



Critical Failure Factors and its Impact in Accessing Rural Primary Health Care Hospitals-Special Reference from Karnataka

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ABSTRACT

India has a population of 1.26 billion people in that three quarters live in rural areas. Approximately, in India 400 million people live on less than 1.25 US \$ per day In spite of this, most Indians seek healthcare in private facilities. Due 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. All these sustainable changes raises questions like, how the health care is delivered and utilized, combined with demands for expensive new technology and how the funds are mobilized. In case of utilization, access to public healthcare is central, in the performance of utilization of health care systems. In fact, the importance of service delivery for people has resulted in measurement of utilization and access having a prominent role in the health policy literature. Opinions about the access differs, whether the emphasis should be put more on describing characteristics of the providers or the actual process of care. However, access to health care can be elaborated by integrating demand and supply-side-factors. Many researchers, policy makers and practitioners, often pushed in confusion about the utilization, innovations in public health financing and about the better usage of Public Health care centers. The main obstacle to access Public health care center was the non-medical direct cost (travel cost) and the non-medical indirect cost (waiting time) incurred by the households especially in rural areas which mainly related to financial interventions. However, there are multiple factors in addressing the access costs alone. The rationale of this paper is to provide an overall framework of the various barriers to access Public health care center.

Keywords: Sustainable; Literature; Utilization; Framework

INTRODUCTION

Generally in health care systems, effectiveness, efficiency and equity are complementary to one another. Improving health effectiveness increases efficiency which creates opportunities for effectiveness and equity [1]. But in Indian health system effectiveness, efficiency and equity has become conflict to each other [2]. Maximizing effectiveness by allocating additional

resources like providing hospital beds, increasing the number of PHC may conflict with efficiency i.e., the cost per hospital bed or other resources which will be high with respect to effec-

tiveness [3]. This in case deemed unfair in terms of disparities or inequalities in accessing the health services. The measures taken in improving the access to health services also not up to the mark in accessing the medical care [4]. According to accessibility refers to 'the usage of health services when there is a need [5]. In India, Public hospitals are known for low quality treatment, long waiting period, long distance, inconvenient location and inadequate facilities in public hospitals [6,7]. Hence utilization of Public health care centers depends upon the direct as well as the indirect cost incurred by the households in utilizing the Public health care centers.

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Various Dimensions in the access of Public Health Care Center

Barriers to accessing health services can stem from the demand side and/or the supply side [7]. In case of supply side, government had put enough efforts in bringing the public health care with maximum facilities like human man power and infrastructure. The focus of various health policies concentrates mainly on reducing supply side barriers. In this study, most important reasons for not seeking public health care centers were found to be demand factors. Demand-side determinants are factors influencing the capability or the facility to use health services by individual. According to framework, demand side analysis can be analyzed under four dimensions [6].

Demand side barriers

- Information of health care choices in rural areas
- Preference of households/cultural or community

Direct cost: Distance cost-long and short travel to facilities.

Indirect cost: Opportunity cost-Need for the patient or a care taker to stay for long periods in order to seek care.

Waiting cost: Long time wait to avail the facility/to see the Staff. This study attempts to augment the barriers in the rural areas of Karnataka in the utilization of public health care centers.

OBJECTIVE

To study the demand for health care services provided by public hospitals

To measure the impact of indirect cost on health-care-seeking behaviour

Data Sources and Methodology

For the present study, the data was collected from four districts of Karnataka state. The districts were selected according

Table 1: Socio economic characteristics of households.

Socio-economic characteristics		District name				Total
		Bijapur	Koppal	Mandya	Shimoga	
Age	15-20	41	27	10	12	90
	21-30	215	152	72	87	526
	31-40	142	78	74	63	357
	41-50	40	54	74	51	219
	>50	68	38	57	49	212
		506	349	287	262	1404
χ^2 Value						83.57 p<0.01
Gender	Male	202	181	156	81	620
	Female	304	168	131	181	784
Total		506	349	287	262	1404
χ^2 Value						42.8 p<0.01
Marital	Married	441	304	210	231	1186
	Unmarried	45	33	47	11	136
	Single	6	1	8	0	15
	Widowed	14	6	15	20	55
	Divorced	0	5	7	0	12

to their development in terms of socio economic indicators. Of the four districts, Shimoga identified as good performing district (as given by National Commission on Population, GOI), Mandya identified as average performing district and two poor performing (Bijapur and Koppal) were selected for the study. In four districts, 14 villages were selected of which are 4 villages located within the radius of 5 to 10 Kms and 10 villages above 10 Kms away from the public health care center were selected. A total of 1404 samples were collected.

METHODOLOGY

Chi-square tests to examine the association between demand for health care services and attributes like age, occupation, income level and education.

Factor analysis was used to explore the predominant factors affecting the access and equity in seeking Public health care centers followed by regression to evaluate the impact of indirect cost on utilization of public hospitals by rural households.

Socio economic characteristics of households

First step is to examine the socio economic characteristics and its illness in the selected districts of Karnataka morbidity pattern and its correlates in the state (Table 1). It was found that of the total 1404 households, most of the households are in the age group of 21-30 (526) followed by 31-40 (357). In case of gender Female was more comparative to men since females were more concern towards the health and they are the more responsible persons in the family. In rural areas, male dominates females, but in case of health, females were more particular about health than men. In marital status, most of selected households are married (1186) In case of education, Bijapur has the more number of illiterates than other districts. Koppal which declared as more poorly developed area (GOI, Karnataka 2013) has the maximum number of primary learners which illustrates that development of area does not depend only upon education.

Total		506	349	287	262	1404
χ^2 Value						72.8 p<0.01
Education	Illiterate	223	95	92	67	477
	Primary/middle	136	164	98	111	509
	10th class/PUC	73	49	56	39	217
	>PUC	74	41	41	45	201
Total		506	349	287	262	1404
χ^2 Value						59.09 p<0.01
Monthly income	<4,000	182	91	60	11	344
	4,000-6,000	224	148	138	151	661
	6,000-8,000	88	74	69	69	300
	8,000-10,000	9	35	14	14	72
	>10,000	3	1	6	17	27
Total		506	349	287	262	1404
χ^2 Value						154.9 p<0.01

Since the study is confined to rural areas, most of the households receive their family income in the range of 4000-6000. This is positively associated with the present study, since it targeted towards the lower income people. Hence the selection of sample with regard to income is significant.

Access-Health seeking behavior

The first part deals with the choice of health seeking behavior of the people and second part estimates the critical failure factors for the curative healthcare services at the rural areas of Karnataka.

Analysis of health seeking behavior of the people

Health seeking behavior is a significant pointer used to study the baseline realities of exiting healthcare services. It has been explained by using the information on choice of medical treatment for their illness. Present study analyzes the possibility of using the two hospitals public as well as private (Table 2).

Table 2: Prefer to go for public hospitals.

	District_Name	Total	Prefer	Prefer	Prefer
	Bijapur	Koppal	Mandya	Shimoga	
Always	114	195	66	81	456
Very often	341	113	146	107	707
Sometimes	51	41	75	64	231
Rarely	0	0	0	9	9
never	0	0	0	1	1
	506	349	287	262	1404

Prefer to go for public hospitals

Table 2 explains the analysis of health seeking behaviour of the households to control the diseases. Of all the treatment actions taken, Koppal registered the maximum number of households seeking public hospitals always followed by Bijapur scoring 114. Quite often people from Bijapur (341) prefer to go for public hospitals. Very few households from Shimoga recorded

to prefer public hospitals. This implies that rural households are eager to utilize the public hospitals than private hospitals. Table 3 explains the preference for private hospitals by the households. In all the selected study area, households wish to utilize the private hospitals sometimes but not always.

Table 3: Prefer to go for private hospitals.

	District_Name				Total
	Bijapur	Koppal	Mandya	Shimoga	
Always	23	21	63	4	111
Very often	50	33	54	64	201
Sometimes	403	278	167	139	987
Rarely	30	17	3	55	105
never	0	0	0	0	0
	506	349	287	262	1404

Bijapur has the maximum of 403 towards private hospitals followed by Koppal (278), Mandya (167) and Shimoga (139). Nearly 63 households from Mandya enrolled that they prefer to go for private health care always.

They are not ready to utilize public health care. Almost, out of 1404 households, 201 households prefer to go private hospitals very often. Of that, Shimoga has the maximum of 64.

The main reasons for utilization of private hospitals were:

- Medical treatment not appropriate for illness
- Non-availability of ime
- Health facility being far away from home

Critical failure factors for the curative healthcare services. From the policy perspective, it is valuable to examine the health seeking behaviour across the varies predictors

This table shows two tests that indicate the suitability of the data for structure detection. As per Kaiser-Meyer-Olkin Measure of Sampling Adequacy high values (close to 1.0) generally indicate that a factor analysis can be done with the data. Table 4 shows value nearing to 1 (0.881) hence suited for factor

analysis.ritical failure factors for the curative healthcare services From the policy perspective, it is valuable to examine the health seeking behaviour across the varies predictors.

Table 4: KMO and Bartlett's Test for Access and Equity.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.881
Bartlett's Test of Sphericity	Approx. Chi-Square	13795.1
	Df	55
	Sig.	0

KMO and Bartlett's Test for Access and Equity

This table shows two tests that indicate the suitability of the data for structure detection. As per Kaiser-Meyer-Olkin Measure of Sampling Adequacy high values (close to 1.0) generally indicate that a factor analysis can be done with the data. Table 4 shows value nearing to 1 (0.881) hence suited for factor analysis.ritical failure factors for the curative healthcare services From the policy perspective, it is valuable to examine the health seeking behaviour across the varies predictors

Table 5: Total Variance Explained for Access and Equity.

S.no	Initial Eigen-values	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings						
	Total	% of Variance	Cumulative	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.833	53.028	53.028	5.833	53.028	53.028	5.772	52.471	52.471
2	1.73	15.731	68.759	1.73	15.731	68.759	1.698	15.44	67.911
3	1.354	12.313	81.072	1.354	12.313	81.072	1.448	13.161	81.072
4	0.546	4.961	86.033						
5	0.455	4.138	90.171						
6	0.296	2.686	92.858						
7	0.224	2.038	94.896						
8	0.202	1.833	96.728						
9	0.185	1.679	98.408						
10	0.126	1.144	99.552						
11	0.049	0.448	100						

Table 6: Failure factors for accessing Public health care centers

Categorization of components	TVE	List of factors	RCMV
Infrastructure	53.028	Medicines	0.659
		Doctors and Nurses	0.948
		Treatments	0.947
		Ambulance services	0.881
		Diagnostic services	0.874
		Spending a day for treatment	0.908
Physical accessibility	15.731	Distance bother s	0.849
Mobility	12.313	Spend lot of time in travelling	
		Spending on transportation	0.953

The factors under each variable were decided by Factor loadings followed by rotated factor matrix **Table 6**.

Analysis shows that eleven factors reduced to three with dif-

Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix, which indicates that the variables are unrelated and therefore unsuitable for structure detection. The significance value (0.000) was less than assumed value (.05). Small values (less than 0.05) of the significance level indicate the effectiveness

Literature review

A The factor analysis was conducted on different measures to purify the data.

All the 1404 responses of the surveyed data were examined using principal component factor analysis as the extraction technique and Varimax as the rotation method.

Only factors with Eigen value more than 1 were included in final solutions.

It was seen from **Table 5** that only 3 factors have Eigen value more than 1.

ferent priorities for the preference of seeking public health care hospitals. Component 1 Infrastructure has the most priority factors with percentage of variance as 53.028%. Preference in seeking public health care hospitals depends upon the

availability of human resources like doctors, nurses and health assistance. Also households expected ambulance services for emergency care. Apart from this, major extracted factor of the RCMV value (0.908) was towards spending the whole day for treatment in the hospital. Component 2 Physical accessibility (15.731%) In this component, access depends upon the closeness of health centers. It is evident from table 4.9 that distance bothers to reach health centers and spending or waiting for buses are the two main factors rotated from this component.

Component 3 Mobility. The third priority is then Mobility of the transportation. According to the survey, villages are provided with good transportation facilities. But there exists a

mismatch between the bus schedule and PHC timings which creates transportation problem for the households. This shows that households seeks public hospitals when there is enough availability of human resources, medicines and diagnostics services, ambulance services and good transport facilities. It also evident to notice that, irrespective of distance, when there is availability of transportation; people are ready to go for public health centers.

Factors influencing the utilization of Public Health care centers: Table 7 and Table 8 results regression model to find the factors influencing the utilization of public health care hospitals. The results indicate that the R-square of the model I is 0.292. This means that the model explains 59.5% of the variance in the utilization of public health care hospitals (i.e. the dependent variable). In other words the 11 independent variables explain 60% of the variations in the utilization of public health care services.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.546 a	0.298	0.292	0.59528

Dependent variable: Prefer to go for PHCs

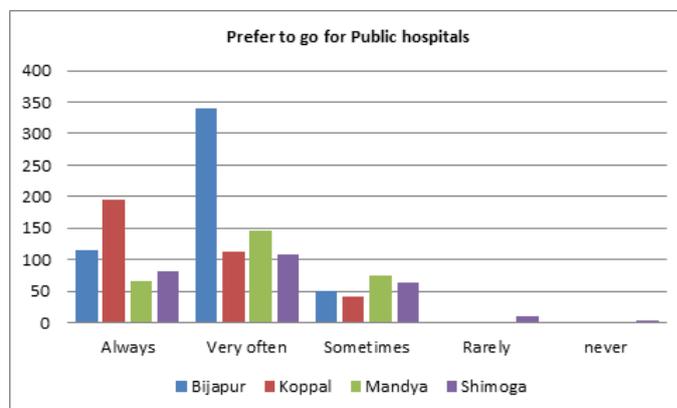
Factors namely emergency care ($t=-4.785, p=0.000<0.05$), availability of medicines ($t=3.487, p=0.000<0.05$) and distance bothers in seeking health care ($t=3.504, p=0.000<0.05$) are the three major predictor variables with highest positive impact with significance. Next 4 factors namely easy to reach ($t=-3.015$), transportation facility is good ($t=-5.724$), treatment is available at all time ($t=-2.013$) and diagnostic services ($t=-1.392$) shows negative impact for utilization of public health care centers with significance. The results indicate that availability of doctors and health care assistance shows insignificance with respect to other predictor variables. This illustrates that, households prefers to seek the public health in case of easy availability and accessibility (Graph 1,2).

DISCUSSION

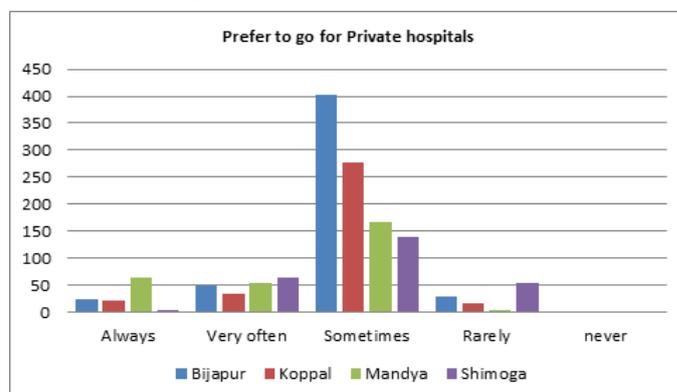
Seeking health services for themselves or for someone in their household depends mainly on various demand and supply side factors. It is important to note that the cost of obtaining PHC and other health services to get the disease cured is the total expenditure incurred by the household. It implies that demand side of health service utilization is as pertinent as the supply side factor. From the above analysis, Factors like travel time,

travel distances, transport costs, diagnostic and medicine cost shows the most significant critical factors acquired by the rural peoples.

Graph 1: Prefer to go for public hospitals



Graph 2: Prefer to go for Private hospital



Distance to health care facilities and access to transportation could significantly impact health care utilization. The distances to regional health care centers can often be more, especially in the most rural areas. A study by examined that distance to regular services was found to have negative significant with the number of visit to the public hospitals. 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 to be the Out Of Pocket expenditure for them. Hence cost is both a supply side and a demand side phenomenon. However, indirect cost like travel cost, waiting cost in hospitals in health care is only of value if the care is of high quality [8,9].

CONCLUSION

Infrastructure, physical accessibility and Mobility factors do have impact on the regular visit to the hospitals. Hence infrastructure, physical accessibility and Mobility are the three main critical failure factors for seeking the public health care facilities [10,11].

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