Original Article

Correlates of Inpatient Healthcare Seeking Behavior in India

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Abstract

Objectives: The present study was attempted to study the in-patient health care behaviour, particularly choice of health care providers and their determinants. *Methods*: An analysis for treatment seeking behavior of 5989 inpatients which implied to 6726 hospitalized cases due to five ailments namely, heart, diarrhea, tuberculosis, urinary and gynecology diseases in India during the last 365 days prior to survey date has been revealed in this paper using data from the 60th round of National Sample Survey, 2004. Multivariate logistic regression model has been adopted to understand the correlates of being inpatients and of opting private hospitals. *Results*: It is evident that crowded household, being female, having higher educational level, living in lower income households, and living in urban residents have lower chances of being hospitalized compared to their respective counterparts. Maximum people opted for expensive private health sector which accounts for around 59 per cent. This study also reveals that many people had some form of treatment before being an inpatient where 59 per cent had past treatment. *Conclusions*: Patients from the highest quintile of MPCE have higher chances of being hospitalized and also of choosing costly private health care sector. Significant differences were found within age, sex, education, residence and monthly per capita consumption expenditure for hospitalization. Older age groups, highly educated and urban patients have higher instances of choosing a private sector.

Key words: Health seeking behavior, Health care determinants, Inpatients, Public & private.

Introduction

Health care seeking is a central issue in the treatment of morbidity[1]. Illness or deviation from state of good health is a subjective awareness of an individual, cure or relief from it may be sought within or outside of medical and health facilities. Socio-economic status, whether measured by education, income or other indices of social class, has long been known to be associated with attitudes and health care practices. There are host of personal background which can influence treatment-seeking. Grover et al have made an attempt to assess the influence of socio-demographic factors on different aspects of treatment-seeking actions among adult chest symptomatic[1]. In terms of disease burden there seems to be an even greater burden on the rural than the urban population in India[2]. In the rural areas, the quality of these services, especially government services is of very poor quality, forcing individuals to visit the private sector instead[3, 4]. Also, indirect costs like those associated with travel to the facilities act as deterrents for the rural population[5]. Recent evidence indicates that in rural areas, individuals accessing private practitioners often end up going to providers who are not legally qualified to dispense medication[6]. Thus in terms of price, accessibility and quality, the rural Indians are probably much worse off than their urban counterparts.

An extensive primary heath care infrastructure provided by the government exists in India. Yet it is inadequate in terms of coverage of the population, especially in rural areas, and grossly underutilized because of the dismal quality of health care provided, and most public health centers which provide primary health care services, drugs and equipments are missing

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or in short supply, there is shortage of staff and the system is characterized by endemic absenteeism on the part of medical personnel due to lack of oversight and control[7]. India has one bed for every 1489 people for a total of 6,90,000 beds out of these 74 per cent are owned by the Government[8].

Most people in India, even the poor, choose expensive health care services provided by the largely unregulated private sector[9, 10]. Not only do the poor face the double burden of poverty and ill-health, the financial burden of ill-health can push even the non-poor into poverty[7]. Nevertheless, India's health system performance requires much improvement in comparison with other emerging economies, including most nations in the region to ensure efficient and effective delivery of good quality health services. Adequate and affordable health care services are not received by a vast majority of India's population. Thus the study was attempted to understand the entire mechanism of utilization of health facilities, particularly of hospitalization services by different sections of population. Primary objective was to study the in-patient health care behaviour, particularly choice of health care providers and their determinants.

Materials and Methods

This paper is based on the data collected on morbidity and health care along with expenditure incurred for treatment therein by healthcare sector and type of ailments from a nationwide representative sample of 73,868 during January-June, 2004 in the 60th round of the National Sample Survey Organization (NSSO)[11]. The sample design adopted is a two-stage stratified design with census villages and urban blocks as the first-stage units for the rural and the urban areas respectively, and households as the second stage units in both the cases. The rural and urban sub-samples of first-stage units are drawn independently in the form of two sub-samples and equal numbers of first-stage units of each sub-sample are allocated to the two sub-rounds.

To understand health care facilities choice i.e. private versus public this study is confined to a sample size of 6726 hospitalized cases for treatment of five ailments namely, diarrhea, heart diseases, tuberculosis, urinary diseases and gynecological disorders. In the

NSSO survey a person is considered as hospitalized irrespective of his/her duration of stay in a particular hospital (public/private) if he/she had availed of medical services as an indoor patient in the hospital. Hospital, for the purpose of the survey, is referred to any medical institution having provision for admission of sick persons as indoor patients for treatment of any type of ailments. The survey is retrospective in nature and reference period for hospitalized cases is one year prior to survey date i.e. all hospitalized episode of ailments and treatment pertains to any time in the preceding year of calendar year 2004. Total expenditure incurred for medical treatment as inpatient in hospital includes bed charges, fees incurred for the services of medical and para-medical personal, medicine cost, charges for diagnostic test, operation and therapies, oxygen, blood, bandage, plaster, ambulance etc. All other types of expenditure incurred for treatment, such as, lodging charges of accompanying persons, attended charges, cost of transport other than ambulance, and cost of personal medical appliances, were excluded from medical expenditure. Again to identify the factors responsible for hospitalization a second data set is used comprising of both hospitalized and non-hospitalized. This data set consists of 309059 individuals.

The survey instrument also captured: (a) general information about the household and its members; (b) health care utilization and resulting expenditures; and (c) monthly consumption in order to determine socio-economic status. Income groups were determined based on household monthly consumption quintiles, and were used throughout to compare various indicators by rich and poor. The member characteristics considered in this study are age, sex, educational attainment and place of residence. The socio-demographic determinants of health seeking behavior as well as choice of providers i.e. public/private facilities were examined by means of multivariate logistic regression. The logistic regression model: $logit\ (p_i) = b_i X$ .... (1) or the linear form, $ln(p_i/[1-p_i]) = b_i X_i$, where p_i is the estimated probability of a particular event occurring to an individual with a given set of characteristics, X_i. The ratio $p_i/[1-p_i]$ is the odds ratio of individuals with a given set of characteristics hospitalized versus non-hospitalized is used to understand the factors determining the health seeking of a person as an

inpatient from any healthcare sector. The same logistic regression model is again used to understand the factors determining the choice of private hospitals against public hospitals. Most estimates in this paper are presented with 95% confidence intervals to give a picture of variability of that particular estimate. Categorical data are compared with the Pearson chi-square test.

Results

Table 1 shows percentage of hospitalized cases and corresponding 95 per cent confident intervals by different individual and household characteristics of patients. Differential by sex, age, educational level, living standard and residence were found to be statistically significant. It is noted that there are higher chances of hospitalization for those patients who are in higher age groups, being male, educated upto secondary, belonging to the richest MPCE quintile households and residing in urban areas for treatment of any form of ailment considered in the study. To understand the complete inpatient healthcare behavior it is inevitable to capture the socio-demographic factors influencing the incidence of hospitalization. The results of logistic regression for the odds of hospitalization are shown in Table 2. It is evident that crowded household, being female, having higher educational level and living in urban residents have lower chances of being hospitalized compared to their respective counterparts. To understand the effect of economic status on the probability of hospitalization, the quintiles of monthly per capita expenditure (MPCE) variable is included in the model as a proxy for economic status. It is found that higher the economic status the higher is the odds for hospitalization. Those who are in the richest MPCE quintile have 39 per cent more likely to be hospitalized as compared to those in the lowest quintile and this effect is statistically significant at 5 per cent level of significanance. Urban residents have 0.03 per cent less likely to hospitalize than their rural counterparts and is significant at 5 per cent level. Also those 60 years and above have 3.4 times more likely to be reported as being hospitalized as compared to those in the age group 0-14 years and this are also statistically significant at the same level.

The penetration of private sector into India's healthcare system is evident from the public-private

Table 1: Frequency of reported hospitalization by selected characteristics

Characteristics	Reporting hospitalized	p-value*
Age group	% (95% CI)	<0.001
0-14 years	4 (4-5)	
15-34 years	6 (6-7)	
35-59 years	12 (11-12)	
60+ years	15 (14-15)	
Sex		<0.001
Male	8 (8-9)	
Female	7 (7-8)	
Education		<0.001
Illiterate	8 (8-9)	
At most middle	7 (7-8)	
Secondary & above	8 (8-9)	
Income quintile		<0.001
Poorest	6 (6-7)	
Middle	7 (6-8)	
Richest	10 (10-11)	
Residence		<0.001
Rural	7 (7-8)	
Urban	8 (8-9)	

*Chi-square test

utilization pattern for inpatient treatment of diarrheal diseases, heart diseases, tuberculosis, urinary diseases and gynecological disorders is shown in Table 3. Out of the five ailments considered three ailments namely, heart diseases, urinary and gynecology, more than 60 per cent availed inpatient treatment from private hospitals.

Though except for gynecological disorders more number of males has been hospitalized for heart diseases, diarrheal diseases, tuberculosis and urinary diseases, hospitalization of females for the five ailments is also high as they constitute more than 50 per cent of the total hospitalized cases. Rural-urban differential in hospitalization cases for treatment of these five ailments is evident from the fact that more rural residents are treated for diarrheal diseases, tuberculosis, urinary diseases and gynecological disorders in hospitals. Seventy nine per cent of those treated as inpatients for tuberculosis are from rural areas. As regards the

Table 2: Odds of hospitalization by socio-demographic background characteristics of patients.

Explanatory variables	Odds ratio	95% CI
Household members	0.95*	(0.94-0.95)
Sex		
Male[R]		
Female	0.88*	(0.86-0.91)
Age group (years)		
0-14[R]		
15-34	1.51*	(1.45-1.58)
35-59	2.73*	(2.63-2.84)
60+	3.39*	(3.24-3.55)
Educational level		
Illiterate[R]		
At most middle	0.90*	(0.87-0.93)
Secondary & above	0.83*	(0.79-0.87)
MPCE quintile		
Poorest[R]		
Middle	1.13*	(1.10-1.18)
Richest	1.39*	(1.33-1.44)
Place of residence		
Rural[R]		
Urban	0.97*	(0.94-1.00)

*$p < 0.05$; [R]Reference category.

treatment history in the case of the patients suffering from diarrheal diseases, heart diseases, tuberculosis, urinary diseases and gynecological disorders more than 58 per cent of them had some form of treatment before hospitalization. Looking at the educational background of patients admitted to health institutions for treatment of any of the five diseases, it is evident that majority of the patients were either illiterate or educated upto middle school. It also comes to light from the cross classification that less number of patients hospitalized for tuberculosis treatment are from the high income household while maximum patients of heart diseases are from this high income household category measured by MPCE.

We now make an attempt to complement the foregoing discussion by multivariate analysis of differential in utilization of public versus private hospitals for inpatient treatment. For this we have adopted the logit model described in equation (1). The results are shown in Table 4.

The first column is the background characteristics of patient, types of hospital ward and ailment while the second column is odds ratio of utilization of public hospitals in comparison to private hospitals and the third column is the 95 per cent confidence intervals of odds ratio. Odds of utilization of public hospitals is higher for patients of particular background in comparison to patients taken as reference category while all other backgrounds are adjusted, in case the value of odds ratio is numerically greater than one, if not the interpretation is other way round. Age of patients has a significant bearing on the choice of public or private hospitals for inpatient treatment. Females in comparison to males have 1 percent lower odds of utilizing public health facilities; however, this is not statistically significant. It is also noted that the odds of urban residents availing public health services for inpatient treatment is 22.6 per cent higher in comparison to rural residents while all other background are adjusted and this differential is significant at $p < 0.05$. Odds of choosing public hospitals for inpatient care is lower for secondary and above educated patients compared to non-educated patients; however, the odds is higher for at most middle educated patients. Those patients who are in secondary and above education have 5 per cent lesser chance of choosing public facility than reference category of non-literate patients after controlling for other covariates, but the effect is not significant whereas, those at most middle inpatients have 22.8 per cent more significant chance of being treated in public hospital compared to illiterate inpatients. Patients with history of past treatment have lower odds, 10 per cent of depending on public hospitals in comparison to patients with no past treatment, while other factors are controlled. However, as far as differential in the choice of public or private hospitals by treatment history is concerned the apparently different value of odds ratio does no find statistical significant support. As expected patients of medium and highest monthly per capita expenditure (MPCE) households categories are less likely to utilize public hospitals in comparison to patients belonging to the lowest strata of MPCE, as evident from the lower odds ratios of utilization of public hospitals by 21.1 and 39.3 per cents among medium and highest MPCE households respectively

Table 3: Utilization of public-private hospitals and backgrounds of inpatients admitted for treatment of diarrhea, heart diseases, tuberculosis, urinary and gynecological disorders.

Backgrounds	Ailments					Total
	Diarrhea No. (%)	Heart No. (%)	Tuberculosis No. (%)	Urinary No. (%)	Gynecology No. (%)	
Hospital Sector						
Public	981(49.4)	505(38.5)	395(56.5)	406(33.1)	486(32.3)	2773(41.2)
Private	1005(50.6)	806(61.5)	304(43.5)	820(66.9)	1018(67.7)	3953(58.8)
Sex						
Male	1033(52.0)	778(59.3)	464(66.4)	866(70.6)	22(1.5)	3163(47.0)
Female	953(48.0)	533(40.7)	235(33.6)	360(29.3)	1482(98.5)	3563(53.0)
Residence						
Rural	1328(66.9)	632(48.2)	552(79.0)	734(59.9)	964(64.1)	4210(62.6)
Urban	658(33.1)	679(51.8)	147(21.0)	492(40.1)	540(35.9)	2516(37.4)
Educational attainment						
Illiterate	1097(55.2)	416(31.7)	357(51.0)	405(33.0)	640(42.6)	2915(43.3)
At most middle	718(36.1)	544(41.5)	289(41.3)	534(43.6)	509(33.8)	2594(38.6)
Secondary & above	171(8.6)	351(26.8)	53(7.6)	287(23.4)	355(23.6)	1217(18.1)
Treatment history						
Treated in the past	710(35.8)	801(61.1)	552 (79.0)	843(68.8)	1010(67.1)	3916(58.2)
No past treatment	1276(64.3)	510(38.9)	147(21.0)	383(31.2)	494(32.9)	2810(41.8)
MPCE# quintile						
Lowest	891(44.9)	276(21.0)	338(48.4)	355(29.0)	499(33.2)	2359(35.1)
Middle	631(31.8)	369(28.2)	245(35.1)	344(28.1)	483(32.1)	2072(30.8)
Highest	464(23.4)	666(50.8)	116(16.6)	527(43.0)	522(34.7)	2295(34.1)

Note: #MPCE: Monthly per capita expenditure.

after adjusting for other covariates included in this study. This differential in the choice of public or private hospitals by households purchasing power expressed as proxy by MPCE is statistically significant at $p<0.01$. The incidence of use of paying special ward in public hospitals is low in comparison to paying general ward in private hospitals as suggested by the odds ratio lowered by 1.1 per cent and this comes out to be significant. When it comes to preferential choice between public and private hospitals for heart diseases, tuberculosis, urinary diseases and gynecological disorders in comparison to that for diarrheal diseases, it is found that the odds of going to public in comparison to private hospitals for heart disease inpatients treatment is lowered by 15.8 percent and is significant at $p<0.05$, the same pattern is for the diseases of urinary and gynecology where the lesser odds of choosing public hospital are 40.2 and 43.5

per cents compared to diarrheal diseases and both the effects are statistically significant at $p<0.01$, but the preference choice of public hospital for treatment of tuberculosis is more as compared to diarrhea, 27.9 per cent more which is again statistically pronounce at $p<0.01$

In brief, patients who can afford more as measured by MPCE in this study, prefer to be treated in paying special ward and those suffering from heart diseases, urinary and gynecological problems would prefer to opt for private hospitals for inpatient treatment, while urban patients are more likely to utilize public hospitals.

Discussion

This study is an attempt to look into the health seeking behavior as inpatients and the factors

Table 4: Odds of utilization of public hospitals for inpatient treatment by patients background and ailment type.

Patient, hospital and ailment background	Odds ratio	95% CI of OR	Significance
Age[+]	1.003	(0.999 , 1.006)	0.053
Sex			
Male[R]			
Female	0.988	(0.876 , 1.114)	0.844
Residence			
Rural[R]			
Urban	1.226	(1.084 , 1.386)*	0.001
Educational attainment			
Illiterate[R]			
At most middle	1.228	(1.094 , 1.377)*	0.000
Secondary and above	0.946	(0.800 , 1.120)	0.522
Treatment history			
No past treatment[R]			
Treatment in the past	0.903	(0.809 , 1.007)	0.066
MPCE			
Lowest[R]			
Middle	0.789	(0.695 , 0.895)*	0.000
Highest	0.607	(0.523 , 0.705)*	0.000
Type of hospital ward			
Paying general[R]			
Paying special	0.099	(0.075 , 0.130)*	0.000
Ailment type			
Diarrheal diseases[R]			
Heart diseases	0.842	(0.710 , 0.999)*	0.048
Tuberculosis	1.279	(1.056 , 1.548)* ·	0.012
Urinary diseases	0.598	(0.505 , 0.706)*	0.000
Gynecological disorders	0.565	(0.480 , 0.665)*	0.000

[R]: Reference category, *significant at $p < 0.01$, [+]deviation from the mean.

responsible for the choice of public and private health care facilities for treatment of five diseases mentioned above. The focus of this study is to ascertain background of patients who are inpatients and utilizes public health facilities for inpatient care. Many studies found that most people in India, even poor choose the facilities provided by the largely unregulated private sector[9, 10]. Before identifying type of health facility used as inpatient it is important to understand the pre-hospitalization health condition of the person. It is found that more than 58.2 per cent had availed of any form of treatment before hospitalization. It is evident from the present study that for all the five diseases of diarrheal diseases, heart diseases, tuberculosis, urinary diseases and gynecological disorders more than 58 per cent of the patients got inpatient treatment from private hospitals, more apparently because of quality concerned. Poor quality of services in public hospitals has also been in other studies in the context of treatment of maternity care[12,13]. Urban patients have higher odds of utilizing public health facilities for inpatient treatment compared to their rural counterpart. This can be attributed to availability of all levels of public health facilities from hospitals down to health sub-centres in urban areas whereas in rural areas facilities of public healthcare are limited. Patients who need frequent inpatient care as measured by history of past treatment are also depending more on public health facilities. However more educated patients and those who belong to affluent households are opting for private hospitals for inpatient treatment. Patients of diarrheal diseases equally preferred public and private health care facilities.

The role of MPCE which is a proxy variable for household income is found to have association with the choice of health care sector. It is found that patients from the highest quintile of MPCE have higher chances of being hospitalized and also of choosing costly private health care sector as also evident from other studies. As expected advance age groups, highly

educated and urban patients have higher instances of choosing a private sector.

Acknowledgements

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