

Health insurance coverage and its impact on out-of-pocket expenditures at a public sector hospital in Kerala, India

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ABSTRACT

Background: Health insurance coverage ensures protection from catastrophic health-care expenditure, especially to the underprivileged sections of society. Health insurance schemes such as Ayushman Bharat are coming up in addition to the existing schemes such as Rashtriya Swasthya Bima Yojana in India. The objectives are to find the health insurance coverage and its impact on out-of-pocket (OOP) expenditure for public sector tertiary health-care hospitalization. **Methods:** A cross-sectional study was conducted at a tertiary care hospital in Kerala. Insurance coverage was assessed among patients seeking inpatient care in various medical and surgical departments. OOP expenses incurred for those receiving and not receiving insurance coverage were compared. In addition, factors influencing enrolment and availing of insurance schemes were determined. **Results:** The coverage of health insurance was found to be 74%. Awareness campaigns and activities of local self-government (LSG) departments were the important reasons for enrolment and availing, respectively. Significantly lower OOP expenditures occurred in insured persons with regard to expenses incurred for treatment procedures ($P = 0.019$), investigations ($P = 0.004$), and medicines ($P = 0.001$). Among the enrolled patients, 45% expressed dissatisfaction regarding available services. **Conclusion:** A quarter of patients still remain out of insurance coverage. All patients are incurring OOP expenditures, though the insured patients have significantly lower OOP expenses. The role of primary care providers and LSG is pivotal in creating awareness and ensuring enrolment. Availing services depend on the availability of resources at the respective institution. Improvements in enrolment and use of health insurance should ultimately result in improved patient satisfaction.

Keywords: Health economics, health insurance, India, out-of-pocket expenditure, universal health coverage

Introduction

Universal health coverage (UHC) is one of the targets and a solid platform for achieving health-related sustainable development

goals (SDGs).^[1,2] UHC is achieved when “all people receive quality health services that meet their needs without exposing them to financial hardship in paying for them.”^[3] At the same time, achieving UHC and guaranteeing equal access to quality, essential health services are pivotal steps in ensuring fundamental human rights.^[4] There is no one-size-fits-all approach to meet this goal. UHC demands a strong health system that is well governed and sustainably financed. Each country needs to find its own set of health financing reforms to move toward UHC.^[5,6] Health-care

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financing is concerned with the generation, allocation, and use of financial resources in the health system and not merely an approach to mobilize funds for health care.^[7] Globally, it is increasingly recognized as an area of major policy relevance to achieve UHC.^[8]

Major health financing mechanisms across most of the South-East Asian countries are out-of-pocket (OOP) expenditures.^[9] In India, majority of total health expenditure is sourced by the households through OOP payments which is acknowledged to impoverish individuals and households.^[10,11] In such a situation, supportive roles of the government in providing and financing health care assume crucial importance in restricting the financial burden and preventing catastrophic health expenditure.^[12] Health insurance is considered as a promising means for achieving UHC by the World Health Organization.^[13] The purpose of health insurance is to increase the access and use of health services by making it more affordable and to mitigate the financial consequences of ill health by distributing the costs of health-care services across all members of a risk pool.^[14] However, penetration of insurance is low in India either due to lack of awareness or the state of functioning of the available health insurance schemes.^[15] The present study estimates the health insurance coverage and its impact on OOP expenditure for tertiary health care hospitalization in Kerala. The study specifically looks at factors facilitating insurance enrolment and usage and the health insurance usage at a public sector tertiary care institution. In addition, a comparison is made between the OOP expenses incurred for patients availing and not availing insurance along with the sources and implications of such expenses.

Materials and Methods

The study was conducted as a cross-sectional study at a tertiary care hospital at Thiruvananthapuram, Kerala, from August 2018 to October 2018. The institution is a premier tertiary care teaching hospital catering to the southern part of the Kerala state. The departments of internal medicine, general surgery, orthopedics, and otorhinolaryngology (ENT) were selected so as to capture patients seeking both medical and surgical care. Other departments such as pediatrics, obstetrics and gynecology, oncology were excluded, as these departments catered to predominantly to specific categories of patients, and the findings may not be generalizable across a larger spectrum of diseases/conditions. In addition, the maternal and child care services are covered under specific central and state government schemes. Details of such patients will not be comparable to the general insurance coverage which is common to the departments chosen for this study. The study participants were inpatients admitted to the four departments. Only those patients who had settled all the expenses and were getting discharged on a particular day were included in the study. Patients who were continuing treatment on the day of interview or not giving consent were excluded from the study. The sample size was calculated by the formula $(3.84pq/d^2)$ where P is the proportion of coverage of health insurance in the state. The National Family Health Survey 4 estimates the

coverage to be 47.7% in Kerala. The sample size was calculated to be 106 and adopted as 120 for the study. Each half of the patients was recruited from medical (internal medicine – 50%) and surgical (general surgery – 20%, orthopedics – 20%, and otorhinolaryngology – 10%) departments. The hospital ward from which the patients were to be recruited on a particular day was selected by lot from the list of all wards coming under the four departments. The study participants were recruited by simple random sampling from among the inpatients getting discharged on each day. Patients were recruited from only one ward on each day. As a validated questionnaire in the local language was unavailable for the study setting, a questionnaire was developed and piloted. Based on the piloting, the questionnaire was edited and modified by health professionals who are experts in costing assessments. Ethical clearance was obtained from the Human Ethics Committee (HEC.No. 11/42/2018/MCT) of Government Medical College, Thiruvananthapuram. Written informed consent was obtained from all participants.

Details were obtained regarding sociodemographic factors such as age, gender, socioeconomic status (determined by the color of Public Distribution System [PDS] card issued by the government), residence, education, occupation; ailment, enrolment and utilization of insurance schemes, OOP expenditures, indirect expenses, and various other factors. Available bills were examined wherever possible at the end of the interview for verifying the information obtained. Confidentiality was maintained and all data collected were used for the purpose of this study only.

The statistical analysis was done using Statistical Package for the Social Sciences 16.0 (SPSS Inc. Released 2007. SPSS for Windows, Trial Version 16.0. Chicago, SPSS Inc.). The proportion of inpatients covered by health insurance was computed and expressed in percentage. Patients who availed health insurance were compared with those who did not avail insurance for evaluating the OOP expenditures. Only the expenses related to the present episode of illness and hospitalization were considered. An inferential analysis was done to compare the expenses of the insured and noninsured patients. The normality of the variables was tested. Mann–Whitney U-test and Wilcoxon W and Z test were used for the analysis.

Results

The present analysis includes details of 120 inpatients admitted in four departments of the tertiary care hospital. The study participants included 65 males and 55 females. The mean (standard deviation [SD]) age of the study participants was 47.89 (19.6) years and the median (interquartile range [IQR]) age was 49.50 (31.60) years. Eleven percent of the participants were from the most economically backward sections of the society. The demographic and socioeconomic characteristics of the study participants are given in Table 1.

The study found that 97 (80.8%) among the 120 were covered under some form of health insurance scheme. Of 97 enrolled

Table 1: Demographic and socioeconomic characteristics of the study participants

Characteristics	Frequency (%)
Age (years)	
<18	5 (4.2)
18-25	14 (11.7)
26-35	16 (13.3)
36-45	16 (13.3)
46-60	40 (33.3)
>60	29 (24.2)
Gender	
Male	65 (54.2)
Female	55 (45.8)
Educational status	
Illiterate	12 (10.0)
Primary	13 (10.8)
Middle school	21 (17.5)
High school	44 (36.7)
Higher secondary	22 (18.3)
Graduate and above	8 (6.7)
Number of members residing in household	
≤5 members	102 (85.0)
>5 members	18 (15.0)
Socioeconomic status*	
Yellow (lowest)	13 (10.8)
Pink	64 (53.3)
Blue	27 (22.5)
White (highest)	15 (12.5)
No PDS card*	1 (0.8)
Any land owned by family	
Yes	101 (84.2)
No	19 (15.8)
Caste	
Schedule caste/schedule tribe	29 (24.2)
Other backward caste	60 (50.0)
General	31 (25.8)
Religion	
Muslim	13 (10.8)
Christian	16 (13.3)
Hindu	91 (75.8)
Occupation status	
Unemployed (including housewives)	54 (45.0)
Manual labourer	20 (16.7)
Skilled	18 (15.0)
Shop/office	14 (11.7)
Professional	1 (0.8)
Student	8 (6.7)
Others	5 (4.2)
Place of residence	
Panchayat	82 (68.3)
Municipality	4 (3.3)
Corporation	34 (28.3)

*Based on PDS card issued by government for providing nutritional support. PDS=Public Distribution System

in health insurance, 8 participants dropped out later and were not covered under any scheme at the time of this study. Hence, insurance coverage was available for 89 (74.2%) of the 120 participants. The median (IQR) years of insurance coverage for the patients was 4 (2.6) years and mean (SD) was 4.78 (3.55)

years. Of the 31 participants who are not enrolled in any health insurance, 24 (77.4%) were aware of health insurance, whereas 7 (22.6%) were not aware of any health insurance scheme. Among the enrolled participants, 87 (97.8%) were enrolled in Rashtriya Swasthya Bima Yojana (RSBY) and 2 (2.2%) in other insurance schemes.

Among the 97 participants who were enrolled in health insurance at any point during their lifetime, 58 (59.8%) acquired the knowledge regarding health insurance from awareness campaigns, 18 (18.6%) from media, 13 (13.4%) from friends/relatives/neighborhood, and 8 (8.2%) during hospital visits. The main reason for enrolling a health insurance scheme among these 97 participants was motivation from health/local self-government (LSG) mechanisms as informed by 65 (67%) participants. Other reasons were having a low income in 13 (13.4%), motivation from friends/family in 7 (7.2%), self-motivation in 6 (6.1%), previous occurrence of illness in 4 (4.1%), and hospitalization of other family members in 2 (2.06%). Reasons for nonenrolment were unawareness (7.5%), lack of interest (1.7%), unsuccessful application (1.7%), cumbersome procedure (0.8%), unavailability of PDS card (0.8%), and due to other varied reasons (6.7%).

Forty (44.9%) among the 89 presently enrolled participants were not satisfied with the insurance services. Despite being enrolled, 13 (14.6%) patients were not availing complete benefits under the insurance due to the unavailability of the prescribed medication or due to exhaustion of permissible financial limits. In addition, several other factors such as acute occurrence of illness, cumbersome processing, and shorter duration of inpatient admission hindered availing of services for the registered beneficiary.

Among all study participants, 85 (70.8%) were currently having debt due to past or present inpatient hospitalization. One participant had to change to a low-cost residence and in another family a dependent member had to take up job due to financial compulsion. Both of them were availing insurance for their present hospital admission and both of them belonged to the lower socioeconomic category (Pink PDS card).

The bulk of the OOP expenses were for treatment procedures/implants followed by expenses for investigations and then for medicines. OOP expenses for food were also found to be not meager. Significantly lower OOP expenditures occurred in insured persons with regard to expenses incurred for treatment procedures/prosthesis/implants ($P = 0.019$), investigations ($P = 0.004$), and purchase of medicines ($P = 0.001$). As expenses for food and travel are not covered under insurance, no significantly different expenditures occurred for both.

Details of expenses in each category and bivariate analysis of cost incurred for participants with and without insurance are given in Table 2. Inability in availing health insurance was not significantly associated with lower SES, female gender, lower caste, or higher number of family members.

Table 2: Out-of-pocket expenditure incurred for participants

Cost incurred in INR for	Insurance not availed (n=31), mean (SD)	Insurance availed (n=89), mean (SD)	Insurance not availed (n=31), median (IQR)	Insurance availed (n=89), median (IQR)	P*
Treatment/procedures/prosthesis/ implants/other items for treatment	7277 (13,764)	3329 (9617)	1000 (0-6000)	0 (0-1800)	0.019
Investigations (general and specific minor investigations that were done until discharge)	2765 (2016)	1750 (2463)	2610 (1000-4000)	1000 (335-2000)	0.004
Medicines	3835 (8196)	615 (916)	1000 (100-3500)	200 (0-1000)	0.001
Food	2054 (2582)	2275 (2744)	1200 (600-2500)	1500 (775-2600)	0.54
Travel	873 (1352)	1122 (1517)	400 (0-1200)	520 (0-1550)	0.45
Lodging	95 (439)	0 (0)	0 (0)	0 (0-0)	0.016

*Mann-Whitney U-test. SD=Standard deviation, IQR=Interquartile range

Discussion

In a health system where OOP expenses are the predominant source for meeting medical costs, the opportunity for appropriate health care services is constrained by the ability to pay.^[16] It is in this context Government of Kerala took up the RSBY scheme along with Comprehensive Health Insurance Schemes in 2008 with an objective to protect below poverty line individuals from an economic burden. RSBY caters to the economically poorer sections of the society. This study explored the coverage of health insurance and OOP expenditure for the insured and uninsured.

The coverage of RSBY scheme is not 100% even in Kerala, despite high literacy rate and health indicators.^[17] In our study, 80.8% were covered under some form of health insurance scheme with a majority, 97.9%, being enrolled to RSBY, which is greater than other parts of India.^[18,19] Studies show that major factors contributing to poor coverage were found to be lack of awareness and political will.^[17,20] It was found that only 5.8% were totally unaware of any health insurance schemes in this study population. Among those enrolled in any form of health insurance, 58 (59.8%) acquired the knowledge regarding health insurance from awareness campaigns and 67.01% of participants stated that the main reason for enrolling a health insurance scheme was motivation from health/LSG authority. This finding is distinct as the awareness regarding insurance came mainly from media and friends/relatives in other parts of India.^[18,19] The finding points to the role that LSGs have to play in increasing awareness and improving uptake of public sector health insurance programs. The increasing role of LSGs in the day-to-day functioning of primary and secondary care public sector institutions in Kerala has helped a lot in this. Any matter related to health gains much traction politically, thereby making the administrators focus more on health-care needs of the local community. As 67% of the insured were made aware of health insurance by health or LSG departments, the primary care physicians have a very important role in increasing the health insurance coverage of the local community. Primary care physicians can motivate the patients and also act as a liaison between the patient and the LSGD for rapid enrolment of the financially deprived or chronically ill patients in the primary health-care center area. The OOP health expenses leading to catastrophic health expenditure is an occurrence of concern

in primary care settings in India.^[21] Newer schemes such as Ayushman Bharat offers ample opportunities for reducing OOP from primary care settings itself.^[22]

Several studies from India and other countries have found that insurance schemes are effective in providing financial risk protection.^[23-25] In our study, we found that OOP spending among insured patients is significantly less than that of uninsured. However, both the categories of patients seem to incur large OOP expenses for both treatment and investigations. However, expenses related to food and travel were found to be significantly higher in those patients who were covered by insurance. This could be due to the diversion of saved expenses for improving the nutrition. The noninsured is unable to find monetary resources for food and safe travel. Nevertheless, it is also evident from most studies in India that despite the coverage with government insurance, patients continue to incur OOP expenditure.^[26-28] Among the insured, around 45% of those who availed insurance were not satisfied with the services as not all the cost of hospitalization was covered by insurance. The short duration of stay, unavailability of funds and medicines, emergency procedure, and noncoverage of services such as electrocardiogram were some of the factors that hindered availing of services.

Studies have shown that OOP expenditure on health has potentially important consequences for household living standards by getting trapped in long-term loans and debts leading to impoverishment.^[9,29] Among the participants, 85 (70.8%) people had taken loans from some source and were in debt due to multiple inpatient hospitalizations. A household confronted with an illness need to meet varied expenses which include the cost of treatment, transportation to hospital, and the cost of caregiver besides other routine household expenses. Households may simultaneously adopt coping strategies such as borrowing money at high interests, shifting of house, and taking up of job. In a state like Kerala where health care seeking behavior and health-care utilization is high, financing the compulsory health-care needs might increase the proportion of the hidden poor resulting in cumulative poverty impact in subsequent years.

Conclusion

In a country where people buy health care even at the cost of

their livelihoods, proactive measures must be adopted to protect people from catastrophic health-care expenses. Despite a majority of the participants being enrolled in insurance schemes, the OOP expenses still continue to burden the family members of the patient. The existing health-care financing schemes should be assessed at various tiers. Existing health insurance services should be improved to make them more accessible, available, affordable, and acceptable to all beneficiaries starting from the primary care level itself. Based on the observations from this study and in view of recent nationwide implementation of the Ayushman Bharat scheme, periodic appraisals of insurance schemes must be done to ensure improved services to the people.

Limitations

Even though bills were examined wherever possible, self-reported expenses were also calculated and included which may lead to minor variations (over or underestimation) in the expenses due to chances of recall bias. Nevertheless, this error will be minimum as details regarding the present hospitalization alone were obtained.

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Conflicts of interest

There are no conflicts of interest.

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