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Awareness on health insurance and health care costs among noncommunicable disease patients attending a tertiary care centre

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ABSTRACT

Background: The silent epidemic of non-communicable diseases threatens to retard the progress towards curbing catastrophic health expenditure. The present study aimed to describe the level of awareness about and utilisation of health insurance and to measure the healthcare costs for non-communicable diseases.

Methods: A total of 354 adult patients suffering from non-communicable diseases, who reside in Villupuram district and attend the NCD clinic in the Government medical college hospital, Villupuram were studied over a period of 6 months.

Results: 77% of the subjects were aware of health insurance. The most frequent source of information was local government officials and the hospitals themselves. 74.01% had availed some form of health insurance. There was a moderately strong correlation between loss of wages and total health expenses. The incidence of catastrophic health expenditure due to NCD clinic visits was around 7%.

Conclusions: The absence of outpatient costs in the covers of most health insurance schemes may be decreasing their effectiveness in controlling catastrophic health expenditure.

Keywords: Health-insurance, Health-expenditure, Universal health coverage

INTRODUCTION

The twenty-first century has seen a rapid health transition, wherein the wave of non-communicable diseases (NCDs) is rising with crucial impacts on health and socio-economic productivity. India, being the second most populous country in the world, has emerged as a major victim of this transition. More than 15% of the global NCD deaths occur in India and NCDs account for 60% of all the deaths in the country. The estimated income losses from heart disease, stroke and diabetes for 2015 in India was US\$ 54 billion.

As India strives towards the sustainable development goal 3.8 for achieving universal health coverage, the challenge posed by NCDs is especially daunting. Although several high-yield cost-effective primary and

secondary preventive interventions are available, their availability is quite low, even more so in poor and rural populations. Health expenditures in all socio-economic groups were higher for chronic diseases than for infectious diseases. Furthermore, more was spent on private sector care than public sector services. A majority of the people suffering from NCDs had the additional burden of the high out-of-pocket expenses to meet healthcare needs.²

A mechanism for risk-pooling or health insurance has been proven to be essential for financial risk protection in the current politico-economic climate. A number of health security schemes have been launched by the central and the state governments in India to cover different geographical and occupational groups. In Tamil Nadu, financial access to tertiary care is protected

through the chief minister's comprehensive health insurance scheme.³ Still most of these schemes focus almost entirely on tertiary care and mostly do not account for many of the hidden costs like loss of wages, travel and food expenses, laboratory investigations etcetera. These monetary concerns are accentuated in the case of non-communicable diseases due to chronicity and complex multi-organ involvement.

The objectives of this study were to a) estimate the proportion of NCD patients who are aware of health insurance, b) assess the pattern of availing and willingness to adopt health insurance schemes along with significant associated factors, and c) estimate the direct and indirect costs incurred by them due to their health status. Very few studies have been conducted in rural Tamil Nadu to characterize the above parameters.

METHODS

A cross-sectional analytical study was conducted in the non-communicable diseases out-patient clinic in the Government Villupuram medical college and hospital, Villupuram, Tamilnadu. Adults more than 18 years of age, residing in Villupuram district and attending the outpatient clinic for obtaining monthly drugs, were included as the study subjects. Using the awareness about health insurance of 64% in a study by Reshmi et al and 95% confidence intervals, the sample size was estimated to be 354 using OpenEpi.⁴ Patients attending the clinic during the study period from January 2018 to June 2018 were included in the study. Informed written consent was obtained in the local vernacular language after explaining the purpose and methods of the study. The procedure was repeated each day till the desired sample size was reached. Data was collected using a pre-tested, semistructured questionnaire in the local language. The questionnaire was validated after pilot testing. Privacy and identity of the participants were ensured at all steps.

The data was entered using EpiData and analysed using EpiInfoTM version 7.2. Tabulation of data and relevant diagrams were constructed. Numerical data was presented as mean and median along with standard deviation and interquartile ranges respectively. Categorical data was presented in percentages. Numerical variables like age and income were compared using t-test and ANOVA wherever applicable. The results were expressed along with 95% confidence intervals.

RESULTS

A total of 354 subjects were interviewed. The sociodemographic characteristics of the population are displayed in the Table 1.

Just above one-thirds (35.31%) of the subjects had to travel less than 5 kilometers for each visit to the clinic. Nearly two-fifths had to travel more than 10 kilometers to

reach the hospital during each visit. Travel by bus was the predominant mode of transport (Table 2).

Table 1: Socio-demographic characteristics.

Variable	Mean±SD, n (%)		
Age (years)	57.05±11.97		
Gender			
Male	236 (66.7)		
Female	118 (33.3)		
Socio-economic status			
Upper middle	8 (2.3)		
Middle	195 (55.1)		
Upper lower	140 (39.5)		
Lower	11 (3.1)		
Family income	5574.85±3930.79		
No. of family members			
Up to 4	317 (89.5)		
> 4 members	37 (10.5)		
Number of dependents			
0	209 (59)		
1 to 2	129 (36.4)		
>2	16 (4.5)		

Table 2: Mode of transport to hospital and distance travelled.

Mode of transport	n (%)		
Bus	279 (78.8)		
Own vehicle	72 (20.3)		
Walk	3 (0.8)		
Distance from hospital			
<5 km	121 (34.2)		
5-10 km	96 (27.1)		
>10 km	137 (38.7)		

Most of the study participants were non-smokers (65.8%) and non-alcoholic (64.4%). Similarly, the majority (74.6%) were not pan/betel nut chewers. Around three-fourth of the interviewees suffered from diabetes (74.6%) and hypertension (76.8%). Only 11.9% of the subjects suffered from coronary artery disease and 7.3% from COPD/bronchial asthma (Table 3).

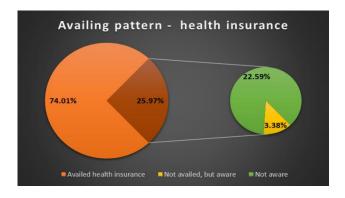


Figure 1: Availing pattern-health insurance.

A majority of the participants were aware of health insurance (77%). The most frequent source of information regarding health insurance were the local governing bodies (in 54.4% of the participants). Around one-fourth of the subjects are informed by and in hospitals. The media (13.9%) and friends/family (6.2%) were relatively minor sources.

As seen in Figure 1, 74.01% of the study participants had availed health insurance. Among those who had not availed, 22.59% did not avail due to lack of awareness. Only 3.38% did not avail despite being aware.

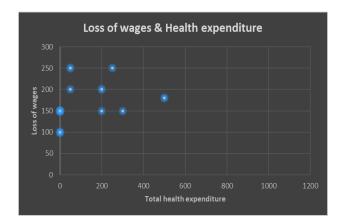


Figure 2: Loss of wages and health expenditure.

Out of all the non-food expenditure, the total health expenditure was 650 Indian rupees on average which included expenses for drugs, laboratory investigations and hospital visits. Since most participants were daily laborers, expenses incurred were due to missed visits to the government hospitals (Table 4).

Average loss of wages per visit was Rs. 169.52, ranging from Rs. 100 to Rs. 250. The Pearson's correlation coefficient between loss of wages and the health expenditure was 0.31. This correlation was found to be statistically significant (p=0.046). This suggests that there

is a moderate degree of positive correlation between the two variables.

Table 3: Substance abuse history.

Substance abuse	n(%)
Smoking	
Currently smoking	48 (13.6)
Quit smoking	73 (20.6)
Non-smoker	233 (65.8)
Alcohol	
Currently consumes	63 (17.8)
Quit alcohol	63 (17.8)
Non-alcoholic	228 (64.4)
Pan/betel nut chewing	
Currently using	54 (15.3)
Quit chewing	36 (10.2)
Non-chewer	264 (74.6)

The interquartile range of the travel time for the patients lies between 25 and 50 minutes. The interquartile range for the total time taken for the visit to the clinic is between 60 minutes and 110 minutes (Figure 3).



Figure 3: Waiting time at hospital and total time (in minutes).

Table 4: Monthly expenditure pattern (in Indian rupees).

Expenditure	Mean (95% C.I)	Median (IQR)	Range
Total monthly expenditure	5687 (5313-6062)	5000(3000-7500)	2000-25000
Food expenses	2389(2263-2515)	2500(1500-3000)	1000-10000
Drugs	302.61(263-341)	200(100-500)	30-800
Laboratory	57.89(39.47-76.32)	50(50-100)	0-100
Hospitals	286.84(253.16-320.53)	250(200-350)	100-500
Total health expenditure	650(337.18-962.81)	650(300-1000)	300-1000

Table 5: Number of dependent family members and health expenditure.

Number of dependents	Average health expenses	Standard error mean	Mean difference	S.E difference	95% CI for difference
<3	162.78	13.112	-174.119	62.981	-298.584 to -50.853
3 and above	337.5	85.33			

Table 6: Socio-economic status and health expenditure.

Socio-economic status	Health expenses	95% CI	F statistic	p value
Middle class	162.56	127.10 - 198.03		
Upper lower class	165.71	126.45 - 198.03	8.348	< 0.001
Lower class	501.82	361.93 - 641.70		

From Table 5, it can be inferred that there was almost doubling of mean health expenses from households with less than 3 dependents to household with 3 or more dependents. This increase in health expenses with increase in number of dependents in the household is statistically significant.

The monthly expenditure on health for non-communicable disease OPD visits was compared across the socio-economic classes. As seen in Table 6, it was found that there is a statistically significant difference (p<0.001) between the socio-economic groups, with the lower classes spending higher amounts.

DISCUSSION

The present study found awareness about health insurance to be around 77%, which is relatively high for a rural district. Pandve and Parulekar which was conducted in a rural area found awareness to be 16%.⁵ When compared to the IRDA Pre-Launch insurance awareness survey of 2010 which estimated awareness at 54%, the present finding suggests an increase in awareness over time. Goel et al found similar levels of awareness (76%).⁶ The major sources of information about health insurance were the local governing bodies and the healthcare establishments. This is in stark contrast to Indumathi et al where 76.2% were informed by family and friends) and Bawa and Ruchita (insurance agents and the television dominant).^{7,8}

It was found in the present study that 74% of the interviewees had availed of health insurance schemes at some point. This is high compared to estimates by Indumathi et al (66.9%), Goel et al (30.8%) and Bawa and Ruchita (19.4%). This may be due to proactive, aggressive promotion of certain government-sponsored health insurance schemes by the local government.⁶⁻⁸

The finding that drugs constitute around 46% of total health expenditure on non-communicable diseases on an average, is in line with studies like Kankeu et al. He notes that medications frequently constitute the largest part of expenditure of NCDs like diabetes. Similarly, Grover et al note that studies have shown the indirect cost for diabetes patients and their caregivers to be around 29% of the total treatment cost, with the loss of income being the greatest contributor. In the present study, the proportion was 26%.

The present study calculated the proportion of subjects who suffered from catastrophic outpatient expenses for

treatment of non-communicable diseases at 7.6%. This finding was higher than the 1.1% and 6.1% for catastrophic health expenditure due to outpatient out-of-pocket (OOP) expenses and OOP for drugs respectively, as per Saksena et al.⁹

This rate of catastrophic health expenditure is further compounded by the loss of wages of nearly INR 170 per visit to the non-communicable clinic. Since the district in which this study was conducted is a rural district with nearly half the population working as agricultural workers and with a per capital annual income only around half of the mean income in the state of Tamil Nadu, the loss of wages can be devastating to each subject.

It can be concluded that the awareness and utilization of health insurance is relatively higher in the present study population. Still catastrophic health expenditure is occurring at a comparatively higher rate. This suggests that there are many lacunae which needs to be bridged, of which the most pertinent may be the absence of outpatient costs and indirect costs in insurance coverage. If the country is to progress to universal health cover, then such bridges must be crossed at the earliest.

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Institutional Ethics Committee

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