Impact of indirect cost on access to healthcare utilization

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Abstract

Background: Majority of the citizens in developing country like India seeks healthcare in private facilities. In spite of several sustainable measures taken by the government, public healthcare facilities often face various problems, including worker absenteeism and dual public–private practice, low demand for their use, and shortages of supplies and staff. In contrast, private healthcare varies greatly in quality of care, being unregulated and financed largely through out-of-pocket payments. Accessibility, affordability, and availability to healthcare services are the significant factors in improving utilization of public health facilities.

Objectives: This study explores the challenges faced in healthcare sector especially in terms of indirect cost (user fees) incurred by the rural households of rural Karnataka in seeking a public health care center.

Materials and Methods: A set of well-structured questionnaire was administered to examine the indirect cost incurred by the households in terms of travel cost, waiting cost, and out-of-pocket expenditure. A total of 600 samples were randomly collected. To study the demand for healthcare services provided by public hospitals in rural Karnataka, regression was employed.

Results: Findings explains that odds ratio is higher for the nearest healthcare center than that in the next village, which specifies that accessibility to the nearest center is more significant than that in the next village. It is inferred that when distance increases, accessibility to public hospitals is impossible every time. In case of waiting time and out-of-pocket expenditure, both are statistically significant to use.

Conclusion: The economic performance of the healthcare services is crucially linked to the overall economic well-being of country and its citizens; there is a need for alternative option to come out of this indirect cost incurred by rural households.

KEY WORDS: Waiting time, distance, utilization, out of pocket

Introduction

India has a population of 1.26 billion people (www.world-populationstatistics.com), in that three-quarters live in rural areas. Approximately 400 million people live on less than US$1.25 per day income.[1] In spite of this, most Indians seek healthcare in private facilities.[2] Owing to many years of neglect, lower-level public healthcare facilities often suffer from a variety of problems, including worker absenteeism and dual public–private practice, low demand for their use, and shortages of supplies and staff. In contrast, private healthcare varies greatly in quality of care, being unregulated and financed largely through out-of-pocket payments. Many researchers, policy-makers, and practitioners are often pushed in confusion about the innovations in public and private health financing and out-of-pocket expenditure incurred by the lower-income people. This study explores the challenges faced by decentralized areas in healthcare sector especially in terms of indirect cost (user fees) incurred by the rural households.

Like many other low-income countries, Indian health system is characterized by underutilization of the healthcare systems. Public hospitals in India are known for low-quality treatment, long waiting period, long distance, inconvenient location, and inadequate facilities in public hospitals.[3] Increased expenditure in healthcare and recognition of the provider's role of financing in health systems led to an increased interest in health financing and specifically in the tradeoff between equity and efficiency.

Efficiency, effectiveness, and equity criteria provide a broader perspective in assessing the performance of healthcare system. Effectiveness examines the benefits of health care; efficiency is related to the health improvements by using the resources; and equity explores the disparities in health procedures. Most of the studies focus on the extent of which disparities or inequalities in health persist among which groups. The inequalities may exist in variation in structure or in the process of care.

Often, effectiveness, efficiency, and equity are complementary to one another. Improving health effectiveness increases efficiency, which creates opportunities for effectiveness and equity. But in Indian health system, effectiveness, efficiency, and equity have come into conflict with each other. Maximizing effectiveness by allocating additional resources such as providing hospital beds and increasing the number of public healthcare center (PHC) may conflict with efficiency, i.e., the cost per hospital bed or other resources that will be costly with respect to their effectiveness. This in case deemed unfair in terms of disparities or inequalities in accessing the health services. According to Health Policy 2020, the objective is to improve access to health services. This can be achieved by increasing the number of individuals in seeking healthcare and reducing the delay in obtaining the necessary medical care.

Background of the study

For about two decades, debates on the impacts of user fees on the public health sector have not clearly been conclusive. User fee can be defined as the cost incurred by individuals in the form of a charge per unit of service consumed mostly in the form of cash.[4] Thus, user fees are explicitly distinguished from insurance arrangements that require payment to mobilize without reference to a specific service received. Several studies have examined why utilization of formal healthcare services is low?

It is mandatory to know why people use or do not use public health services. In case of vaccination, most of the parents were not willing to provide immunizations to their children. Many of the parents explained that autism, a perceived health consequence of childhood vaccinations, provided a greater childhood health risk than measles.[5] Thus, the parents' failure to use healthcare services was a consequence of perceived needs, perceived threats, illness knowledge, autonomous healthcare choices, and faith in treatment.

On the other side of the spectrum, what is making this sector red-hot in terms of attractiveness are macrotrends such as rising income levels, penetration of insurance, increased life expectancy and incidence of lifestyle diseases, greater awareness of ailments and, more importantly, higher wallet spends on well-being. Paucity of funds and the consequent inadequacy in ensuring optimum level of healthcare delivery has been the perennial shortcoming of almost all state governments in India.

According to the surveys of federally qualified Community Healthcare, which provides primary care to poor patients, 25% of visited patients end up with specialty care or diagnostic referral of which most of them are not insured[6]. This proves that indirect cost incurred by households plays a vital role in the use of healthcare services. Lack of access is associated with delayed care and poor health outcomes. Hence, identifying the factors that prevent and spur the use of healthcare services will ultimately help healthcare organizations create programs for improving health services and increasing their use.

Healthcare utilization behavior is complex and multifaceted. For example, the opportunity costs of time spent in travel and in queuing, amounting to loss of a day's wage, can be a significant aspect of the total costs of using medical services. Where public services are distant, user fees add another layer of costs to the costs of transportation.[7] Several studies show user fees are often not accompanied by improvements in quality or availability of drugs.[8,9] The fact is that poor people are ready to pay for healthcare when they go to traditional and private hospitals. But the ability to pay for healthcare to pay user fees is not only affected by their income but also by the cost they incurred for other expenses apart from health. Understanding why people use alternative or conventional medicines is central to increasing healthcare utility and efficacy. Hence, it is understood that use of services depends on both demand and supply side factors influencing the access. This paper tries to analyze the use of a PHC with respect to the indirect cost incurred by the rural households of Karnataka. The main objective of this article is to carry out a comprehensive cross-sectional analysis of the user fees (indirect cost). The study was conducted in two stages. First, the demand for healthcare services provided by public hospitals was analyzed and, in the second stage, impact of user fees in seeking the healthcare centers was measured.

Materials and Methods

For the study, data were collected from four districts of Karnataka state. The districts were selected according to their development in terms of socioeconomic indicators. Of the four districts, Shimoga was identified as good performing district (as given by National Commission on Population, GOI); Mandya was identified as average performing district; and two poor performing (Bijapur and Koppal) were selected for the study. In four districts, six villages were selected of which are two villages located within the radius of 5–10 km and four villages more than 10 km away from the PHC.

Sampling Techniques

The population of study was the rural households of the selected villages. Since socioeconomic development was not uniform in the state, stratified random sampling was adopted for the selection of households. A total of 600 samples were randomly collected. As accessibility was taken as an important variable, 300 households living within a distance of 5–10 km to PHCs and the remaining 300 households residing 10 km away from the PHC were selected.

Results

Individuals seek healthcare when they are sick. Thus, in the analysis of demand for therapeutic care, health plays a major role. Analysis of demand for PHC is a must, because in most of developing countries like India, the percentage of allocation in the health budget has been forced for structural adjustments and health programs. To get the unbiased estimations of the role of observed attitudes of the households, demand in the preference of use of healthcare services is needed.

Table 1 elaborates the frequency distribution for preference of healthcare services. It is evident that 67.4% of households prefer to go for public healthcare hospitals and 32.4% prefers to go for private hospitals. Only 0.2 % opted for self-medication. Hence, binominal regression was carried out to find out the impact on user fees.

Binominal logistic regression was carried out to find the interaction between the predictor variable (access and equity, out-of-pocket expenditure, and health finance) and dependent variable (utilization).

Binominal Logistic Regression Utilization vs. Distance

- No significant relationship between utilization of public hospitals and distance of healthcare center exists

Table 1: Preference of healthcare services

	Response	Percentage
Public healthcare	404	67.4
Private healthcare	194	32.4
Self-medication	2	0.2

Table 3: Pearson χ^2 Utilization vs. distance

	Value	df	Asymp. Sig. (2 sided)
Pearson χ^2	11.57	2	0.003
Likelihood ratio	18.99	2	0
Linear-by-linear association	2.43	1	0.119
Number of valid cases	600		

$p < 0.001$
χ^2 (2, $N = 600$) = 11.57, $p = 0.00$. Since χ^2-value is 11.57 and since significance value is <0.05, the relations are statistically significant at 5%.

From Table 2, it can be seen that distance of health center in the village or in nearby village was statistically significant to access and equity. The odds ratio is higher to the nearest healthcare center than that in the next village, which specifies that accessibility to the nearest center is more significant than that in the next village. Hence, it is inferred that when distance increases, rate of use of households to public hospitals decreases.

Binominal Logistic Regression Utilization vs. Waiting Time and OOP

- No significant relationship between utilization of public hospitals and waiting time in healthcare center exists
- No significant relationship between utilization of public hospitals and OOP exists

It is observed from Table 4 that waiting time and out-of-pocket expenditure was statistically significant to utilization. The odds ratio is more for OPP than for waiting time, which implies that the amount paid to healthcare center during each visit is more than the waiting time in each visit.

A χ^2-test was performed and it was found that there is a significant relationship between health-seeking behavior toward public hospitals to the waiting time and out-of-pocket expenditure. For waiting time χ^2 (4, $N = 600$) was 133.39 ($p = 0.00$) and in case of OPP χ^2 (2, $N = 600$) was 27.38 ($p = 0.00$). Hence it is observed that, the Asymp.sig is less than 0.05; it is statistically significant to utilization. χ^2-Value is low for waiting time comparing to OOP. It is inferred that the households are affected more because of out-of-pocket expenditure than waiting time.

Table 2: Binominal logistic regression utilization vs. distance

	B (SE)	df	Sig.	Lower	Odds ratio	Upper
Constant	87.39 (29632.21)					
Nearest healthcare center (in village) access and equity	4.50 (0.98)	1	0.000	13.28	90.83	620.86
Nearest healthcare center (next village) access and equity	3.89 (0.95)	1	0.000	7.69	49.22	314.93

95% CI for odds ratio
Note: 11.41 (Hosmer and Lemeshow), 0.21 (Cox and Snell), 0.47 (Nagelkerke).
Model χ^2 (23) = 142.7, $p < 0.01$.

Table 4: Binominal logistic regression utilization vs. waiting time and OPP (95% CI for odds ratio)

	B (SE)	df	Sig.	Lower	Odds ratio	Upper
Constant	4.43 (3.629.84)					
Waiting time in each visit	−2.25 (1.06)	1	0.034	0.01	0.11	0.85
Amount paid to healthcare center on each visit (OOP)	−1.96 (0.92)	1	0.033	0.02	0.14	0.86

Note: 9.99 (Hosmer and Lemeshow), 0.38 (Cox and Snell), 0.53 (Nagelkerke).
Model χ^2 (23) = 283.88, $p < 0.01$.

Table 5: Preference of healthcare service vs. waiting time and OOP

		Value	df	Asymp. Sig. (2 sided)
Waiting time	Pearson χ^2-	1.32	4	0.000
	Likelihood ratio	133.39	4	0.000
	Linear-by-linear association	41.56	1	0.000
OOP	Pearson χ^2	27.38	2	0.000
	Likelihood ratio	26.25	2	0.000
	Linear-by-linear association	24.66	1	0.000

Discussion

Seeking health services for themselves or for someone in the family depends mainly on various demand and supply side factors. It is important to note that the cost of obtaining PHC service and other health services to get the disease cured is the total expenditure incurred by a household. Propensity to seek care, having a regular doctor, and age all influenced the number of routine health checkups. It implies that demand side of health service use is as pertinent as the supply side factor.

Access to transportation is significantly important for use of healthcare services. It is troublesome for a family to take medical care at all times. Especially in rural areas where travel distances are longer and access to healthcare centers with alternative modes such as cars and vehicles are less; transportation becomes a vital issue for access to healthcare. From the analysis, it is inferred that distance, waiting cost, and out-of-pocket expenses are significant to the use of PHCs by the households. The findings indicate that distance is the most significant variable determining the number of healthcare trips taken. It is found to affect the overall number of routine or chronic care visits made. First, about the households who cannot drive or make more trips to the hospitals. Second even though transport facilities are available, there are greater chances for the elderly households to miss or delay a trip. Third, finding an appropriate person to take care of patients for each and every check-up is impossible. On the whole, the degree of difficulty reported in making trips is significantly affected by the distance.

Another important factor is the waiting cost. Spending the full day in hospitals for the treatment of health makes the households to lose their daily wages, which in turn increases the out-of-pocket expenditure for them. Hence cost is both a supply side and a demand side phenomenon. However, indirect costs such as travel cost and waiting cost in hospitals in healthcare are only of value if the care provided is of high quality.

The main strength of this study is that it covers the villages that are located very interiorly where the transportation facilities were not frequent. The main limitation of this study is that it failed to measure the numeric value of the travel cost and waiting cost incurred by the households.

Conclusion

Overall, the intensity of seeking PHCs can be increased, thereby minimizing the indirect cost incurred by the lower-income people. There is a need for connecting healthcare and the indirect cost. By providing effective measures for transportation to healthcare services, especially preventive care, their health status may improve, and in the long-run there could be a decrease in healthcare costs. With an aging population, the number of older adults who can no longer drive or who are widowed and living alone will continue to rise. These individuals will face increased difficulties in getting transportation to healthcare. For public transportation to be able to effectively serve these individuals, transportation providers and health and social service providers will need to increase communication and coordination to make the best use of scarce resources.

Research on transportation and access to healthcare in a specific region could involve first the identification of all transportation providers in the region and finding out where the gaps in service exist. Analysis then could focus on how well the transportation providers coordinate with each other and with healthcare providers, how satisfied users are with the available service, what barriers are preventing people from getting where they need to go, and how those barriers could be addressed. Indeed, healthcare is a major component of spending, investment, and employment in every developed economy (Reinhardt et al., 2002; Fuchs, 2005), so the economic performance of the healthcare system is crucially linked to the overall economic well-being of country and its citizens. Hence, there is a need for the policy makers, insurance providers, and researchers to find out a suitable alternative to come out of this out-of-pocket expenditure incurred by rural households.

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