviewed, for a response rate of 98 percent. In the

interviewed households, 723,875 eligible women age 15-49 were identified for individual women's interviews. Interviews were completed with 699,686 women, for a response rate of 97 percent. In all, there were 122,051 eligible men age 15-54 in households selected for the state module. Interviews were completed with 112,122 men, for a response rate of 92 percent.

As per 2011 census, the population of Mizoram is 1,097,206 of which 555,339 are male and 541,867 are females. In NFHS-4 fieldwork for Mizoram was conducted in all 8 districts of the state from 3 February to 10 October 2016 by Research & Development Initiative (RDI) and collected information from 11,397 households, 12,279 women age 15-49 (including 1,938 women interviewed), and 1,749 men age 15-54. Survey response rates were 98 percent for households, 98 percent for women, and 96 percent for men. The NFHS-4 sample was designed to provide estimates of all key indicators at the national and state levels, as well as estimates for most key indicators at the district level.

## METHODOLOGY

Multivariable methods of statistical analysis commonly appear in general health science literature (Bagley, White, & Golomb, 2001). The multivariable methods explore a relation between two or more predictor (independent) variables and one outcome (dependent) variable. The logistic regression is the most popular multivariable method used in health science (Tetrault, Sauler, Wells, & Concato, 2008). When we want to look at a dependence structure, with a dependent variable and a set of explanatory variables (one or more), we can use the logistic regression framework.

Logistic regression competes with discriminant analysis as a method for analyzing categorical-response variables. Many statisticians feel that logistic regression is more versatile and better suited for modeling most situations than is discriminant analysis. This is because logistic regression does not assume that the independent variables are normally distributed, as discriminant analysis does.

## Findings and discussion

Three predictor variables were taken for case processing, and their crosstabs are obtained.

These variables are:

- 1) Place of Residence                      2) Educational Attainment                      3) Wealth Index

**Table.1. Covered by Health Insurance by Place of Residence**

		Type of place of residence		Total
		Urban	Rural	
Covered by health insurance	No	54.4% (5176)	45.6% (4337)	9513
	Yes	36.9% (1022)	63.1% (1744)	2766
Total		6198	6081	12279

Table.1 reveals that the health insurance coverage in rural areas is 63.1% whereas in urban areas it is 36.9%. The rural-urban difference is particularly high, for which the percentage in rural areas is almost twice as high as the percentage in urban areas.

We can also see that the percentage of respondents covered by health insurance (36.9%) is lesser than those not covered by it (54.4%) in urban areas, but it is the converse for those in rural areas as the percentage covered by health insurance (63.1%) is higher than the percentage not covered by it (45.6%).

## Educational Attainment

Table.2 reveals that the health insurance coverage is highest among respondents with incomplete secondary educational attainment(64.5%) whereas it is lowest among respondents with no educational attainment (3.7%). The highest-lowest difference is very high, for which the percentage in incomplete secondary educational attainment is almost seventeen (17) times as high as the percentage in no educational attainment. We can also see that the percentage of respondents with no health insurance coverage is always higher in most cases than those covered by health insurance.

		Educational attainment						Total
		No education	Incomplete primary	Complete primary	Incomplete secondary	Complete secondary	Higher	
Covered by health insurance	No	6.9% (661)	10.1% (960)	4.9% (475)	59.1% (5617)	9.9% (940)	9.1% (860)	9513
	Yes	3.7% (102)	10.6% (293)	4.7% (131)	64.5% (1784)	8.7% (241)	7.8% (215)	2766
Total		763	1253	606	7401	1181	1075	12279

**Table.2. Covered by Health Insurance by Educational Attainment**

Here, the percentage of respondents covered by health insurance (3.7%) is lesser than those not covered by it (6.9%) for respondents with no educational attainment, but it is the converse for those with incomplete secondary educational attainment as the percentage covered by health insurance (64.5%) is higher than the percentage not covered by it (59.1%).

## Wealth Index

**Table.3. Covered by Health Insurance by Wealth Index**

		Wealth index					Total
		Poorest	Poorer	Middle	Richer	Richest	
Covered by health insurance	No	6.1% (571)	10.7% (1024)	22.3% (2121)	32.2% (3067)	28.7% (2730)	9513
	Yes	2.3% (65)	11.9% (328)	26.8% (741)	35.5% (981)	23.5% (651)	2766
Total		636	1352	2862	4048	3381	12279

Table.3 and figure.3 reveals that the health insurance coverage is highest among respondents in the richer wealth index (35.5%) whereas it is lowest among respondents in poorest wealth index (2.3%). The highest-lowest difference is very high, for which the percentage in richer wealth index is almost fifteen (15) times as high as the percentage in poorest wealth index. We can also see that the percentage of respondents with no health insurance coverage is higher in some cases than those covered by health insurance.

Here, the percentage of respondents covered by health insurance (2.3%) is lesser than those not covered by it (6.1%) for respondents with poorest wealth index, but it is the converse for those with richer wealth index, as the percentage covered by health insurance (35.5%) is higher than the percentage not covered by it (32.2%).

## BINARY LOGISTIC REGRESSION

Binary logistic regression is used for analysis and the following tables are obtained for interpretation.

**Table.4. Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	447.718	10	.000
	Block	447.718	10	.000
	Model	447.718	10	.000

The Table.4, i.e., **Omnibus Test of Model Coefficients** gives the Chi-Square Test Results.

Here, we assume that

The Null Hypothesis : Our model with predictor components is not an adequate measure as compared to the model with no predictor components.

The Alternate hypothesis : Our model with predictor components is an adequate measure as compared to the model with no predictor components.

So, from the table, we can see that the p-value is 0.00 or 0.001; hence, it is statistically significant as it is less than 0.05. So, we can assume that our model with its predictors fits the data better than a model with no predictor which means that we reject the null hypothesis.

**Table.5. Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	12653.692 <sup>a</sup>	.036	.055

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Next, we see Table.5, i.e., **Model Summary Table**. Here we see three values, a -2 log likelihood value and two Pseudo-R<sup>2</sup> values: Cox and Snell R<sup>2</sup> and Nagelkerke R<sup>2</sup>. The -2 log likelihood value is used for the calculation of the Chi-Square values given in the table of omnibus test of model coefficients. Then we see the two Pseudo-R<sup>2</sup> values. For analysis, we simply multiply them by 100, so we get

$$\text{Cox and Snell R}^2 = 36$$

$$\text{Nagelkerke R}^2 = 55$$

(We should know that the Cox and Snell R<sup>2</sup> range between 0 and 1 but does not ever reach 1. But the Nagelkerke R<sup>2</sup> can reach 1.)

So, from the Model Summary Table, we may say that our predictor variables explain roughly 36% to 55% of the variation present in our predicted model.

Table.6. Variance In the Equation

		Sig.	Exp(B) / Odds Ratio
Step 1 <sup>a</sup>	<b>Type of Residence</b>		
	Urban Areas	0.000	0.413
	<b>Educational Attainment</b>		
	No Education	0.000	0.576
	Incomplete Primary	0.522	0.932
	Complete Primary	0.143	0.824
	Incomplete Secondary	0.683	1.036
	Complete Secondary	0.683	0.957
	<b>Wealth Index</b>		
	Poorest	0.000	0.348
	Poorer	0.048	0.838
	Middle	0.578	0.962
	Richer	0.077	1.114
	Constant	0.000	0.464

a. Variable(s) entered on step 1: V025, V149, V190.

Lastly, we see Table.6, i.e., **Variables in the Equation Table**.

For the first predictor variable, i.e., **Place of Residence**, we can see that urban areas are found to be insignificant, hence we interpret for urban areas. The odds ratio of urban areas are given to be 0.413, so using the rural areas as reference, we may say that people in urban areas are 0.413 times more likely to have less health insurance coverage than those in rural areas.

There is almost 41% less chance of people in urban areas to have health insurance coverage than those in rural areas.

For the second predictor variable, i.e., **Educational Attainment**, we see that only no education is found to be significant, hence we interpret for only no education. Here, the odds ratio of no education is found to be 0.576, so using Higher educational attainment as reference, we may say that people with no educational attainment are 0.576 times more times more likely to have less health insurance coverage than those with higher educational attainment.

Here we find that there is almost 58% less chance of people with no educational attainment to be covered by health insurance than those with higher educational attainment.

For the last predictor variable, i.e., **Wealth Index**, we also find that only poorest is significant, so we also interpret only for poorest wealth index. Here, the odds ratio of poorest is found to be 0.348, so using the Richest wealth index as reference, we may say that people with poorest wealth index are 0.348 times more likely to have less health insurance coverage than those with the richest wealth index.

Here we find that there is almost 35% less chance of people with poorest wealth index to have health insurance coverage than those with richest wealth index.

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