

PUBLIC HEALTH CARE SERVICES AND THEIR UTILIZATION BY RURAL PEOPLE IN TAMIL NADU: AN ECONOMIC ANALYSIS

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INTRODUCTION:

Health is a fundamental determinant of individual and community wellbeing, influencing economic productivity, social stability, and overall quality of life. In the context of developing nations like India, public healthcare services play a pivotal role in bridging the gap between health needs and available resources. The National Rural Health Mission (NRHM) launched in India in 2005 has been considered as a turning point.

The National Health Policy 2016 and the Ayushman Bharat, 2018 aimed to improve access and quality of not only primary healthcare but also the secondary and tertiary care. The High Level Expert Group Report on Universal Health Coverage for India (2011) brought into focus the dimensions of universal health assurance which includes not only the creation of infrastructure but also ensuring access to a range of promotive, preventive and curative health services at different levels covering all sections of people.

Tamil Nadu, one of India's southern States, has long been recognized for its relatively robust public health infrastructure. The State has made significant strides in areas such as immunization, maternal and child health, and disease control, positioning itself as a model for other regions (Mukherjee et al., 2019).

To improve public health care outcomes, targeted interventions are needed to address the disparities like gender, community and income and ensure equitable access to healthcare for all. The economic analysis of public healthcare services in rural Tamil Nadu highlights the need for targeted policy interventions to address the unique challenges faced by the so called poor communities. While the state's public health infrastructure is relatively advanced (as per the Rural Health Statistics, 2020-21 published by the Statistical Division of Ministry of Health and Family Welfare, Government of India), Tamil Nadu is having 8713 Sub-Centres, 1422 PHCs and 385 UPHCs and it also has a fair number of doctors and specialists i.e., not having a shortfall compared to the minimum requirements (Srimathi, 2018). It has

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been observed that despite the creation of healthcare facilities in rural areas, rural poor in Tamil Nadu continue to face challenges in accessing quality healthcare services (Dev, 2018). Understanding the economic dimensions of these challenges is crucial for formulating effective policies that can enhance the health outcomes of rural poor.

Significance of Rural Healthcare

Economic analysis provides a comprehensive framework to evaluate the efficiency, distribution, and impact of public healthcare services. By examining the allocation of resources, cost-effectiveness of interventions, and the socio-economic barriers faced by rural communities, it is possible to identify areas of improvement and optimize healthcare delivery systems (Sen, 2002). This approach not only highlights the current state of healthcare services but also informs policy decisions aimed at enhancing the overall wellbeing of rural populations.

Public Healthcare in Tamil Nadu

Tamil Nadu has historically prioritized public health, with substantial investments in healthcare infrastructure and human resources. The state boasts a network of primary health centers (PHCs), community health centers (CHCs), and district hospitals that aim to provide accessible healthcare to all residents. Programs targeting maternal and child health, communicable and non-communicable diseases, and preventive healthcare have been implemented with varying degrees of success (Banerjee & Duflo, 2011).

Rural Healthcare in Tamil Nadu

The effectiveness of initiatives was uneven in rural areas compared to urban centers as they have better-equipped facilities and a higher concentration of healthcare professionals. Some of the rural health centers were reported to be suffering from underfunding, inadequate staff and limited access to advanced medical technologies. If these shortcomings continue then they will result in sub-optimal health outcomes for rural populations (Deshpande, 2011).

Economic Barriers to Healthcare Access

Economic factors play a significant role in determining access to and utilization of healthcare services in rural Tamil Nadu. Low-income levels constrain households' ability to afford medical treatments, transportation costs, and other associated expenses, even when public healthcare services are available (Sen, 2002). Additionally, educational disparities limit individuals' understanding of health information and the importance of timely medical intervention, further exacerbating health inequities.

Employment patterns in rural areas, often characterized by informal and seasonal work, contribute to economic instability and limit the ability to plan for healthcare needs.

This financial volatility makes it challenging for households to prioritize health expenditures, leading to delayed or forgone medical care. Moreover, the opportunity costs associated with seeking healthcare—such as lost wages and time away from productive activities—are particularly burdensome for rural residents who rely on daily earnings for subsistence.

Gender Disparities in Rural Healthcare

Gender dynamics significantly influence healthcare access and outcomes in rural Tamil Nadu. Women, who constitute a substantial portion of the rural population, often face unique barriers to accessing healthcare services. Social norms and cultural practices may prioritize men's health needs over women's, leading to disparities in health service utilization (Mukherjee et al., 2019). Additionally, women may encounter challenges related to mobility, decision-making autonomy, and financial dependence, further restricting their access to necessary healthcare.

Significance of the Study

This research contributes to the existing body of literature by providing a focused economic analysis of public healthcare services in rural Tamil Nadu. By integrating quantitative data with qualitative insights, the study offers a nuanced understanding of the challenges and opportunities in rural healthcare delivery. The emphasis on gender disparities adds an important dimension to the analysis, highlighting the need for gender-sensitive policies in healthcare planning and implementation.

Moreover, the study's findings are intended to inform policymakers, healthcare practitioners, and stakeholders involved in rural development and public health. By identifying the economic barriers to healthcare access and proposing targeted policy interventions, the research aims to facilitate the creation of more equitable and effective healthcare systems that can significantly improve the wellbeing of rural populations in Tamil Nadu.

REVIEW OF LITERATURE

Kaur and Singh (2018) investigated the challenges and opportunities associated with healthcare access and utilization in rural India, with a particular focus on Tamil Nadu. The authors highlighted that while Tamil Nadu has made significant strides in healthcare infrastructure, rural areas still face challenges such as inadequate healthcare facilities, a shortage of healthcare professionals, and financial barriers. They suggested that improving healthcare access requires not only infrastructure development but also targeted interventions to address economic and social barriers. According to Sen and Bhandari (2017) economic deprivation is a major determinant of poor health outcomes in rural areas. Das (2019) examined the gender disparities in healthcare access in rural Tamil Nadu for women in rural areas. They found lack of access to seek medical care due to factors such as

financial dependency on male family members, lack of female healthcare providers, and social stigma surrounding certain health issues. Reddy and Prakash (2020) found significant disparities between urban and rural regions in the provision of public health care services. Sharma and Kumar (2021) identified key barriers such as poverty, lack of education, and geographic isolation, which prevent rural populations from accessing quality healthcare.

Babu and Narayanan (2020) assessed the state of healthcare infrastructure in rural Tamil Nadu, and found significant regional disparities in infrastructure quality, with some districts having well-equipped facilities and others suffering from a lack of basic amenities. According to **Rajendran and Shanmugam (2019)** low-income households are more likely to delay seeking medical care or resort to informal treatment options due to the high cost of healthcare services. **Menon and Pillai (2018)** pointed out the shortage of healthcare workers in rural Tamil Nadu and its impact on service delivery. **Krishnan and Balasubramaniam (2017)** also indicated low levels of utilization, particularly among lower-income households. Subramanian and Das (2021) found that while schemes like CMCHIS have significantly expanded health coverage, a large proportion of rural residents remain unaware of their eligibility or do not know how to enroll.

Research Gap

Most of the studies covered the accessibility and utilization of the Primary Health Centres (PHC) and only a very few studies conducted on Upgraded Primary Health Centres. Further, the level of satisfaction of the patients on the services of special care units not adequately studied.

Statement of the Problem

The government of India has taken active steps to improve the healthcare access and wellbeing of the nation especially rural population; they have implemented the flagship scheme of NRHM and NUHM (National Rural Health Mission and National Urban Health Mission). This scheme has really created positive impact among the people but at the same time, there have been some drawbacks to implement it in practical. The major challenge of attaining healthcare quality has been faced by the healthcare sector in India especially rural population.

The three tier structure of Primary Health Centre, Health Sub-Centre and Upgraded PHC or Community Health Centre which makes some positive outcome among the people. Currently, to enhance the rural population healthcare status, the government initiated a new scheme which is being executed as Health and Wellness Centre which is functioning as a dual part of PHC and HSC.

Hence, attaining good health and wellbeing in rural population is a big challenge and government is not ready to invest more funds on healthcare sectors. So, this paper reflects the inability to allocate more funds on healthcare and wellbeing as well as lack of healthcare professionals and above all adequate laboratory and other facilities. Hence, there is a need to assess micro level analysis.

Objectives of the Study

1. To assess the current state of public healthcare services in rural Tamil Nadu with special reference to Upgraded Primary Health Centres.
2. To evaluate the access to healthcare in relation to economic factors in the study villages.

METHODOLOGY

Methodology comprises selection of study area, sampling, method of data collection and method of data analysis.

Out of 37 districts in Tamil Nadu Namakkal district was purposively selected as it was having highest percentage of rural population. This district has 52 Upgraded Primary Health Centres (UPHC). Out of this, UPHCs located in Namagiripet, Pillanallur and Sowthapuram were randomly selected. Preliminary visits were made to these three UPHCs to observe the number of patients visit in a day and the in-patients admitted. The lists and records were referred from all the three UPHCs.

On the basis of information and data collected the average number of patients utilized the services per day (One - time cases and follow-up cases) was calculated. Accordingly, on an average, 190 patients came to Namagiripet UPHC; 162 to Pillanallur UPHC and 208 to Sowthapuram UPHC. To have a representative sample it was decided to select 50% of them. Thus, it came to 95 for Namagiripet, 81 for Pillanallur and 104 for Sowthapuram totaling 281. The gender distribution of the respondents was 107 males (38%) and 174 females (62%).

A structured interview schedule was administered to the respondents and through personal interviews the required information and data were collected. The field work was done during the months of March, April and May 2022. The collected data were analysed by using mean, percentage, Likert Scale, ANOVA and multiple regression.

The level of satisfaction was measured by using the 5 Point Likert Scale.

According to Robert M. Kablan and Dominick L. Frosch (2005), decision making is central to health policy and medical practice. Because health outcomes are probabilistic, most decisions are made under conditions of uncertainty. The involvement of patient in healthcare decision making or expressing opinions about different treatment methods have

also been emphasized (Shaghayegh Vahdat, 2014). In the present study healthcare decision making has been defined as the process of making choices about health, often in collaboration between the patient and the doctor.

Quality of healthcare is the degree to which health services for individuals and population increase the likelihood of desired health outcomes (World Health Organization). The well-being has been taken as a state of contentment and happiness of the patients towards the healthcare services provided.

Profile of Selected Upgraded Primary Health Centres

Before taking up the field level data it was felt to introduce the basic information about the selected UPHCs

Table 1 Profile of Selected Upgraded Primary Health Centres

Sl. No	Particulars	Pillanallur UPHC	Namagiripet UPHC	O.Sowdapuram UPHC
1	Inception year	1969	1981	1972
2	Up-graded year	2014	1984	2014
3	Number of Additional PHCs	3	4	3
4	Number of Health Sub-Centers	12	21	13
5	Town Panchayat (Coverage)	1	2	2
6	Village Panchayat (Coverage)	7	1	11
7	Villages (Coverage)	36	16	26
8	Number of in-patient visits per day	5	4	3
9	Number of out-patient visits per day	150	250	160
10	Number of deliveries per month	10	25	10
11	Number of family planning measures taken per month	10	20	10

Source: Upgraded Primary Health Centre 2021

The Pillanallur PHC was upgraded after 45 years; Sowthapuram UPHC after 42 years and however, Namagiripet UPHC was upgraded within three years after its inception.

Table 2 Population Status of Selected Blocks

Sl. No	Name of the Block	Number of Villages	Total Population	Male	Female	SC	ST
1	Namagiripet	18	68,943	35,193	33,750	14,561	11577
2	Rasipuram	20	58,497	30,856	27,641	18,488	336
3	Vennandur	24	62,045	32,107	29,938	15,910	1072

Source: Population Census Data 2011

RESULTS AND DISCUSSION

Most of the selected respondents belonged to 15-34 years age group. The age of the selected patients ranged from 15 years to 78 years. The literacy rate among the sample was found as 81%. Regarding occupation around one third of them were farmers (33.6%) and one fourth of them (25.7%) were agricultural labourers and remaining involved in non-agricultural works.

The income was calculated by taking into account the farm income in the case of farmers and wage income in the case of both agricultural and non-agricultural labourers. Nearly 45% of the households reported their income per month as between Rs. 8000 and Rs. 12,000. Another set of respondents (32%) reported monthly income between Rs. 12001 and Rs. 16000.

To examine the determinants of healthcare decision making ANOVA and Regression analysis were done. The values assigned to the decision making were under: Doctor = 3, Husband = 2, Wife = 2 and Relatives / Friends = 1, That is, if the decision of the treatment as well as the place of treatment was made on the advice/suggestions of a Doctor then it was given the value of three; if it was taken by the husband/ wife the value assigned was two; and if it was influenced by friends/ relatives then the value given was one.

The dependent variable was healthcare decision making. The independent variables were gender, community, marital status, occupation, education, family income and nature of disease (Communicable = 1 / non-communicable = 0).

The R^2 value came to 0.95 implying the explanatory power of the selected independent variables on the dependent variable.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975 ^a	.950	.949	.19099
a. Predictors: (Constant), MIC, GEN, MAR, CMY, OCP, EDQ, FMS				

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	188.754	7	26.965	739.236	.000 ^b
	Residual	9.958	273	.036		
	Total	198.712	280			
a. Dependent Variable: Healthcare Decision Making						
b. Predictors: (Constant), MIC, GEN, MAR, CMY, OCP, EDQ, FMS						

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.406	.070		-5.831	.000
	GEN	.823	.048	.473	17.052	.000
	EDQ	-.076	.014	-.344	-5.282	.000
	CMY	.466	.037	.463	12.448	.000
	MAR	-.136	.032	-.131	-4.218	.000
	FMS	.010	.036	.019	.287	.774
	OCP	.231	.020	.539	11.650	.000
	MIC	-5.567E-6	.000	-.038	-.479	.632
a. Dependent Variable: Healthcare Decision Making						

It was found that out of the seven variables selected, five of them namely, gender, education, community, marital status, family size and occupation were significantly ($p < 0.05$) influenced the healthcare decision making. Hence, the null hypothesis that

Ho: Family Monthly income does not influence the healthcare decision making was accepted.

Gender Dimension

As observed the women patients constituted 62% of the sample implying the fact that more number of females approached public healthcare services in the rural areas. This was

also due to the condition that all the deliveries should compulsorily be registered with a PHC/UPHC as per the order of government of Tamil Nadu. The delivery can be done any of the private nursing homes/ hospitals or in government hospitals. But the registration number should be mentioned in the admission card. Further, institutional deliveries are encouraged in the state. According to the data pertaining to the year 2020-2021 given in National Family Health Survey (NFHS-5) the rate of institutional delivery was 100% in Tamil Nadu against the 89% at the all- India level.

Level of satisfaction on laboratory facilities available at the UPHC

It is a common knowledge that the availability as well as quality of laboratory facilities at PHC & UPHCs and their utilization matters a lot in the sphere of rural health care services as they are mostly utilized by the rural people. Almost all the patients selected were utilized the laboratory facilities, in the respective UPHCs, during the times of check-up and treatment.

To know the level of satisfaction of the selected patients from the laboratory facilities a five-point Likert Scale: Excellent, Good, Fair, Poor and Very poor was administered. As it will take space, if the facility-wise explanation was given, a brief summary was made. It was found that only 6.4% of them given their satisfaction level as excellent; 35% as good; 39% as fair; 19.6% as poor and none rated as very poor.

Table: 4 Level of satisfaction on laboratory facilities available at the UPHC

S.No	Facilities at PHC	Excellent	Good	Fair	Poor
1	Blood Test	5 (1.77)	110 (39.14)	122 (43.41)	44 (15.65)
2	Diabetes Test	26 (9.25)	102 (36.29)	94 (33.45)	59 (20.99)
3	ECG Test	14 (4.98)	108 (38.43)	112 (39.85)	47 (16.72)
4	Scan	21 (7.47)	104 (37.01)	94 (33.45)	62 (22.06)
5	HIV Test	14 (4.98)	107 (38.07)	111 (39.50)	49 (17.43)
6	Sputum Test	18 (6.40)	111(39.50)	97 (34.51)	55 (19.57)
7	Stool Test	22 (7.82)	100 (35.58)	106 (37.72)	53 (18.86)
8	Urine Test	12 (4.27)	107 (38.07)	106 (37.72)	56 (19.92)
9	Malaria Test	21 (7.47)	98 (34.87)	105 (37.36)	57 (20.28)
10	X-ray Test	16 (5.69)	115 (40.92)	99 (35.23)	51 (18.14)
11	Ca Cervix Test	15 (5.33)	95 (33.80)	118 (41.99)	53 (18.86)
12	Ca Breast Test	26 (9.25)	104 (37.01)	109 (38.79)	42 (14.94)

(Figures in parenthesis are percentages)

Satisfaction level of special care unit providing healthcare

Special care units functioning in UPHCs are Siddha unit, Eye check-up and Dental Care. With respect to special care units at the selected UPHCs and their services the selected patients were asked to rank them. Most of them ranked as fair (43%) followed by Good (36%). It indicates that Siddha, dental and eye-check-up care facilities were effectively carried out by the medical and paramedical professionals in the selected UPHCs.

Table 5 Satisfaction level of special care unit providing healthcare

S.No	Name of the Special Care Unit	Excellent	Good	Fair	Poor	Total
1	Siddha	0	103 (36.65)	122 (43.41)	56 (19.92)	281
2	Dental	2 (0.71)	100 (35.58)	121 (43.06)	58 (20.64)	281
3	Eye-Check-up	0	106 (37.72)	122 (43.41)	53 (18.86)	281

(Figures in parenthesis are percentages)

Assessing level of awareness about welfare schemes and utilization at UPHC

The welfare schemes taken up for the analysis were Dr.Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS), Janani Suraksha Yojana (JSY) and Free Ambulance Service - Janani Shishu Suraksha Karyakaram. It was found that 244 (86%) of the respondents were aware on welfare schemes offered by the Government in relation to maternity benefit. At the same time the welfare scheme availed respondents were found as very low. About 44%, 28% and 24% of the respondents were availed the welfare schemes like Dr.MRMBS, JSY and JSSK respectively.

Table: 6 Assessing level of awareness about welfare schemes and utilization at UPHC

S.No	Name of the Programme / Scheme	Good	Moderate	Poor	Scheme availed	Scheme availed /Percentage
1	Dr.Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS)	244 (86.83)	11	26	124 (44)	44.12
2	Janani Suraksha Yojana (JSY)	241 (85.76)	9	31	81 (29)	28.82
3	Free Ambulance Service – Janani Shishu Suraksha Karyakaram	241 (85.76)	13	27	76 (27)	24.91

(Figures in parenthesis are percentages)

Conclusion

On the basis of the household level survey and the information given by the respondents with respect to the healthcare services offered by UPHCs the following observations were made. With respect to healthcare decision making it was found that gender, family size, community, education and occupation were significantly influenced the respondents healthcare seeking behaviour. The level of satisfaction on the laboratory facilities offered by the selected UPHCs was found as fair according to 39% of the selected respondents and good by 35% of the respondents. About the special units like Siddha, Dental and Eye check-up and their services also the respondents were expressed satisfaction. On the maternity benefits schemes the beneficiaries found aware of and utilized them properly.

Future research should focus on evaluating the long-term impact of these interventions and exploring innovative approaches to delivering healthcare services in rural settings.

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