

Utilization of inpatient care from private hospitals: trends emerging from Kerala, India

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Background	There is a gap in knowledge on the overall role and characteristics of private health care providers in India. This research is aimed at understanding changes in the consumption of inpatient care services from private hospitals between 1986 and 2004, with a particular focus on equitable outreach.
Methods	Secondary analysis of National Sample Survey data on the utilization of inpatient care services in Kerala is performed for the periods 1986–87, 1995–96 and 2004. Household survey data are examined to understand the users of the private health system as there are limitations in obtaining reliable data from unregulated private health care providers.
Finding	The annual hospitalization rate increased from 69 per 1000 population in 1986–87 to 126 per 1000 population by 2004. The proportion of persons seeking care from private rather than government hospitals increased from 55% in 1986–87 to 65% by 2004. Concentration indices revealed that the year 1995–96 witnessed the highest income inequality in hospitalization rates. A decline both in hospitalization rates and in the relative preference for private hospitals over government hospitals among the poorest two quintiles between 1986–87 and 1995–96 indicates that the poor avoided inpatient treatment. The rich–poor divide in care seeking from private hospitals was moderated by 2004.
Conclusion	Improvements in the purchasing power of the population, and the strategy of private hospitals in this highly competitive market to generate revenue from the poorer quintiles by offering different pricing options, have reduced the observed rich–poor divide in the consumption of inpatient treatment from this sector. However, while this gap in utilization has closed, the burden of out-of-pocket expenditure is higher among the poor.
Keywords	Private providers, health services research, health care, hospitals, equity, India

KEY MESSAGES

- There has been an unprecedented increase in demand for inpatient care since the 1980s in Kerala.
- A substantial number among the poorer population quintiles have avoided seeking inpatient care during periods characterized by higher levels of health care inequality.
- Both the poor and the rich seek inpatient treatment from private hospitals, but the poor are likely to revert back to government hospitals when income inequalities in access increase.

Introduction

In health systems dominated by the private sector, as in India, understanding their properties is essential in order to develop and promote reform-oriented strategies. Health services utilization statistics indicate that the private sector accounts for around 60% of inpatient care use and 80% of outpatient care use in India (NSSO 2006a). The presence of a voluntary/charitable sector is limited, accounting for only about 4% of inpatient care and less than 1% of outpatient care (NSSO 1998). The bulk of health expenditure is incurred in the private sector. National health accounts estimates for India show that private household expenditure accounts for 72% of total health spending (MOHFW 2005). Despite its dominance and ever-increasing clout in the country's health system, policy planners have always overlooked the private sector's potential in contributing to the public policy agenda (Berman 1998; Bhat 1999; Misra *et al.* 2003). Part of this neglect arises from a lack of clarity on its scope and potential arising out of a paucity of reliable data from profit-motivated and largely unregulated private providers.

Although the public health care system provides curative care services free or at nominal cost, a high demand for private health care facilities exists for a number of reasons. According to the National Family Health Survey-III (IIPS and Macro 2007), the three major reasons cited for not seeking treatment from the public sector are: (1) poor quality of care, (2) no government facility nearby and (3) long waiting time for services. However, the evidence regarding practices in the private health care sector in India is not encouraging. Health researchers are highly sceptical about the quality of care and social responsibility of medical professionals in the unregulated private health care system (Baru 1998; Nandraj *et al.* 2001). Most of the existing literature highlights either the poor physical standards (Yesudian 1994; Nandraj and Duggal 1996) or unethical profit-motivated practices in the private sector (Phadke 1998; Bhat 1999; Thankappan 1999; Mishra and Ramanathan 2002). Despite these criticisms, the private health care sector has maintained a steady growth and its dominance in the delivery of health care services has been ever increasing.

Against this background, this is an attempt to understand selected characteristics of private hospitals in the state of Kerala, India, by examining household data on the consumption of health care services. The advantages of adopting this approach to understand the role of the private health care sector include its cost effectiveness, feasibility and the larger reliability of 'user reported' data over 'provider reported' data. In comparison with other Indian states, Kerala has the highest health care consumption in terms of frequency of health care services utilization (NSSO 2006a) as well as household expenditure incurred on health care (NSSO 2006b; Garg and Karan 2008). High literacy, the closeness of its population to health care facilities, and a higher burden of chronic life-style-related diseases are reasons cited for this relatively higher health care consumption in comparison with other states in India (Dilip 2007). In addition, Kerala's population is seen as comparatively privileged, with one of the most equitable health systems in India (Krishnan 1999; Mahal *et al.* 2002; Peters *et al.* 2002). The existence of a widespread network of government-owned health care facilities coupled with a

well-developed, physically accessible private health system have contributed to the observed level of health care access in the state.

Hospitalization is associated with catastrophic out-of-pocket (OOP) expenditure by households in India, leading to their economic impoverishment (Selvaraju 2003; WHO 2006; Garg and Karan 2009). Therefore it is possible that poorer sections will avoid or postpone hospitalization due to their inability to cope with the level of expenditure required. A positive relationship between economic status and risk of hospitalization has been noted in Kerala and is an attribute of unequal access to inpatient care services within this population (Dilip 2002). It is important to examine whether there are any fluctuations in the degree of income inequality in access to inpatient care in Kerala's health system.

Clear reasons have been cited in Kerala for the preference for private hospitals over government-owned public hospitals. A study of three districts in the state revealed that inadequate facilities, distance and inconvenient timing were the factors contributing to non-use of public health facilities (Navaneetham and Kabir 2006). Another study in rural Kerala found that better facilities were the reason for the preference for the private sector, while economic considerations formed the major reason for seeking care from a government hospital (KSSP 2006).

Such evidence indicates that demand for care from the private sector has certainly been boosted by the fiscal-crisis-induced inability of the government to provide the financial resources necessary to maintain and strengthen the government health system. The extent of the fiscal crisis can be gauged from the fact that government expenditure on health as a percentage of total government expenditure in Kerala has declined from 9.9% in 1986–87 to 4.7% by 2004–05 (Gangolli *et al.* 2005). Such a trend has been seen in the majority of states in India. On the other hand, Kutty (2000) attributes the increased availability of private health care facilities in the state to rising disposable incomes and a lack of barriers to setting up private hospitals. Thus supply-side factors also contribute to the high household health expenditure in Kerala. According to Gumber (2002), household expenditure on health as a percentage of total household expenditure is 12% for Kerala, while for India as a whole it is 6%.

However, it is agreed that the favourable environment for the growth of the private health care sector should not be at the expense of existing equity in access to health care. Levesque *et al.* (2007), while acknowledging the vital role played by the private sector in health care services delivery, caution about its capacity in serving the poorer sections and under-developed regions in Kerala. As in the case of India as a whole, knowledge regarding the characteristics of Kerala's private health system is limited. At this juncture, when the private health care sector has grown on its own and is already the major provider of health care in the state, it is time for policy planners to take serious note of the practices of the private health system and its capacity to serve all sections of society. Research on the success of demand-side strategies is expected to both complement and increase the effectiveness of interventions targeted at providers

(Mills *et al.* 2002). Against this background, the present analysis attempts to create additional evidence to support involving the private sector in a larger way in health system planning.

Methods

Secondary data published by Kerala's Bureau of Economics and Statistics and the State Planning Board are used to present an overview of changes in the size of the private hospital system in the study period. Data on use of inpatient care services are available in the household surveys on morbidity and utilization of health care services carried out by the National Sample Survey Organisation (NSSO), Government of India, during 1986–87 (42nd round), 1995–96 (52nd round) and 2004 (60th round). The number of households sampled in Kerala during these surveys was 2471, 4928 and 2829, respectively. Though there were variations in sample size, the sample design was uniform across the three surveys. NSSO adopted a two-stage stratified design in these surveys, with census villages and urban blocks as the first stage unit for rural and urban areas, respectively, and households as the second stage units (NSSO 1992; NSSO 1998; NSSO 2006).

Information on instances of hospitalization of a household member and on medical treatment received as an inpatient during the last 365 days prior to the survey date was available from the three surveys. Thus we have comparable data on hospitalization rates, type of hospital (government/private), duration of stay, type of ward and OOP expenditure incurred as part of inpatient treatment for the three time points. Hospitalizations relating to pregnancy and childbirth are excluded from this analysis. The results of analyses presented in the tables are weighted estimates. The multipliers presented in the data file when used as weights enable us to arrive at population-based estimates (all India/state-wise) from the sample obtained from the survey.

Private hospitals provide both inpatient and outpatient treatment, but the recent data (NSSO 2006a) do not give disaggregated information on type of private provider for persons who have sought treatment from the private sector. For this reason, this analysis was restricted to the provision of inpatient treatment (outpatient care excluded) in private hospitals. The NSSO collects data on consumption expenditure in its surveys because of limitations in collecting reliable household income details. The monthly per-capita consumer expenditure (MPCE) information thus available for each sample household was used as a proxy for household income level. On the basis of the MPCE, the sample of households surveyed was divided into quintiles (separately for rural and urban areas). After that each individual in the sample was assigned the MPCE quintile level of the household in which they resided. This rural–urban adjusted MPCE quintile was used to classify the sample households according to their economic status.

This comparable household-level data on consumption of health care was analysed to examine the trends in risk of hospitalization, choice of hospital, distribution of inpatients in public and private hospitals, duration of hospitalization, preference for various types of hospital ward and household OOP expenses in this sector. Frequency of use of inpatient care is

examined by computing the annual hospitalization rate, which is the ratio of the estimated number of hospitalizations in a year to the population exposed to the risk of hospitalization. The age-standardized annual hospitalization rate was also computed, with the 1986–87 population as the standard, to examine whether there has been any change in rates over time. As mentioned above, these hospitalization rates are expected to vary across income groups due to households' ability to meet the level of OOP expenditure required. Hence the concentration index (Kakwani *et al.* 1997; O'Donnell *et al.* 2008) was computed to examine the degree of inequality in access to inpatient care over time. The concentration index (CI) is bonded between -1 and $+1$. Negative values for the CI mean that hospitalizations are higher among the poor, while a positive value means hospitalizations are higher among the rich.

Changes in choice of hospital are analysed by examining the trends in the proportion seeking inpatient care from private rather than from government hospitals. Chi-square tests are used to understand the significance of changes in this proportion over time. There exists a well-known rich–poor divide in the proportions seeking inpatient care from public and private hospitals in India (Gumber 1997; NSSO 2006b). The distribution of public and private hospitalization across MPCE quintiles was obtained and the concentration index was computed to examine changes in this divide during the study period.

The data sets give information on type of ward (free/paying general/paying special), which is used as a proxy to examine changes in comfort levels (and associated expense) that patients opt for in private hospitals. Chi-square tests were performed to understand the significance level for the noted changes in the proportion seeking 'paying special wards' (more comfortable and more expensive than general wards) in private hospitals. The relative burden of OOP expenditure incurred through treatment in a private hospital is also studied. The economic burden was assessed as the ratio of OOP expenditure per episode of hospitalization to total annual per capita consumer expenditure of the ill person's household. Only medical expenses were included in these calculations. Not included were transport expenses other than ambulance, lodging charges and food expenses of individuals escorting patients. Also instances where medical services were provided free by an employer were not considered in this analysis.

The proportion of episodes where OOP expenditure accounts for more than 25%, more than 50%, more than 75% and more than 100% of annual per capita expenditure of the household were computed. Chi-square tests were performed to ascertain the statistical significance of noted differences in the proportion falling within the above four cut-off points during the study period.

Results

Changes in size of private hospitals

Trends in the availability of private hospitals during the study period are presented in Table 1. The number of private medical institutions with inpatient facilities saw a decline over the period as a whole, increasing from 2042 in 1986 to 2274 in 1995 and then falling to 1942 in 2004. The same trend is true for hospitals under the allopathic system of medicine. However,

Table 1 Private hospitals and hospital beds in Kerala, 1986, 1995 and 2004

	1986	1995	2004
(1) Number of private hospitals/nursing home			
All systems of medicine	2042	2274	1942
Allopathic system of medicine	1864	1958	1405
Other system of medicine	178	316	537
(2) Total number of hospital beds in:			
Public sector (govt hospital/CHC/PHC) ^a	36 258	41 164	44 193
Private sector (private hospital/nursing home)	50 766	70 924	64 491
Total	87 024	112 088	108 684
(3) Population served per hospital bed in:			
Public sector	735	746	740
Private sector	525	433	507
Total	306	274	301
(4) Average no. of beds per private hospital (allopathic system)	26	34	41
(5) % of hospital beds in private sector	58.3	63.3	59.3
(6) % of private hospital beds in allopathic system	96.6	95.2	88.5

Source: Bureau of Economics and Statistics, Government of Kerala, Report on Private Medical Institutions in Kerala, years 1986, 1995, 2004.

^aData for number of hospital beds in government hospitals are from the Kerala Economic Review, published by the State Planning Board (respective years). Figures vary from the number given in the Economic Review because non-government institutions receiving grant in aid from government are excluded. CHC = community health centre; PHC = primary health centre.

there was an increase in the number of private institutions classified under 'other systems of medicines' that provide inpatient treatment. These other systems of medicine are mostly for Ayurvedic and homeopathic treatments.

The trend in bed availability in the private sector showed some similarity. There was a rapid increase in the number of beds between 1986 and 1995, followed by a slight decline from 112 088 in 1995 to 108 684 in 2004. About 59% of total hospital beds were in the private sector in 2004. A decline in the proportion of private hospital beds in the allopathic system out of the total beds in the private sector underlines the increasing role of non-allopathic private hospitals. For comparison purposes, bed availability in public hospitals is also presented in Table 1. There is an increase in the number of public sector beds, with population served per bed keeping pace with population growth.

The average number of beds per private hospital is presented to give an indication of the size of private hospitals in the state. The increase in this ratio (from 26 in 1986 to 41 in 2004), despite an overall decline in private institutions with inpatient facilities, indicates that large hospitals, with greater numbers of beds, are increasing as a proportion of the sector. The smaller hospitals and nursing homes are either being closed down or being transformed into larger hospitals. One reason for this type of consolidation is the policy on privatization of medical education, which facilitated the opening of a number of private medical colleges. In 1994 there were only five government-owned medical colleges in the state under the allopathic system of medicine. Since then, 13 new private sector self-financing medical colleges have opened. In addition, a number of super specialty hospitals have been opened in private sector, during this period.

Trends in demand for inpatient care

Factors such as population ageing and a changing disease pattern from communicable to chronic degenerative diseases

Table 2 Trends in annual hospitalization rates by MPCE quintile, Kerala, 1986–87, 1995–96 and 2004

MPCE quintile	Number hospitalized per 1000 persons		
	1986–87	1995–96	2004
Lowest	76	69	112
Second	71	65	136
Middle	71	84	126
Fourth	55	84	118
Highest	70	115	141
Total	69 (69)	81 (76)	126 (117)
Concentration Index (CI)	-0.379	0.0967	0.0257

Source: NSSO Unit Level data for respective years, Figures in parenthesis are age standardised hospitalisation rates.

could increase the demand for inpatient care services. At the same time, improvements in medical technology could neutralize such demand to a certain extent. With improvements in medical technology, diseases that required hospitalization in the past can now be cured through procedures which do not require it or require a shorter duration of stay. All these factors need to be considered when examining the trends in demand for hospitalization.

The annual hospitalization rate is the ratio of the total estimated number of hospitalizations in a year to the corresponding survey-based estimates of total population. Table 2 shows a consistent increase in annual hospitalization rate per 1000 population from 69 in 1986–87 to 81 in 1995–96, and further to 126 by 2004. MPCE quintile data indicate the nature of association between the risk of hospitalization and a person's economic status. No rich–poor divide was apparent in 1986–87, when the poorest quintile reported the highest number of hospitalizations. The CI of -0.0379 for 1986–87 also indicates

Table 3 Changes in the percentage of inpatient episodes treated in private hospitals across MPCE quintiles, Kerala, 1986–87, 1995–96 and 2004

MPCE quintile	% treated in private hospitals (95% confidence interval)			χ^2 test for difference	
	1986–87	1995–96	2004	1986–87 & 1995–96	1995–96 & 2004
Lowest	53.5 (48.6–58.4)	45.5 (40.5–50.4)	54.8 (50.5–59.5)	5.00*	6.94**
Second	50.3 (45.0–56.1)	57.7 (52.3–63.0)	60.7 (56.2–65.2)	3.26*	0.72
Middle	53.3 (47.3–59.1)	63.6 (58.7–68.6)	63.7 (58.8–68.6)	6.99**	0.00
Fourth	58.5 (50.9–65.2)	63.5 (58.3–68.7)	66.6 (61.6–71.9)	0.63	0.70
Highest	68.9 (62.0–75.7)	72.2 (67.6–76.8)	82.5 (78.3–86.7)	0.63	10.10**
Total	55.4 (52.7–58.0)	60.3 (58.0–62.6)	64.6 (62.4–66.8)	7.56**	7.31**
N	1347	1869	1759		

Source: NSSO unit level data for respective years.

* $P < 0.05$; ** $P < 0.01$.

that the hospitalization rate is slightly higher among the poor than their relatively wealthy counterparts. Inequalities in the rate of hospitalization were highest in 1995–96 [CI=0.0967]. A marginal decline in hospitalization rates among the lowest two quintiles hints that the poorer sections might have avoided prescribed inpatient treatment during the mid-1990s to avoid catastrophic payments. Differentials by MPCE quintile were only marginal in 2004, but the rate of hospitalization was highest for the richest quintile and lowest for the poorest quintile. The CI values also show that the degree of inequality in hospitalization across MPCE quintiles declined between 1995–96 and 2004.

Part of the increase in annual hospitalization rate could be due to the ageing of the population. The age-standardized hospitalization rate, with the 1986–87 population as the standard age distribution, reveals that the rise in the proportion of relatively frail elderly and middle-aged population could only partially explain the noted increase in hospitalization rates. Thus there has been a large increase in demand for inpatient treatment in the study population which could also be attributed to a large extent to the expansion of the private health care market.

Utilization of inpatient care from private hospitals

The national sample survey data provide information on source of treatment for those who utilized inpatient care in the 1 year prior to the survey period. Based on source of treatment, the inpatients were classified into: (1) those who had undergone treatment in a public/government hospital, and (2) those who had undergone treatment in private institutions. Table 3 presents the proportion of the inpatient episodes involving hospitalization where treatment was sought from a private hospital rather than a public hospital. It is to be noted that the proportion not seeking inpatient care from a government facility are shown here as seeking the same from a private hospital.

The majority of the population sought inpatient care (65% in 2004) from private hospitals. There was a significant steady increase in the proportion seeking care from private hospitals between the three time points analysed. The well-recognized rich–poor divide in access to private hospitals was comparatively greater in 2004 and 1995–96 and lowest in 1986–87. The data also show that the relative preference for private hospitals among the poorest quintile declined from 54% in 1986–87 to

46% during 1995–96, before returning to 55% by 2004. This shift was statistically significant. It indicates that the poor swiftly revert back to public hospitals during periods when inequality in access to health care rises. The tendency of the poor to restrict inpatient treatment became apparent in 1995–96 (Table 2), a period where economic inequality in access to private hospitals was at its peak. These two observations together indicate that periods of higher health care inequality are characterized by the poor either reverting back to public hospitals or avoiding inpatient treatment altogether.

Inpatient care and economic status

The above analysis does not permit us to appreciate the differences by economic status in the level of use of inpatient care from private hospitals. This depends on: (1) the distribution of population across the MPCE quintiles (average household size is always higher in households in low MPCE categories than those in high MPCE categories, so the proportion of population in the former is higher than in the latter), (2) MPCE-wise differentials in annual hospitalization rate and (3) MPCE-wise variation in the proportion seeking inpatient care services from private hospitals. A distributive analysis that accounts for the three above-mentioned aspects is used to show who is utilizing inpatient care in private hospitals and any rich–poor divide in this utilization, as presented in Table 4.

It is apparent that a disproportionately larger share of population in the lower two quintiles were utilizing inpatient care services than those in higher quintile groups. The distribution was more skewed towards the poor in the case of public hospitals for all the three time periods. In the case of private hospitals, such skewed distribution was noted only in the year 1986–87, a period when the inequalities in access to private hospitals were lowest (Table 2). Private hospital use was more skewed towards the rich in the year 1995–96, a period when inequalities in access to health care were most severe. The differential in intensity of utilization of private hospitals across MPCE quintiles was nullified by 2004. The CI values in the table confirm these observations. Negative CI values for users of public hospitals at the three time points confirm the concentration of poorer patients in the public sector. Similarly, the positive CI values for users of private hospitals in 1995–96 and 2004 confirm the concentration of richer patients. The CI suggests that the degree of inequality in access to private hospitals peaked in 1995–96, but was reduced to a certain

extent by 2004. This analysis indicates that the poor also depended on the private health care sector for inpatient treatment, not just the rich.

Choice of health care within private hospitals

In the majority of private hospitals, users can choose from different levels of payment depending upon the comfort level desired during treatment. This is reflected in the type of ward facility they choose during hospitalization, presented in Table 5. The NSSO survey gives information on the type of ward to which a patient was admitted, categorized into three types: (1) free, (2) paying general and (3) paying special. A paying ward with a number of beds was treated as a paying general ward. A cabin (generally with one or two beds) was treated as a paying special ward. When a patient was reported to have stayed in more than one type of ward, the ward where he/she stayed for the longest duration was recorded in the survey.

Generally 'free' inpatient care from the 'for profit' private health care sector is not expected. However, there are a number of non-governmental institutions, especially religion-based institutions, who provide free health care services. Their role is shrinking, with the proportion of inpatients who received free health care declining from 6% in 1986–87 to 2% in 2004. These institutions are likely changing to become self-sustaining, with user charges as a major source of revenue, in addition to the grant-in-aid they receive from government and other external sources. The poorer population groups are the major beneficiaries of whatever 'free ward' facilities are available in the private sector.

About 60% of private hospital patients use the 'paying general' wards. However, a significant shift has occurred in preference from 'paying general' to 'paying special' over time. By 2004, more than one-third of inpatient cases were treated in 'paying special' wards, up from one-fifth in 1986–87. As can be

Table 4 Distribution of hospitalization episodes in public and private hospitals across MPCE quintiles, Kerala, 1986–87, 1995–96 and 2004

MPCE quintile	1986–87			1995–96			2004		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
Lowest	30.4	28.2	29.2	29.9	16.4	21.8	28.8	19.1	22.6
Second	25.9	21.4	23.4	19.6	17.6	18.4	27.1	22.9	24.3
Middle	21.3	19.5	20.3	19.0	21.9	20.8	20.2	19.4	19.7
Fourth	12.8	14.2	13.6	17.2	19.7	18.7	15.5	17.0	16.5
Highest	9.1	16.3	13.1	14.2	24.4	20.3	8.4	21.6	16.9
All quintiles	100	100	100	100	100	100	100	100	100
CI	-0.1042	-0.0097	-0.0379	-0.0340	0.1767	0.0967	-0.1049	0.0979	0.0257
Variance (CI)	0.0014	0.0017	0.0005	0.0009	0.0026	0.0013	-1.91	0.0023	0.0005
t-test (CI)	-2.75	-0.24	-1.77	-1.14	3.49	2.67	-1.91	2.06	1.11

Source: NSSO Unit level data for respective years.

Table 5 Distribution of inpatient episodes treated in private hospitals by type of ward facility used across MPCE groups, Kerala, 1986–87, 1995–96 and 2004

Year	Free/pay ward	Percentage by quintile						No. of cases
		Lowest	Second	Middle	Fourth	Highest	All quintiles	
1986–87	Free	5.1	7.6	7.6	8.5	3.9	6.4	45
	Paying general	84.5	80.6	68.3	52.7	63.8	72.6	497
	Paying special	10.4	11.7	24.1	38.8	32.3	21.0	171
	Total	100	100	100	100	100	100	713
1995–96	Free	4.6	6.8	3.3	2.9	0.7	3.4	35
	Paying general	76.5	75.9	75.1	58.2	54.7	67.2	704
	Paying special	18.9	17.3	21.6	38.9	44.6	29.4	380
	Total	100	100	100	100	100	100	1119
2004	Free	4.5	2.8	1.7	2.7	0.0	2.3	29
	Paying general	71.5	71.6	64.2	47.8	43.9	60.1	703
	Paying special	24.0	25.5	34.1	49.4	56.1	37.6	486
	Total	100	100	100	100	100	100	1218
χ^2 for difference in % seeking paying special between 1986–87 and 1995–96		5.48*	2.06	0.30	0.04	5.25*	14.69**	
χ^2 for difference in % seeking paying special between 1995–96 and 2004		1.44	4.41*	9.08**	4.40*	6.89**	17.09**	

Source: NSSO unit level data for respective years.

* $P < 0.05$; ** $P < 0.01$.

Table 6 Mean OOP expenditure and OOP expenditure per episode of treatment in a private hospital as a percentage of average APCE of the household, Kerala, 1986–87, 1995–96 and 2004

Out-of-pocket expenditure as % of APCE	1986–87 (n = 700)	1995–96 (n = 1119)	2004 (n = 1169)	Pearson χ^2	
	% [95% confidence interval]	% [95% confidence interval]	% [95% confidence interval]	1986–87 & 1995–96	1995–96 & 2004
>25%	38.4 [34.8–41.8]	31.6 [28.8–34.4]	44.2 [41.3–47.0]	8.61**	37.34**
>50%	17.4 [14.6–20.1]	15.0 [12.9–17.2]	25.3 [22.8–27.8]	1.73	35.84**
>75%	10.5 [8.2–12.7]	9.7 [7.9–11.5]	16.5 [14.3–18.6]	0.22	21.19**
>100%	7.1 [5.2–8.9]	6.9 [5.3–8.4]	11.3 [9.5–13.1]	0.22	13.14**
Mean OOP exp (Rs)	528 [450–606]	2547 [1762–3332]	4950 [4213–5687]		
Median OOP exp (Rs)	250	800	2000		

Source: Computed from NSSO unit level data for respective years.
*P < 0.05; **P < 0.01.

expected, there are sizeable rich–poor differentials in the proportion of patients seeking inpatient care from ‘paying special’ wards. This indicates that though the rich and poor both utilize private hospitals, the nature of the amenities used varies across economic strata. Between 1995–96 and 2004, the shift to ‘paying special’ was significant across all MPCE quintiles except for the poorest quintile. This is an indicator of increasing inequality in access to care within the market-driven private health care system.

Trends in OOP spending in private hospitals

In India, OOP expenditure is unavoidable in most inpatient episodes in either public or private hospitals, but OOP expenditure for care in private hospitals is greater than in public hospitals. Rapid inflation in medical care costs has occurred over the study period (Kunhikannan and Aravindan 2000; KSSP 2006). The average OOP expenditure per episode of inpatient treatment at current prices increased from 528 rupees in 1986–87 to 2547 rupees in 1995–96 and to 4950 rupees in 2004. Median expenditure also reveals the nature of ‘mediflation’ associated with OOP expenditure incurred in private hospitals. In this context, it is important to know whether there have been any changes in the economic burden on households associated with seeking treatment from private hospitals. The economic burden is assessed as the ratio of OOP expenditure per episode of hospitalization to total annual per capita consumer expenditure (APCE) of the affected household. The proportion of episodes where OOP expenditure accounts for more than 25% of APCE, more than 50% of APCE, more than 75% of APCE and more than 100% of APCE are computed for the three time periods under study (Table 6 and Figure 1).

Between 1986–87 and 1995–96, there was a decline in relative expenditure on inpatient treatment in private hospitals. The proportion of inpatient episodes treated in a private hospital incurring OOP expenditure of more than 25% of APCE declined significantly from 38% in 1986–87 to 32% in 1995–96. The propensity to seek care in private hospitals during this period was also lower. This corroborates the earlier inference (Tables 2 and 4) that the period 1995–96 has the highest degree of inequality in access to private hospitals. Although declines were noted for the other three OOP expenditure levels analysed during the same period, they were not statistically significant. Ratio values for 2004 suggest that self-regulation in selection of source of treatment and willingness to spend was less strong at

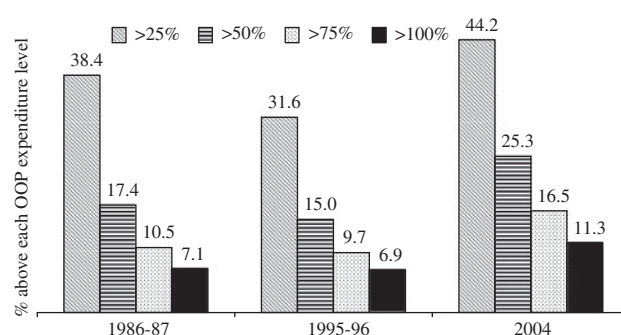


Figure 1 OOP expenditure as a percentage of APCE of the household, Kerala, 1986–87, 1995–96 and 2004.

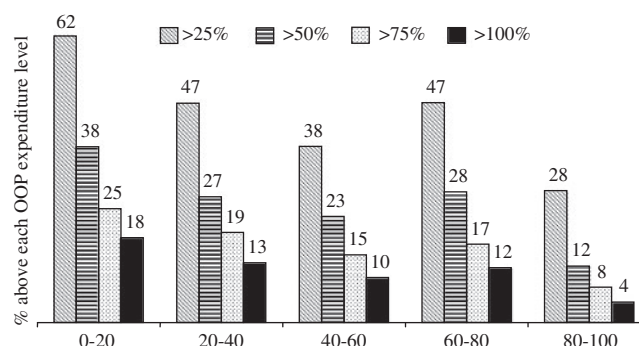


Figure 2 OOP expenditure as a percentage of APCE of the household across MPCE quintiles, Kerala, 2004.

that point. For this reason, there was a significant increase across all OOP levels between 1995–96 and 2004.

Mean OOP expenditure was disproportionately higher for inpatients belonging to the two uppermost quintiles than for those in the two poorest quintiles. However, the variations in ratio values across MPCE quintiles for the year 2004 reveal that treatment from private hospitals was much more of a burden for the poorer than for the richer sections (Table 7 and Figure 2). The proportion who spent more than 100% of the APCE of the household was 18% in the poorest quintile and only 4% in the richest quintile. This supports the argument that

Table 7 Mean OOP expenditure and OOP expenditure per episode of treatment in a private hospital as a percentage of average APCE of households across MPCE quintiles, Kerala, 2004

MPCE quintile	Mean exp. (Rs) [95% confidence interval]	Median exp. (Rs)	OOP expenditure as % of APCE				No of cases
			>25%	>50%	>75%	>100%	
Lowest	3794 [2499–5089]	1850	61.7	37.9	24.5	18.3	239
Second	3669 [2779–4558]	1600	47.2	27.0	19.4	12.8	258
Middle	4392 [2304–6479]	1500	38.0	22.8	14.5	9.7	229
Fourth	7083 [4895–9272]	2540	47.3	28.2	16.9	11.8	206
Highest	6188 [4445–7931]	3000	28.4	12.2	7.6	4.4	236
All quintiles	4950 [4213–5687]	2000	44.2	25.3	16.5	11.3	1168

Source: Computed from NSSO unit level data for respective years.

Note: Only medical expenditure is included in the calculations. Exp., expenditure.

although the poor were using private hospitals as intensively as the rich, the financial implications of the decision to choose private hospital care were much heavier, and their impact likely to last much longer, for the poor.

Discussion

Overall there has been an increase in demand for inpatient care services in Kerala. The relative preference for private hospitals was lower among the poorer groups than among the wealthier, but absolute differentials in numbers utilizing services in the private sector across income groups are limited. However, the poor are likely to revert back to public hospitals during periods characterized by high levels of inequality in access to inpatient services.

An increase in the frailty of the population as a result of population ageing could only partially explain the unprecedented increase in hospitalization rates during the study period. Evidence from other studies in Kerala suggests that unbalanced dietary intake and low physical activity has led to an alarming increase in type 2 diabetes, hypertension and cardiovascular diseases (Soman 2007), all of which increase the risk of hospitalization in the population. Further, hospitalization rates are influenced by improved outreach of the health system (Dilip 2008), coupled with increasing purchasing power for medical care among the population (Kutty 2000). Within this context, the private health care sector has thrived and was likely chiefly responsible for the increase in hospitalization rates over time. It also appears to have profited by attracting clients who are discontented with the over crowding in government-owned tertiary care units, a health system characterized by severe constraints in financial and manpower resources since the 1990s.

Over time there has been a rise in the study population's general capacity to pay for health care, the reasons for which are yet to be explored. While the majority of patients chose 'paying general' wards when seeking treatment in private hospitals, there has been a shift towards the 'paying special' category. Also, although health care costs have risen in comparison with household consumer expenditure, there was an upward trend in the overall share of the population seeking inpatient care from private hospitals. With the poor seeking a significant proportion of inpatient care from the private sector, they are spending a larger share of their household resources on

health care than the rich; the financial impact of deciding to seek care from a private hospital is greater for the poor than for the rich.

Public policy favouring increased private sector participation in medical education, coupled with the opening of super-specialty hospitals, is threatening the existence of small hospitals/nursing homes in Kerala. Considering the age and epidemiological profile of the state, the demand for long-term nursing care as well as for rehabilitative care for chronic illness will increase. Adding to this is the out-migration of the working population and a shift from a nuclear family structure to joint (extended) family structures, leading to an absence of care-givers for the elderly in this rapidly ageing population (Planning Commission 2008). The large specialty hospitals and private medical college hospitals may not be able to cater to this demand for long-term nursing/rehabilitative care in a cost-effective manner. Therefore the consolidation of larger hospitals described above is expected to be a temporary phenomenon and the state of small hospitals and nursing homes may improve in the near future. To capitalize on this inherent demand, small hospitals and nursing homes might have to focus on rehabilitative care and long-term nursing care rather than on the provision of highly expensive treatment procedures involving modern, high-tech medical equipment. This could both improve access to health care and reduce household expenditure on health care in the state.

Conclusion

The analysis has provided substantial evidence on characteristics of the consumption of private sector inpatient care, such as the potential to create market-driven demand for inpatient care, its outreach among the rich and the poor, reliability during periods of high health care inequality, differential treatment options within the sector and the economic impact of seeking care from private hospitals over time and among the poor. Kerala's experience suggests that factors of both supply and demand have together contributed to the rise in hospitalization rates. For the richer quintiles, there has been a steep increase in hospitalization coupled with a steady increase in preference for private hospitals. For the poor, levels of inpatient care use and preference for private hospitals were more related to inequality levels existing at the time. The analysis also captured a narrowing of these differentials due to improved access for

the lower income groups to the private health system. This improved access is due not only to an improvement in purchasing power among the poorer groups but also to the strategy of private hospitals in this highly competitive market to generate revenue from the poorer groups by offering various service options (e.g. paying general and paying special). However, the preference for government hospitals over private hospitals is likely to quickly re-emerge among the poor during periods characterized by high inequalities. This should be accounted for if there is a move to increase the role of the private health care system in poor and under-developed regions, although this is unlikely in the present scenario. Another notable observation is that the concept of equity in access to health care is a very dynamic concept in health systems dominated by the private sector and where OOP expenditure is the major mode of health financing. This statement is based on the finding that the rich-poor divide in access to health care is very sensitive to health system changes, aside from overall improvements in living standards. Availability of data for at least 5-year intervals may be required in similar settings to monitor this dynamic aspect of health care equity.

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