

Level and Determinants of Medical Expenditure and Out of Pocket Medical Expenditure on Hospitalization at Household Level in India

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ABSTRACT: *This study makes an attempt to shade some light on medical expenditure and out of pocket expenditure on hospitalisation at household level in India. The specific objectives are to assess the levels and determinants of medical expenditure and out-of-pocket medical expenditure on hospitalization (inpatients) at the household level in India. The schedule 25.0 (morbidity & health care) of NSS 60th round (2004) data has been used. Some of the basic descriptive statistics and multiple regression analysis have been used. 86 percent of the households paid their medical expenditure on hospitalization through households saving/income, 42 percent through borrowing, 18 percent through the contribution from family or friends and 6 percent paid through other sources of finance. Economic status of the households is closely associated with the medical expenditure and it is positively skewed for all the subgroups of the population and there is high variability in medical expenditure on hospitalization.*

KEYWORDS: *Medical expenditure, Hospitalization, Out-of pocket, NSSO, Source of finance*

I. INTRODUCTION

India continues to have the world's largest population—approximately 350 million or 35% of the population—living below \$1-a-day income. Socio-economic condition is not much good as other developed countries. If we talk about health related issues, India's situation is not satisfactory in the sense of assessing the health facilities due to high health care expenses and poor administration and the health system attributable to the household dues through private insurance and out of pocket payments. These include financial outlays that the household itself is not necessarily aware of this type of payment for health.

Health systems know how to deliver health services, anticipatory and curative, that can make a disparity to peoples' health. Nevertheless, accessing these services can lead to those having to pay ruinous proportions of their available income and move forwards many households into dearth. The potential impact of how health systems are financed on the wellbeing of households, mainly poor households, has affected the design of health systems. On the other hand, even small costs for common illnesses can be financially disastrous for poor households with no insurance cover. Little, however, is known about which health-system characteristics protect households from ruinous payments, or the factors that lead some households to face such payments while others are protected. Insurance were more likely to be affected than other households. Knowledge is also necessary of which households are more vulnerable for any set of system characteristics. We aimed to quantify the extent of ruinous payments and investigate the conditions under which they are most likely to occur, taking advantage of the increasing number of available household income and expenditure. As we know that health expenditure is more vulnerable for poor's because they don't have insurance coverage and knowledge about insurance. On the other hand rich people have covered by any health insurance and they are more secure because they are reducing their health expenditure, So that this a curse for poor's.

In the current scenario health expenditure is out of pocket due to poor economic condition. Out of pocket health expenditure express that expenses for which household have not allotted the fund or we can say that is much higher than allotted fund for the health expenses, because of poor economic condition. Studies have identified that too much variation on OOP health payments at the time of care, in a health care financing context dominated by private expenditures combined with weak public health systems, and almost negligible health insurance are largely responsible for high prevalence of catastrophic health payments in South Asia (Xu et al. 2003; Wagstaff and van Doorslaer 2003; van Doorslaer et al. 2005, 2006, and 2007).

Government is providing health facilities in different levels, started with primary health centre, sub centre, community health centre in the sequence. But a common person not getting the services due to the poor administration. lot of primary health centre is not working properly due to the lack of health workers. The condition of sub center and CHC also not very good, sometimes doctor available medicine is not available. Generally patient has to take the sonography, x-ray, medicine and other tests from the outside and other private centers. This is very difficult assess the health facilities for the common people. According to (Government of India (GoI), 2005) 70% health expenditure is out of pocket due to this common man has to take or borrow some money from others, which pushes to common man in the poverty, and the whole structure of expenditure may be collapsed. We seen that the whole expenditure are depends on the economic values. Studies such as Sepehri *et al.* (2006), and Rous and Hotchkiss (2003) examine the determinants of health care spending by households. Medical spending is regarded as catastrophic if it exceeds a predetermined share of household income or total expenditure in a given period (Wagstaff and van Doorslaer, 2003; Xu *et al.*, 2003).

Our income is fixed but health expenditure may vary according to the type of disease and duration of the disease. In other way we can say that the proportion of health expenditure increases, other expenditure will decrease because of the fixed household income. As we know India is developing country and unemployment is increasing as population increasing with rapid growth day by day. In this situation very difficult to assess the health facility it also push to household in the poverty. Here we have listed some figures on healthcare financing in India.

Financing Healthcare in India (2004-05)		
Source	Estimated users in millions¹	Expenditure (Rs billion)
Public Sector	290	310(16) ³
Social Insurance	80	30(1.5)
Private Sector	790	1650(84) ²
Private Insurance	12	12(0.6) ⁴
Out of Pocket	778	1638(83.4)
Total	1080	1960(100)

Note: These estimates include local government health spending. The figures in parentheses are percentages.

1 Estimates derived by author based on NSSO (1998).

2 Estimates derived by author based on Central Statistical Organization (2004).

3 Compiled from Ministry of Finance (2004), Reserve Bank of India (2005), Labour Bureau (2002) and MoHFW (2002).

4 Private health insurance data estimates obtained through personal communication with Insurance companies.

II METHODS

Need for the study

As India is undergoing epidemiological transition and experiencing the double burden of diseases, it has its dire ramifications on the household economy especially when it comes to the hospitalisation in an environment where public expenditure is still very meagre and there is proliferation of private players in health care. Several studies have examined health expenditure and catastrophic out of pocket health expenditure and its implications on impoverishment of the households taking into consideration both inpatient and outpatient care. But, the hospitalization itself is catastrophe for a household from any strata of the society. Also a recent study by Berman *et al.* (2010) shows that one time hospitalisation costs much higher than several out-patient medical services expenditure. Hospitalisation turns to be a nightmare to the vulnerable poor segment society whose economy shatter to meet the expenses as they are not left with any option except borrowing. Although there is burgeoning research on health expenditure taking into account both in and out patients care services but hospitalization expenditure is relatively less explored on household level. Keeping this broad objective in mind present study makes an attempt to shade some light on medical expenditure and out of pocket expenditure on hospitalisation at household level in India.

Objectives of the study

The broad objectives of this study are-

1. To assess the levels of medical expenditure and out-of-pocket medical expenditure on hospitalization (inpatients) at the household level in India.
2. To examine the determinants of medical expenditure and out-of pocket medical expenditure on hospitalization at household level in India.

III DATA SOURCE

In this study, schedule 25.0 (morbidity & health care) of NSS 60th round (2004) has been used. This survey was conducted during the January-June; 2004. This survey covered entire area of the country with the exception of some interior part of Nagaland and Andaman & Nicobar Islands, and leh (Ladakh) and kargil districts of Jammu & Kashmir. In this survey, 73868 households were covered out of these households information on 383338 individuals has been recorded, also the information about 1717 individuals died during the reference period of 365 days has been collected. This study utilizes the information on hospitalization and expenditure on hospitalization given in the questionnaire. Specifically, we used 2nd level for household characteristics and levels 7th, 8th, 9th, 10th for health expenditure for treatment during stay at hospital in the reference period of 365 days. In the data set, information on hospitalization and expenditure on hospitalization is given for 32665 hospitalized cases. These hospitalized cases are for the 29665 individuals from 27617 households. Since our study is focused on health expenditure at household level so we have summed up all the expenditure for all the individuals at household level after summing up all the expenditure in all hospitalized cases for each individual.

Concepts and Definitions

Hospitalization

A person was considered as hospitalized if he had availed any of medical services as an indoor patient (inpatient) in any hospital. Hospital, for the purpose of survey, referred to any medical institution which has provision for admission of sick persons as indoor patients (inpatients) for treatment. Hospitals covered public hospitals, CHCs, PHCs (if provided with beds), ESI hospitals, private hospitals, nursing homes etc. (NSS 60th round). Here it is notable that cases of hospitalization due to pregnancy and child birth had been considered as hospitalization case. The reference period for the hospitalization was 365 days prior to the date of the survey.

Medical Expenditure

In this study, the medical expenditure is computed as the total of expenditure incurred for medical treatment as inpatient services received during the reference period (365 days prior to the survey period). The item included in computing medical expenditure include item number 5-13 from level 7 and item number 14-17 from level 8 of the schedule 25.0 of NSS 60th round. All other type of expenditure incurred for treatment, such as a loading charges of escorts, attendant charges, cost of transport other than ambulance, were excluded from medical expenditure.

Out-of-Pocket Health Expenditure (OOP)

Out of pocket health payment refers to the payments made by households at the point they receive health services. Typically these include doctor's consultation fees, purchases of medication and hospital bills. Although spending on alternatives and /or traditional medicine is included in out of pocket payments. Expenditure on health-related transportation and special nutrition are excluded. **It is also important to note that out of pocket payments are net of any reimbursement.** In this study we have computed out of pocket expenditure by subtracting the total reimbursement from the total medical expenditure.

Yearly Consumer Expenditure per Capita

We have computed Yearly Consumer Expenditure Per Capita by multiplying the total household monthly consumer expenditure by 12 and dividing by the household size. Household consumer expenditure contains the total of purchase, home-produced stock, receipts in exchange of goods and services, gifts and loans, free collection

IV METHODOLOGY

In this study, we have used some of the basic descriptive statistical tools to assess the level of medical expenditure and out of pocket medical expenditure on hospitalization and to explore the distribution of the medical expenditure and out of pocket medical expenditure on hospitalization. For this purpose we have used mean and median as measures of central tendency. Previous studies have shown that health expenditure data is positively skewed and in such situation median is considered better measure of central tendency. Other descriptive statistics used in the study are first quartile (Q1), third quartile (Q3), Inter-quartile range (IQR) and coefficient of variation (CV).

To examine the determinants of medical expenditure and out of pocket medical expenditure on hospitalization we have used multiple regression analysis. In the analysis, we have taken log of medical expenditure and out of pocket medical expenditure on hospitalization as dependent variable. The specification of the regression model is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n$$

Where y is the dependent variable and β_i are the regression coefficients and X_i are the independent variables (predictors).

Explanatory variables used in the study

Continuous variables

1. Logarithm of yearly per capita consumer expenditure
2. Household size

Dummy variables

1. Various sources of finance: yes=1; otherwise 0.
2. Land: more than one acre=1; otherwise 0.
3. Type of household structure: Pucca house=1; otherwise 0.
4. Cooking fuel: Non solid=1; otherwise 0. Here non solid fuel include LPG, electricity and kerosene
5. Drinking water: unsafe=1; otherwise 0. Here safe drinking water includes bottled water, piped water.
6. Type of toilet: flush=1; otherwise 0.
7. Education of head of household: middle and above=1; otherwise=0.
8. Caste: other than SC/ST =1; otherwise 0.
9. Religion: Hindu=1; otherwise 0.
10. Type of place of residence: Urban=1; otherwise 0.

V RESULTS

Descriptive results for Medical expenditure and out of pocket health expenditure on hospitalization at household level

Table 1 presents descriptive statistics for medical expenditure and out of pocket medical expenditure on hospitalization at household level by selected background characteristics of the household. In this table mean gives level of medical expenditure on hospitalization at household level. The distributional statistics given in the table are mean and median; the table shows significant variations in the mean medical expenditure and out of pocket medical expenditure on hospitalization across the states. Uttar Pradesh has highest mean medical expenditure on hospitalization (Rs. 10169) and Madhya Pradesh has lowest medical expenditure on hospitalization (Rs. 5924). The table shows that household economic status measured by yearly per capita consumer expenditure quintile have significant impact on mean household medical expenditure on hospitalization as first quintile has the lowest (Rs. 4623) and fifth quintile has the highest (Rs.13183) medical expenditure on hospitalization. Also, mean medical expenditure on hospitalization is consistently increasing with the consumption quintile. The table depicts positively skewed distribution of household medical expenditure on hospitalization within consumption quintiles. The table shows the rural urban differentials in the medical expenditure on hospitalization with urban areas having higher mean households medical expenditure on hospitalization. Also urban area has higher variability. Education of head of household is also showing effect on the level of medical expenditure on hospitalization.

Table shows that as schooling increases health expenditure is also increasing. In the no education category mean household expenditure (Rs.6042) on hospitalization and in the category Secondary and above mean household expenditure on hospitalization is highest (Rs.14013). Variability in medical expenditure on hospitalization within education groups is also increasing with the education. Among Muslims mean medical expenditure on hospitalization is lowest and others category has the highest mean medical expenditure on hospitalization. Caste is also shown to have impact on medical expenditure on hospitalization with SC/STs having lowest and others category having highest mean household medical expenditure on hospitalization. Also within the caste group variability in terms of coefficient of variation is higher in the others category compare to

others caste group. Source of cooking fuel and drinking water is also having impact on the level of medical expenditure on hospitalization. Overall, mean medical expenditure is Rs.8353 the table reveals significant socio-economic and regional variation in the mean expenditure. The distribution of out of pocket medical expenditure on hospitalization across the sub groups of the population. Tables shows significant variation in mean out of pocket health expenditure on hospitalization across the states with Uttar Pradesh having highest (Rs.9948) and Madhya Pradesh having lowest(Rs. 5810) mean out of pocket medical expenditure on hospitalization. The table reveals that mean out of pocket medical expenditure on hospitalization is positively skewed for all the states. Household's economic status in terms of yearly consumption expenditure quintile is shown to have effect on the level of out of pocket medical expenditure on hospitalization. In the higher consumption quintile mean out of pocket medical expenditure on hospitalization is higher.

Table1: Medical expenditure and Out of pocket medical expenditure on hospitalization in India, January-June, 2004: Descriptive statistics by selected background characteristics

	Medical expenditure			Out of pocket medical expenditure		
	Mean	Median	Sample	Mean	Median	Sample
State						
Rajasthan	9464	4550	1,260	9201	4500	1,260
Uttar Pradesh	10170	5000	3,400	9948	5000	3,400
Bihar	8312	3500	1,415	8136	3450	1,415
West Bengal	6518	2252	1,992	6196	2160	1,992
Madhya Pradesh	5924	2800	1,323	5810	2650	1,323
Gujarat	7861	3080	1,128	7494	3000	1,128
Maharashtra	9346	3600	2,165	8479	3348	2,165
Andhra Pradesh	8406	3000	1,998	7989	2900	1,998
Karnataka	7303	2625	1,329	6374	2550	1,329
Kerala	6585	2500	1,214	6318	2400	1,214
Tamilnadu	8582	1750	2,098	8207	1650	2,098
Yearly Consumer Expenditure						
First Quintile	4624	1800	3,448	4522	1800	3,448
Second Quintile	5172	2140	4,101	5109	2100	4,101
Third Quintile	6180	2800	5,139	6059	2800	5,139
Fourth Quintile	7796	3080	6,400	7651	3000	6,400
Fifth Quintile	13184	5000	8,529	11950	4500	8,529
Sector						
Rural	7202	3000	17,503	7067	2900	17,503
Urban	10857	3600	10,114	9711	3300	10,114
Religion						
Hindu	8154	3000	21,909	7701	3000	21,909
Muslim	7577	3000	3,274	7361	3000	3,274
Others	11708	3750	2,434	10876	3500	2,434
Caste						
SC\ST	5532	2000	7,526	5243	1987	7,526
OBC	7882	3000	10,426	7677	3000	10,426
Others	10836	4150	9,658	9980	4000	9,658
Fuel						
Unsafe	6250	2600	18,291	6153	2540	18,291
Safe	12828	4700	9,316	11614	4050	9,316
Water						
Safe water	9313	3050	12,547	8554	3000	12,547
Unsafe water	7552	3000	15,069	7353	3000	15,069
Education of Head						
No schooling	6042	2460	9285	5943	2400	9285
Up to Primary	6963	2965	7043	6827	2850	7043
Middle	7717	3240	4548	7489	3100	4548
Secondary and above	14013	5000	6732	12465	4500	6732

Overall	8354	3000	27617	7900	3000	27617
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Note: mean, median, values in rupees

Table also showing rural urban differentials in the level of out of pocket medical expenditure on hospitalization and urban area has higher variability in out of pocket medical expenditure on hospitalization. Education of head of household is also showing effect on the level of out of pocket medical health expenditure on hospitalization. Table shows that as schooling increases out of pocket medical expenditure also increasing. In the no education category mean household expenditure (Rs. 5943) on hospitalization and in the category Secondary and above out of pocket medical expenditure on hospitalization is highest (Rs. 12464). Variability in out of pocket medical expenditure on hospitalization within education groups is also increasing with the education. Among religious categories Muslims have lowest (Rs.7360) and others category have highest (Rs.10876) mean out of pocket medical expenditure on hospitalization.

Descriptive results for medical expenditure by the source of finance

Table 2 presents the percent distribution of households by source of finance for medical expenditure on the hospitalization by selected background characteristics. Table shows that 86 percent of households paid their medical expenditure on hospitalization through households saving/income, 42 percent paid through borrowing, 18 percent paid through the contribution from family or friends and 6 percent paid through other sources of finance. The table depicts significant variations across the states in the distribution of households by source of finance for medical expenditure on hospitalization. Madhya Pradesh have highest percent (91%) of households paying their medical expenditure on hospitalization through the households savings or income, and Tamil Nadu have lowest (73 %) of households paying medical expenditure through households savings or income. Andhra Pradesh have highest percent (53.8%) of households and lowest Maharashtra have (35.2 %) of households paying their medical expenditure on hospitalization through the borrowing. In the next step Uttar Pradesh have highest percent (23.6 %) and lowest Rajasthan have (10 %) of households paying their medical expenditure through the contribution of family/friends. West Bengal has highest percent (11.5%) of households and lowest in Rajasthan percent (2.5%) of households paying their medical expenditure through other sources.

The table reveals association between household economic status (measured by yearly consumer expenditure quintiles) and the source of finance for medical expenditure on hospitalization. From the table we see that in the first consumption quintile lowest percentage (79%) of households are paying medical expenditure on hospitalization through the household savings while in the fifth consumption quintile highest percentage of households(91%) are paying their medical expenditure on hospitalization through the household savings and income. On the contrary, lowest quintile have highest percentage (53 %) of households and the highest quintile have lowest percentage (28%) of households are paying medical expenditure on hospitalization through borrowing. In the lowest quintile have highest (21%) of households and the highest quintile have lowest (15%) of households are paying their medical expenditure through contribution from family/friends. In the lowest quintile have highest (8.6%) of households and the highest quintile have lowest (4.3%) of households are paying their medical expenditure on hospitalization through other sources. Table clearly shows the differentials between rural and urban in the source of finance. In the rural areas (85%) of households and in urban areas (89%) of households are paying their medical expenditure on hospitalization through the household saving/income. In the source of finance rural (48%) of households and in the urban (29.5%) of households are paying their medical expenditure on hospitalization through the borrowing. table shows that in rural (20%) of households and in the urban (16%) of households are paying their medical expenditure on hospitalization through contribution from friends/family. In the households by source of finance in rural area (7%) and in urban (4%) of households are paying their medical expenditure on hospitalization through other sources.

The differentials among the religions in the source of finance shows that Hindu (85%), Muslims (87%) and others (89%) of households are paying their medical expenditure on hospitalization through household saving/income. while Muslim (45%), Hindu (42%) and others (37%) of households are paying their medical expenditure on hospitalization through borrowing. In the source of finance Muslims (22%), others (20%) and Hindu (18%) of households are paying their medical expenditure on hospitalization through contribution from the family/friends. In the source of finance Muslims (7%), Hindu (6%) and others (5%) of households are paying their medical expenditure on hospitalization through contribution from the others sources.

Table 2: Percent distribution of households by source of finance for medical expenditure on hospitalization in India, January-June, 2004

Background Characteristics	HH savings / income	Borrowing	Contribution from family/friends	Other Source	Sample
State					
Rajasthan	90	48	10	3	1,260
Uttar Pradesh	90	39	24	6	3,400
Bihar	90	49	24	10	1,415
West Bengal	89	42	23	12	1,992
Madhya Pradesh	91	42	17	4	1,323
Gujarat	89	39	16	3	1,128
Maharashtra	83	35	20	5	2,165
Andhra Pradesh	80	54	13	3	1,998
Karnataka	83	39	12	4	1,329
Kerala	86	45	22	7	1,214
Tamilnadu	73	46	13	6	2,098
Yearly Consumer Expenditure					
First Quintile	79	53	21	9	3,448
Second Quintile	81	50	21	7	4,101
Third Quintile	85	50	19	7	5,139
Fourth Quintile	86	44	18	5	6,400
Fifth Quintile	91	28	15	4	8,529
Sector					
Rural	85	48	20	7	17,503
Urban	89	30	16	4	10,114
Religion					
Hindu	85	42	18	6	21,909
Muslim	87	45	22	7	3,274
Others	89	37	20	5	2,434
Caste					
SC\ST	82	49	19	7	7,526
OBC	85	45	18	6	10,426
Others	89	34	18	5	9,658
Fuel					
Unsafe	84	50	20	7	18,291
Safe	91	26	16	3	9,316
Water					
Safe water	86	37	15	4	12,547
Unsafe water	86	46	21	7	15,069
Overall	86	42	18	6	27,617

Note: Percentages are for multiple responses, so these may not add up to 100 percent

The table shows the differentials among the caste by the source of finance others (89%), OBC (85%) and SC\ST (82%) of households are paying their medical expenditure on hospitalization through contribution from the household's savings/income. by the source of finance among in SC\ST (49%), OBC (45%) and others (34%) of households are paying their medical expenditure on hospitalization through contribution from the borrowing. Table explains that among in SC\ST (19%), OBC (18.2%) and others (17.9%) of households paying their medical expenditure on hospitalization through contribution from family/friends. Table shows that the SC\ST (7.2%), OBC (5.7%) and others (5.1%) households are paying their medical expenditure on hospitalization through other sources. The percent distribution of households by source of finance differentials between the unsafe fuel(83.6%) and safe fuel (91%) of households by saving, unsafe(50%) and safe (26%) of households by borrowing, unsafe (20%) and safe (16%) of households by contribution and unsafe(7%) and safe (3.3%) of households are paying their medical expenditure on hospitalization.

Table 3 presents results of multiple regression analysis carried out to examine the determinants of the medical expenditure and out of pocket health expenditure on hospitalization at household level. In this analysis we have taken log of medical expenditure as dependent variable and a set of independent variables. The regression coefficients given in the table are showing magnitude of impact of predictors on the log of medical expenditure.

Table 3: multiple regression analysis of medical expenditure and Out-of-pocket medical expenditure on hospitalization at household level in India, January-June, 2004

Dependent variable	Log(Medical expenditure)			Log (Out-of-pocket medical expenditure)			
	Predictors	Coefficients	Standard error	P-value	Coefficients	Standard error	P-value
Economic Variables							
Log of Per capita yearly HH expenditure	0.627	0.026	0	0.47	0.03	0	
Source of finance: saving	1.016	0.039	0	1.04	0.04	0	
Source of finance: borrowing	1.395	0.027	0	1.44	0.03	0	
Source of finance: contribution	0.997	0.032	0	1.03	0.04	0	
Source of finance: other	1.07	0.052	0	0.95	0.06	0	
More than one acre Land	0.348	0.034	0	0.39	0.04	0	
Pucca house	0.424	0.029	0	0.44	0.03	0	
Health risk factors							
safe fuel	0.35	0.039	0	0.28	0.04	0	
safe water	-0.186	0.028	0	-0.23	0.03	0	
Flush toilet	0.16	0.035	0	0.13	0.04	0.001	
Demographic							
Household size	0.095	0.005	0	0.09	0.01	0	
Social variables							
Middle and above education(head)	0.229	0.028	0	0.14	0.03	0	
Cast: other than SC/ST	0.377	0.028	0	0.47	0.03	0	
Religion: Hindu	0.144	0.031	0	0.19	0.03	0	
Regional Variables							
Urban	-0.284	0.035	0	-0.29	0.04	0	
Constant	-0.923	0.233	0	0.31	0.25	0.215	
R-Square	0.1974			0.17			
Sample Size	27519			27519			

The table depicts that the predictors taken in the model are significantly affecting the medical expenditure on hospitalization. From the table we see that dummies of source of finance have highest contribution to the medical expenditure on hospitalization. Borrowing has highest contribution (beta=1.4) to the medical expenditure on hospitalization and household saving/income are the second highest contributor. From the table we see that log of yearly household per capita consumer expenditure has highest impact (beta=0.63) on medical expenditure on hospitalization except the dummies of source of finance. Among the source of finance borrowing is showing highest impact. Among health risk factors safe fuel and flush toilet are positively affecting medical expenditure on hospitalization while safe water have negative impact on the medical expenditure on hospitalization. Household size has very less impact though positive effect on the medical expenditure on hospitalization. Social factors too have shown significant association to the medical expenditure on hospitalization. Among the social factors caste is showing highest impact on medical expenditure on hospitalization. The regional variable that is place of residence (urban) is negatively affecting the household medical expenditure on hospitalization. Overall, the table reveals that household economic status, caste and education of head of household are most prominent determinants of the medical expenditure on hospitalization. Also, the measure of goodness of fit of the model R-square value is 0.2 that is predictors considered in the model are able explain only 20% variation in the medical expenditure on hospitalization. In second part of the results of multiple regression analysis carried out to examine the determinants of out of pocket medical expenditure on hospitalization. The table shows that among the economic variables finance from borrowing has highest impact on the out of pocket medical expenditure on hospitalization. Household economic status measured by yearly household consumption expenditure also has significant positive impact on out of pocket medical expenditure on hospitalization. Among the health risk factors safe drinking water is negatively affecting out-of pocket household expenditure on hospitalization while flush toilet and safe fuel is positively affecting the out of pocket medical expenditure on hospitalization. Household size has very less positive impact on out of

pocket medical expenditure on hospitalization. Social factors have significant positive impact on out of pocket medical expenditure on hospitalization. Among the social factors caste has emerges as the most determining factor of the level of out of pocket health expenditure with regression coefficient 0.47. Residence in urban areas has negative impact shown by beta value (-0.29) on out of pocket health expenditure on hospitalization. R-square for the above model is 0.17 that is the set of predictors considered in the model are explaining 17% of the variation in the dependent variable. Over all we see that household economic status; caste and place of residence are significant in determining out of pocket medical expenditure on hospitalization.

VI SUMMARY AND CONCLUSIONS

Our main aim in this study has been to examine the levels and determinants of the medical expenditure and out of pocket medical expenditure on hospitalization at household level in India. In the process, we have examined the distribution of households by source of finance for medical expenditure on hospitalization and also explored the distributional aspects of the medical expenditure and out of pocket medical expenditure at household level across the subgroups of the population. The study reveals that distribution of both medical expenditure and out of pocket medical expenditure on hospitalization at household level is positively skewed that is the distribution of the above two longer tail on the right side. Findings from the study show significant regional variations in the both medical expenditure and out of pocket medical expenditure. The study confirms that household economic status is the important determining factor of the level of medical expenditure on hospitalization at the household level. Household economic status have also been found to significant in positively determining the level of out of pocket health expenditure on hospitalization at the household level. Social factors like education of the head of the household, caste and religion too are determining the level of medical expenditure and out of pocket health expenditure. However, household size has been found to have very less impact on the level of medical expenditure and out of pocket medical expenditure on hospitalization. Urban place of residence has been found to negatively affect medical expenditure and out of pocket medical expenditure.

Results of the study show significant variations in the source of finance across the subgroups of the population. The study finds regional variations in the source of finance of medical expenditure. Household's economic status is closely related to the source of finance. In the lower economic status category comparatively lower percent of households are financing their medical expenditure on hospitalization through personal savings but relatively higher percentage of the households are financing medical expenditure through borrowing or contribution from family or friends. Caste groups too have similar pattern of financing their medical expenditure. From the above discussion we can conclude that there are regional variations in the source of finance of medical expenditure. There are socioeconomic differentials in the source of finance for medical expenditure of households. Economic status of the households is closely associated with the medical expenditure and out of pocket medical expenditure on hospitalization. Distribution of the medical and out of pocket medical expenditure is positively skewed for all the subgroups of the population and there is high variability in the medical and out of pocket medical expenditure on hospitalization.

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