Section: Community Medicine

Original Research Article

A CROSS SECTIONAL STUDY TO ESTIMATE HEALTH INSURANCE COVERAGE AND AVERAGE EXPENDITURE ON HEALTH AMONG HOUSEHOLDS RESIDING IN A RURAL AREA

Aitalwad Deepmala S[1], Jogdand Mohini S[2], Potdar Swapnali S[3], Kendrekar Prasad P[4], Aghav Shridhar B[5]

[1,4,5]*Senior Resident, Department of Community Medicine, SRTR Government Medical College, Ambejogai, Maharashtra India.*
[2,3]*Assistant Professor, Department of Community Medicine, SRTR Government Medical College, Ambejogai, Maharashtra India.*

Received *: 07/11/2023*
Received in revised form *: 08/12/2023*
Accepted *: 23/12/2023*

Corresponding Author:
Dr. Aghav Shridhar B
Senior Resident, Department of Community Medicine, SRTR Government Medical College, Ambejogai District Beed India.
Email: shridharaghav95@gmail.com.

DOI: 10.5530/ijmedph.2023.4.34

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2023; 13 (4); 167-172

ABSTRACT

Background: Health insurance can be extremely useful in preventing debt among individuals seeking it. When any need or emergency arises, insurance can be of great help. In recent years the Indian government has created a number of low-cost health insurance programme for rural residents so that they can be covered by insurance without experiencing undue financial strain. Having an insurance makes it easier for people to access healthcare. Along with the government, Non-Governmental Organization (NGO) implement numerous programs for those who live in poverty. The purpose of this study is to determine the percentage of households with health insurance and an average household's health spending in rural areas. **Objectives:** 1. To estimate health insurance coverage and average expenditure on health among household in a rural area. 2. To determine the sociodemographic factors associated with health insurance among households in a rural area.

Materials and Methods: A cross sectional study conducted among households residing in a rural area of a medical college over a period of 2 years from January 2021 to January 2023. A pretested self-administered structured questionnaire was used for collecting data.

Results and Conclusion: Out of total 370 households, majority of head of households (52.9%) were from age group 41-60 years. Majority of head of households were males (92.16%). Whereas majority of the head of households (88.6%) were Hindu by religion, belonged to nuclear family (68.65%) and belonged to middle socioeconomic class (39.73%). Of the total household 71.6% head of household subscribed for health insurance. This study showed that possession of health insurance was more in males as compared to females. The most common reason for not availing health insurance was preferring investment of money in some other areas. Magnitude of household average expenditure per year in rupees with mean was 2091.89.

Keywords: Health insurance, awareness, possession and expenditure on health.

INTRODUCTION

Health insurance is actually referred to as the health cost insurance. It is primarily a way of sharing health care costs among members of the participating population and spreading them over time through payments[1]. It contributes to better health in two ways.

1. It provides financial access to medically necessary care in times of illness.
2. It may also offer preventions services, hence keeping members of the plan healthier.

Health insurance is used by people all over the world to partially cover their medical expenses. Financial ruin can result from out-of-pocket expenses exceeding 15% - 20% of the overall cost of healthcare or 40% of the family's net income for subsistence. When those with low incomes and no financial risk insurance get sick, they have limited number of choices: they can either use health

services and become even more impoverished in the process of paying for them, or they can forgo services, stay sick, and run the risk of losing their ability to work or function.[2]

The majority of rural Indians are below the poverty line and are unable to pay for their basic medical needs. Obtaining health insurance is difficult for such people. The diseases not only prevent them from working but also cause them to incur significant debt.[3]

Health insurance can be extremely useful in preventing debt among individuals seeking it. When any need or emergency arises, insurance can be of great help. In recent years, the Indian government has created a number of low-cost health insurance programme for rural residents so that they can be covered by insurance without experiencing undue financial strain. Having an insurance makes it easier for people to access healthcare. Along with the government organizations, Non-Governmental Organization (NGO) implement numerous programs for those who live in poverty.[4]

Need for study

Very few studies have been conducted to evaluate the rural population's awareness and use of health insurance following the introduction of various Health Insurance Schemes by Government of India and by private sector. Therefore, the purpose of this study is to determine the percentage of households with health insurance and an average household's health spending in rural areas.

MATERIAL AND METHODS

A community based cross sectional study carried out among households residing in a rural field practice area of a medical college for a period of two years from January 2021 to January 2023. Ethical committee approval was obtained from the Institutional ethical committee prior to the start of the study.

Household residing for more than 6 months duration in a rural population under study and those who gave consent for the study were included in study

Householders who have lived in rural area for less than six months and guests who have visited a rural area for less than a year were excluded for study.

6. Sample size and sampling technique:

According to NATIONAL SAMPLE SURVEY ORGANISATION(NSSO)[5] 75th round conducted in 2018 Rural population coverage is 14%, so taking this as prevalence sample size is calculated using formula[6]

$n= z^2pq/d^2$

Where, z is level of significance (which is 1.96 at 95% CI),

p=Prevalence=14%,

q=1-p,

d= Allowable error 5%.

So, the calculation comes to,

n=1.96 *1.96 *0.14 *086/0.05*0.05

=185

By adding design effect.[7] of 2 the sample size was 185*2 = 370.

The estimated sample size was 370 households. The sampling unit was the household and unit of study was head of household from each selected household.

Selection of households

Study was done in a rural population of a field practice area of a medical college. The list of all households in a village that was the part of hospital's field practice area was obtained from Gram Panchayat. Every home was assigned a number and the sample were chosen via systematic random sampling.

The report of the Gram Panchayat's village survey served as the source for the village's list of households. Total 960 households were presented in the area.

The sample interval (K) was determined as follows:

K= Total number of households of village/sample size

=960/370

=2.6 that is equal to 3.

By using the household numbers documented in the village Gram Panchayat list, households were selected by systematic random sampling method. The first household was randomly chosen followed by that household, by using the sample interval K = 3, every third household was chosen after first. The interview was conducted after following to the inclusion and exclusion criteria and getting the written informed consent of head of household. The aim and objectives of the study was explained to the family head and/or other household members during the home visit. The family head was interviewed using a pre-designed, pre-structure questionnaire that includes variables on sociodemographic characteristics, awareness, possession of health insurance, difficulties arising in availing health insurance schemes and average expenditure on health in a year.

Data Collection

The institutional ethics committee granted its approval. The study subjects confidentially were guaranteed and upheld. Data was collected throughout the study utilizing a schedule of questionnaires and in-person interviews.

Prior to the study, a written informed consent was obtained from the head of household. Data was collected from head of household using predesigned pre-structured questionnaire regarding sociodemographic details, awareness, utilization and difficulties for non-utilization of health insurance.

Data Compilation: Collected data was entered into Microsoft-Excel 2010 worksheets.

Data Analysis

Data was analyzed using Microsoft Excel 2013, Open EPI-Info Version 3.01 updated on 2013/04/06. Descriptive statistics (percentage, mean, standard deviation) were used to describe the data appropriately. Chi square test (fisher's exact test, Yates corrected chi square test wherever required

for statical evaluation) was applied to find the association of various socio-demographic characteristics and possession of health insurance. The significant association was considered when p-value was less than 0.05.

RESULTS

As observed in table No. 1 Out of the total 370 households, majority of study participants i.e., 196(52.9%) were in the age group 41-60 followed by 97(26.2%) were between 21 to 40 age group, and least of study participants i.e., 2(0.5%) were from age group less than 20 years. 341(92.16%) head of households were males and 29(7.84%) were females, 365(98.6%) head of households were married and 5(1.4%) were unmarried. 328(88.6%) were Hindu, 30(8.2%) were Muslims and 12(3.2%) were Buddhist.

Most of the participants 254(68.65%) belonged to nuclear family and least 59(15.95%) belonged to joint family and 57(15.40%) belonged three generation. 147(39.73%) predominantly belonged to middle class and 124(33.52%) belonged to upper middle class. 41(11.08%) and 50 (13.51%) belonged to lower middle class and upper class respectively and the remaining 8 (2.16%) were from lower class. [Table 1]

Table No. 2 depicts the distribution of head of households under study according to awareness of health insurance. Out of the 370-households, 305(82.5%) head of households were aware about the health insurance and 65(17.5%) were not aware about it, among them majority of study participants 133(43.6%) have heard about health insurance from their friends, 97(31.8%) from family member, 50(16.3%) from health care providers while least of study participants 25(8.35%) have heard about health insurance from media. [Table 2]

Table No.3 shows various modes of out-of-pocket expenditure per year among households in rupees with respect to mean ± std. deviation in terms with OPD expenditure, IPD expenditure, expenditure on medication-investigations and others, direct expenditure, indirect expenditure and total expenditure. In OPD expenditure mean and std. deviation of out-of-pocket expenditure was 161.52 ₹ ± 16.1. Similarly, for IPD expenditure these were 176.45 ₹ ± 17.95, for medication-investigations and others these were 1590.45 ₹ ± 312.45, for direct expenditure these were 1928.42 ₹ ± 346.5, for indirect expenditure these were 163.93 ± 29.58, for total expenditure it was 2091.19 ₹ ± 376.08. [Table 3]

Table no. 4 depicts association between possession of health insurance and other sociodemographic determinant. There was statical significant association between awareness and possession of health insurance which means that subscription of health insurance was more among those who were aware about it than those who were not aware. Those participants who were in the age group 41 to 60 years had possessed for health insurance were more than the other age group, as far as sex of the participant was concerned, possession of health insurance was more in males as compared to females. Possession of health insurance was more in graduate and postgraduate participants compared to other educational qualification. In this study possession of health insurance was more among a skilled workers compared to other occupation. Possession of health insurance was more in those participants who belonged to upper class than other socio-economic status and it was statically significant. [Table 4]

Table no. 5 shows the difficulties arising in availing of health insurance. Preferring to invest money in some other area was the most common reason (25.8%) for not availing of health insurance, while enrolment agencies providing superficial knowledge (18.1%) was the second most common reason.

Other reasons were govt. health care provider were not quality oriented (7.6%), difficulty to approach insurance agent (10.4%), lack of knowledge about health insurance (8.5%), linking hospitals were not easily accessible (6.6%), not possessing the ration card or documents (14.5%), low salary/don't like to buy/don't feel need it (4.7%). Very few participants (3.8%) thinking that they were not at risk of getting disease. [Table 5]

Table 1: Distribution of study participants according to sociodemographic profile

Sr. No.	Variable		Frequency	Percentage
1	Age Group	< 20	2	0.5
		21- 40	97	26.2
		41-60	196	52.9
		>60	75	20.2
2	Gender	Male	341	92.1
		Female	29	7.8
3	Education of Head of Household	Illiterate	83	22.4
		Primary	134	36.2
		Secondary	113	30.5
		Graduate	32	8.6
		Post Graduate	8	2.1
4	Occupation	Unskilled	298	80.5

		Semiskilled	32	8.64
		Skilled	32	8.64
		Highly Skilled	8	2.1
5	Socio-economic Status	Upper	50	13.5
		Upper Middle	124	33.7
		Middle	147	39.7
		Lower Middle	41	11.1
		Lower	8	2.2
6	Marital Status	Married	358	96.7
		Unmarried	9	2.4
		Widowed	2	0.54
		Separated	1	0.27
7	Type of Family	Nuclear	254	68.65
		Joint	59	15.95
		Three Generation	57	15.40
8	Religion	Hindu	328	88.6
		Muslim	30	8.2
		Buddhist	12	3.2

Table 2: Distribution of head of households on the basis of awareness of Health Insurance and source of information

Sr. No.	Variable		Frequency	Percentage
1	Are aware about Health insurance	Yes	304	82.1
2		No	66	17.9
3	Source of Information	Friends	133	35.9
		Family	97	26.1
		Health care provider	50	13.5
		Media	19	5.1

Table 3: Distribution of various mode of out-of-pocket expenditure (OOP) per year among households {in rupees (₹)}

Type of Expenditure	Mode of OOP Expenditure	Mean (₹)	Std. Deviation (₹)
Direct Expenditure	OPD expenditure	161.52	16.1
	IPD expenditure	176.45	17.95
	Medication, investigation and others	1590.45	312.45
Total direct expenditure		1928.42	346.5
Indirect Expenditure	Wedges loss, travelling, accommodation, food	163.47	29.58
Total Expenditure		2091.89	376.08

Table 4: Association between possession of health insurance and other sociodemographic determinant.

VARIABLES		YES		NO		TOTAL	CHI VALUE	p VALUE
		N	(%)	N	(%)			
AGE GROUP	≤20	1	50	1	50	2	6.1	0.01
	21 -40	67	69	30	31	97		
	41-60	146	74.4	50	25.6	196		
	≥60	51	68	24	32	75		
SEX	Female	250	73.3	91	26.7	341	6.1	0.01
	Male	15	51.7	14	48.3	29		
EDUCATION	Illiterate	63	88.7	20	11.3	83	16.21	0.002
	Primary	85	14.1	49	85.9	134		
	Secondary	79	88.5	34	11.5	113		
	Graduate and Postgraduate	38	95%	2	5%	40		
OCCUPATION	Highly Skilled	20	86.9	3	13.1	23	75.86	0.00001
	Skilled	25	89.2	3	10.8	28		
	Semiskilled	183	82.8	38	17.2	221		
	Unskilled	37	37.7	61	62	98		
SOCIOECONOMIC STATUS	Upper Class	42	84	8	16	50	29.37	0.000065
	Upper Middle Class	94	75.8	30	24.2	124		
	Middle Class	108	73.4	39	26.6	147		
	Lower Middle Class and Lower Class*	21	42.9	28	57.1	49		

Table 5: Difficulties arising in availing Health Insurance schemes

Difficulties arising in availing Health Insurance schemes*	Frequency (N)	Percentage (%)
Asking Govt. Health Care Provider Are Not Quality Oriented	8	7.6
Difficulty To Approach Insurance Agent	11	10.4
Enrolment Agencies Provide Superficial Knowledge	19	18.1
Lack Of Knowledge About Health Insurance	9	8.5
Linking Hospitals Are Not Easily Accessible	7	6.6
Prefer to invest money in some other area	27	25.8
Not Possessing the Ration Card or Documents	15	14.5
Low salary/Don't like to buy/Don't feel need it	5	4.7
Thinking That They Are Not at Risk of Getting Disease	4	3.8

(*Multiple answers)

DISCUSSION

The present study was undertaken to estimate utilization and coverage of health insurance and to assess average healthcare expenditure in a year among households in rural area.

In this study as per table 1 out of the total 370 households, majority of study participants i.e., 196(52.9%) were in the age group 41-60, 97(26.2%) were between 21 to 40 years of age group, and least of study participants i.e., 2(0.5%) were from age group less than 20 years. In a similar study conducted by Choudhary L, et al (2013) conducted study to find the awareness of health insurance among the people. out of the total respondents (400), 131(32.75%) were in the age group of 31-40 years, followed by 112(28%) were 41-50 years of age and 19(4.75%) of respondents were in the age group of more than 61 years.[8]

This study shows 341(92.16%) participants were Males and 29(7.84%) were Females. In present study maximum household members were male. In other studies distribution of study participants which are similar to our observation are Netra G, et al (2020) conducted study cross-sectional analytical study in the rural health training Centre (RHTC) of SSIMS and RC, Davangere during May 2016 – July2016 in which among 600 participants 555(92.5%) were males and 45(7.5%) were females.[9]

In our study out of 370 households, 254(68.65%) were belonged to nuclear family, 57(15.41%) were belonged to three generation family and 59(15.95%) were belonged to joint family, it showed that distribution of households in the study population was predominantly belonged to nuclear type. Similar observation was mentioned in the study by Thampi JG, et al (2019) 58.7% households were from nuclear family, 40.3% were from joint and three generation type of family.[10]

In this study Out of the total 370 households maximum (36.22%) of the respondents were primary education level, 22.43% of the respondents were illiterate, while very least of participants were graduate and post-graduate(10.11%) Similar finding was observed in study conducted by Ramegowada C, et al (2015) in urban field medical practice area of medical college, Bangalore on the utilization of health insurance, out of total 447 families 166 (37.1%) were illiterate, 132 (29.5%) were in primary school, 80 (17.9%) were from middle school, 48 (10.7%) were from high school while 14 (3.1%) Intermediate or post high school diploma and 07 (1.6%) were graduate or post graduate.[11]

In the present study table 2 depicts the distribution of head of households under study according to awareness of health insurance. Out of the 370-households, 305(82.5%) head of households were aware about the health insurance and 65(17.5%) were not aware about it, among them majority of study participants 133(43.6%) have heard about health insurance from their friends, 97(31.8%) from family member, 50(16.3%) from health care providers while least of study participants 25(8.35%) have heard about health insurance from media.

The study carried out by Gowda S, et al (2015) on awareness of health insurance in rural population of South India. They found out of total 290 respondents 235(81%) were aware about health insurance, which was similar to this study.[12]

In current study out of the total 370 households, figure 1 - showed 311(84%) households had out-of-pocket expenditure on health and 59(16%) didn't have any type of out-of-pocket expenditure on health.

Archana R, et al (2014) concluded in their study that majority (58.1%) of the households did not incur out-of-pocket health care expenditure.[13]

This study showed various modes of out-of-pocket expenditure per year among households in rupees with respect to mean ± std. deviation in terms with OPD expenditure, IPD expenditure, expenditure on medication-investigations and others, direct expenditure, indirect expenditure and total expenditure. as per table 3 total expenditure was 2091.89₹ ± 376.08.

Anadi G, et at (2013) conducted a survey in District Solan, Himachal Pradesh, India. They surveyed 94 respondents in the beneficiary and nonbeneficiary groups of the Rashtriya Swasthya Bima Yojana (RSBY) for Out-of-Pocket Expenditure for Hospitalization among Below Poverty Line Households. They discovered that the overall proportion of non-beneficiaries who incurred OOPE was higher than that of beneficiaries. The median expenditure for chronic diseases was found be Rs 2567.[14]

Table 4 there was statistically significant association found with increased enrolment of health insurance

in the age group 40 - 60 years, males, illiterate, semiskilled workers, upper class of socioeconomic status. Similar observation found in study carried out by Netra G.[12]

Table 5 shows difficulties arising in availing health insurance schemes. Preferring to invest money in some other area was the most common reason (25.8%) for not availing of health insurance, while enrolment agencies providing superficial knowledge (18.1%) was the second most common reason. Similar results found in a study carried out by Bawa SK et al (2015) on awareness and willingness to pay for health insurance in Punjab. They found that out of 563 participants 71.9% respondents were aware of health insurance but not subscribed. Most common reason for not availing health insurance was Low salary/non availability of funds (Don't like to buy, don't feel the need for it (15%) followed by No one suggested about it, not taken by friends, relatives etc. (14.07%).[15]

CONCLUSION

A community-based cross-sectional study was undertaken among households in a rural population of a field practice area of a medical college revealed that majority of head of household (82.16%) were aware about health insurance. Out of 71.6% who subscribed for health insurance 90% covered under government type of health insurance while 10% possessed private health insurance.

This study also observed that sociodemographic determinants such as age group 40-60 years, males, illiterate, semiskilled workers, upper class of socio-economic status, orange ration card status and holding their own land have statically significant association with possession of health insurance.

There were many difficulties arising in availing health care service among the rural population. Low salary/non availability of funds was the main reason among these all reasons.

Overall, 67.84% households were using government hospital/health facility to avail health care services. The average expenditure per year in rupees with respect to mean and std. deviation in terms with total expenditure was 2091.89 ± 376. 08.

REFERENCES

1. McCartney G, Popham F, McMaster R, et al. Defining health and health inequalities. Public Health. 2019:172: 22–30.
2. Dr Chandramouli C. Register general & Census Commissioner, India. Rural Urban Distribution of Population (Provisional population totals) Ministry of Home Affairs, New Delhi.: 15 July 2011. Census of India 2011. 2011;(July). Available from: http://censusindia.gov.in/2011-prov-results/paper2/data_files/india/Rural_Urban_ 2011.pdf. Accessed on: 1 September 2019.
3. Shet N, Qadiri GJ, Kalal BS, Saldanha S. Impact of Out-Of-Pocket Health Care Financing and Health Insurance Utilization among the Population: A Systematic Review. Int J Heal Sci Res. 2018; 8:249–57.
4. Safi O. Health insurance for rural and poor people in India. International journal of technical research and application. 2015; 3 (1).
5. NSSO. Key Indicators of Social Consumption in India Health-NSS 75th Round. Ministry of Statistics and Programme Implementation, Government of India, 2018. Available at: http://mospiold.nic.in/ Mospi_New/site/inner.aspxstatus=3&menu_id=31. Accessed on 12 September 2020.
6. Netra G, Rao BAV. A study on awareness, coverage and willingness to avail health insurance among the residents of a rural area in Central Karnataka. Natl J Community Med. 2019;10(4):190-6.
7. Alimohamadi Y, Sepandi M. Considering the design effect in cluster sampling. J Cardiovasc Thorac Res. 2019;11(1):78. doi: 10.15171/jcvtr.2019.14. Epub 2019 Feb 17. PMID: 31024678; PMCID: PMC6477104.
8. Choudhary M.L, Goswami K.I, Khambati S. N, et al. Awareness of health insurance and its related issues in rural areas of Jamnagar district. National journal of community Medicine. 2013; 4(2).
9. Netra G, Rao BAV. A Study on Awareness, Coverage and Willingness to Avail Health Insurance among the Residents of a Rural Area in Central Karnataka. Natl J Community Med 2019; 10(4):190-196.
10. Thampi JG, Hadaye R. Attitude towards and utilization of health insurance in a metropolitan city: a cross-sectional study. Int J Community Med Public Health 2019; 6:3922-7.
11. Ramegowda, Chethana, Anwith, H S et al. Awareness and utilization of health insurance services by families residing at practice field area of medical college in Bangalore. National Journal of Community Medicine. 2015.
12. Gowda S et al. Awareness about health insurance in rural population of south India. Int J Community medicine and public health. 2015;2(4):648-650.
13. Archana R, Kar SS, Premarajan KC, et al. Out of pocket expenditure among the households of a rural area in Puducherry, South India. Journal of Natural Science, Biology and medicine.2014;5(1):135-8.
14. Gupt A, Kaur P, Kamraj P, Murthy BN. Out of pocket expenditure for hospitalization among below poverty line households in district Solan, Himachal Pradesh, India, 2013. PLoS One. 2016;11(2):1–11.
15. Bansal A, Goel S, Singh A, et al. a community-based study to access the awareness of health insurance among rural northern Indian population. Int J Health Syst Disaster Manage,2015.