

## Effective Utilization of Health Care Services Provided by Primary Health Centre and Sub-Centres in Rural Tamilnadu, India

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### Abstract

The utilization rates in public health services systems ranges from 10-30%. The skewed rural/urban availability of public health services is well known. This study has been done to study the extent of utilization of primary health care services in a primary health centre and its Subcentres and the factors associated for the utilization of services. Methods: This descriptive study was conducted at Orathur PHC, Cuddalore district, Tamil Nadu and its sub-centres, covering a population of 45183 by using structured interview schedule with sample size of 3220 (80 houses in each sub-centre) by simple random sampling technique. Results: 60.2% of selected households are located beyond 5 kms. Out of 560 households, 552 are headed by males and the remaining females. 71.96% of study subjects had formal education. 85.5% of respondents were aware of the PHC. 71.2% of respondents had satisfactory opinion about health services. Only 45.40% and 58.80% of the patient's households with acute & chronic illness had utilized the services at PHC respectively. 81.65% of the ANC mothers had utilized the PHC, 77.98% for TT immunization, 75.24% for delivery, 75.76% for postnatal care, and 79% for immunizing their children. Conclusion: The utilization of primary level services (PHC and Subcentres) is better for preventive and promotive care but is poor for treatment of acute illness, intranatal care and family welfare services, special investigation services.

**Key words:** Health care services, Utilization, Maternal and child health care, Primary health centre, Sub centre.

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### Introduction

Equity, along with inter-sectoral co-ordination, community participation and appropriate technology has been described as the principles and pillars of primary health care. The twelfth five year plan document noted with concern the disparities in access to health services between urban and rural areas and the tardy implementation of the schemes in the health sector. It was decided to integrate and strengthen the rural health care institutions through suitable organization and functional linkages between the different tiers of the primary health care system. In most developing countries such as India, utilization of basic health services has remained poor even though there has been increasing public and private expenditure on the provision of advanced health care. Various studies have been done to evaluate the rates of utilization of the public and private sector health services. The utilization rates in public health services systems ranges from 10- 30%. The skewed rural/urban availability of public health

services is well known which are 70% hospitals and 85% of hospital beds under the public domain are located in urban metropolitan areas while 70% of the population lives in the rural and backward areas of the country.

In line with national policy, major thrusts of successive state plans have been provided to improve medical care in the rural sector. There remain concerns, however, regarding the level of utilization of services. Despite having several studies in the past with respect to utilization of health especially in rural areas, the ground situation is highly specific. The local needs and demands for basic health care services vary from place to place. The extent of the utilization of sub-centers or the primary health centers, which may not be optimal, and the factors impeding the utilization of health care services will have to be looked into.

### **Objectives**

1. To study the extent of utilization of primary health care services in a primary health centre and its sub-centres and to compare the difference between effective and non-effective service areas and;
2. To study the factors associated for the utilization of services provided by the primary health centre and its sub-centres.

### **Methods**

This descriptive study was conducted at the Orathur PHC of Keerapalayam block of Cuddalore district, Tamil Nadu and its sub-centres, which covers a population of 45183 in the 37 villages with 7813 houses. The Orathur PHC and its sub-centres belong to the Keerapalayam block of Cuddalore district, Tamil Nadu. The selected settlements were the Paradur, where the PHC is located and the other six sub-centres viz. Keerapalayam, A.Puliyankudi, Madurandaganallur, Sathanmangalam, Vazhakollai and Mazhavarayanallur.

For designing and standardization of interview schedule a structured interview schedule was designed. It was organized under the following components such as the socio demographic characteristics, preventive health services, curative health services and promotive health services. A pilot study was conducted at the Paradur sub-centre covering 25 houses. All efforts were taken in designing the schedule to avoid ambiguity in questions. After the pilot study certain modifications were done in the schedule after thorough scrutiny, with respect to the objectives of the study variables, spacing of the columns etc.

### **Sampling Method**

The utilization rate of public sector health care services ranges from 10-30%. For calculation of sample size for the current study, 10% was taken, which is the utilization rate reported in study done by Nair VM et al in Community utilization of sub-centres in primary health care - an analysis of determinant in Kerala. The sample size determined was 3500 persons with the level of significance at 5% and the power of the study as 90%. The number of population in Orathur PHC service area being 45183 with total houses of 7813, the average number of persons expected in each house would be 5.78. The number of persons needed for the study

was 3220 after the correction factor for finite population of 45183. To get a sample of 3220 people it was decided to survey 557- 560 houses ( $3220/5.78 = 557$ ). As the PHC has 7 sub-centres it was decided to include all the 7 sub-centres, and a sample of 80 houses was fixed in each sub-centre.

A simple random sampling technique was used to select the houses. The head of the house or a responsible member of the house was interviewed. The study period was six months. The survey was carried out in the afternoons and in the evenings as most of the respondents would be available by that time after their agricultural work. The objective and purpose of the study were explained to the respondents in the local language, in an effort to obtain their cooperation. In spite of the procedure, 3 houses one from each subcentre (viz.) mazhavarayanallur, Sathamangalam and Keerapalayam, which were locked for more than 1 month, had to be deleted from the study and the next adjacent house was included in the sample in all the 3 cases.

## Results

The following data are obtained from the survey, which was conducted from May 2005 to September 2005. The population surveyed is from households of 560 houses in Orathur. Sources of other health care facilities are as following;

- No allopathy practitioners within the sub-centre areas.
- No doctor attached to Orathur PHC practices at Orathur.
- Primary care and basic secondary care are available near 2 subcentre areas.
- Primary, basic and advanced secondary care and tertiary care are available at government hospital, Chidambaram and Rajah Muthiah medical college and hospital, as well as private clinics and nursing homes.
- Referrals are usually made to district headquarters hospital at Cuddalore (40km distance approximately) or JIPMER - Pondicherry apart from the RMMCH at Chidambaram.
- Besides, indigenous practitioners are available at most of the panchayat areas.

With utilization being the dependent (outcome) variable, influence of some of the independent variables such as the distance, education, preference, opinion and nature of illness (acute/chronic) were studied. The male population constitutes 53.54% and the female population accounts for 46.46% (Table 1).

**Table-1 Age and sex wise distribution of members in 560 households in Orathur PHC area.**

Age Group (years)	Male (%)	Female (%)	Total (%)
<1	37 (1.20)	26 (0.84)	63 (2.05)
1-5	13 (4.40)	99 (3.23)	234(7.63)
5-15	290 (9.46)	248 (8.09)	538 (17.56)
15-30	496 (16.19)	422 (13.17)	918 (29.97)
30-45	337 (11.00)	312 (10.18)	649 (21.18)
45-60	233 (7.60)	215 (7.01)	448 (14.62)
>60	112 (3.65)	101 (3.29)	213 (6.95)
<b>Total (%)</b>	<b>1640 (53.54)</b>	<b>1423 (46.46)</b>	<b>3063</b>

From the above table-2 it was found that 60.2% of the selected households are located beyond 5 kms. Out of 560 households, 552 are headed by males and the remaining by the female. 71.96% of them have formal education while 28.04% do not have formal education (Table 2). Majority of the study subjects (70%) prefer the PHC while 30% prefer other health care sources, such as government (taluk headquarters) hospital, Chidambaram, Rajah Muthiah medical college hospital and private practitioners. 85.5% are aware of the PHC while 14.5% are not aware of the PHC. (Those who are aware have expressed, in case they fell sick, they are supposed to attend the Orathur PHC). 71.2% of the respondents have satisfactory opinion while 28.8% of them did not want to express their opinion. 45.40% of the patient`s households with acute illness had utilized the services at PHC. Among the 54.60% who sought other health care sources, 28.10% utilized the private practioners, 12.97% indigenous practioners, 5.94% taluk HQ Hospital and 7.59% Rajah Muthiah medical college and hospital. Majority of them (58.80%) were utilizing the PHC during chronic illness while 41.20% utilized the other health care sources.

**Table 2 Distance from house to the PHC and Educational Status of the Head of the Household.**

Distance in km	No	%	Level of Education	No	%
1-5	223	39.8	Uneducated	157	28.04
6-10	274	48.9	Primary	268	47.85
11-14	63	11.3	Middle and High School	109	19.47
			Graduates	26	4.64
<b>Total</b>	<b>560</b>	<b>100.00</b>	<b>Total</b>	<b>560</b>	<b>100.00</b>

From the above table-2 it was found that 41.20% utilizing the other health care sources, majority of them (14.23%) utilized the RMMCH (medical college hospital), 13.85% utilize the private clinics while 13.12% utilized the taluk HQ hospital, Chidambaram.

**Table-3. Preferences of health care sources by the respondents, opinion about PHC by the respondents and opinion about PHC services by the respondents (n=560).**

		No	%
	PHC	392	70.00
Place of health care	Other health care sources	168	30.00
Awareness	Aware yes	479	85.5
	Not aware	81	14.5
	Good	-	-
	Satisfactory	399	71.2
Opinion	Poor	-	-
	No idea	161	28.8

From the above table-2 it was found that among the 23 mothers, 15 mothers who were in their first trimester had not registered for antenatal care and the remaining 8 who were in their II & III trimester have registered. Hence the number of mothers utilizing the antenatal care added up to 109 (101 already delivered plus the 8 currently pregnant mothers have registered (in the 2 years reference period). 81.65% of the ANC mothers had utilized the PHC while

18.35% had utilized the other health care sources. 77.98% have utilized the PHC while 22.02% have utilized the other health care sources for their TT immunization. Majority of the mothers (75.24%) had utilized the other health care sources for deliver while 24.76% had delivered at PHC. Majority of the mothers (75.76%) utilized the PHC while 24.24% mothers had utilized the other health care sources for the postnatal care. Enquiry regarding the family welfare services was restricted to 124 mothers, who have reported pregnancy during the 2 years period. Even though vasectomy was included in the enquiry, no one reported vasectomy. Out of 124 mothers, 37 mothers reported that they had been practicing spacing methods and 25 mothers reported that they underwent tubectomy.

**Table-4 Distribution of utilization of health care services by the respondents of the selected households**

Utilization	Place of Health care	Other Health care Sources	Total*
Utilization of health care by persons with acute illness in Orathur PHC area	84 (45.40)	101 (54.60)	185 (100)

Utilization of health care by persons with chronic illness in Orathur	157 (58.80)	110 (41.20)	267(100)
(IFA Tabs) by mothers belonging to Orathur PHC	89 (81.65)	20 (18.35)	109 (100)
Tetanus toxiod utilization by antenatal mothers in Orathur	85 (77.98)	24 (22.02)	109 (100)
Facility for special investigations during antenatal period	-	50 (50)	50 (100)
Utilization of health care facility for Intranatal Services	25 (24.76)	76 (75.24)	101 (100)
Utilization of PNC Services by PostnatalMothers in Orathur PHC Area	50 (75.76)	16 (24.24)	66 (100)
Utilization of family services by postnatal mothers in Orathur PHC Area	24 (64.86) (Spacing)	13 (35.14) (Spacing)	37 (100)
	11 (44.00) (Permanent)	14 (56.00) (Permanent)	25 (100)
Utilization of immunization services for children completed 1 <sup>st</sup> year	60 (78.94)	16 (21.06)	76 (100)

\* Number of subjects who have responded for the question

From the above table-2 it was found that out of the 37 mothers (59.67%) practicing spacing methods, 64.86% utilized the PHC services while 35.14% utilized the other health care sources (10.81% from RMMCH, 10.81% from the Chidambaram Taluk headquarters hospital and 13.51% from the private hospitals).

**Table-5 Distribution of acute illness by both the educational status of Head of Households and the distance from the PHC, place of health care opted and the distance they travel to PHC.**

Educational Status			Chi Square	Total	
	Uneducated	Educated			
	<5 km	6 (16.67)	45 (83.33)	9.45	54 (29.18)
Distance	>5 km	45 (34.36)	86 (65.64)	P – 0.002	131 (70.82)
	Total	54 (29.19)	131(70.81)		185
Place of Health care	PHC	18 (21.43)	66 (78.57)	3.40	84 (45.41)
	Other Health Sources	34 (33.66)	67 (66.34)	P – 0.065	101(54.59)

	Total	52 (28.10)	133(71.87)		185
Distance	<5 km	6 (13.04)	40 (86.96)	6.50	46 (54.76)
	>5 km	14 (36.84)	24 (63.16)	P – 0.01	38 (45.24)
	<b>Total</b>	<b>20 (39.80)</b>	<b>64 (76.19)</b>		<b>84</b>

From the above table-2 it was found that among the 25 mothers (40.33%) who underwent tubectomy, 44% utilized PHC while 56% had utilized the other health care sources (16% from the Rajah Muthiah medical college and hospital, 12% from government hospital and 28% from the private hospitals). Majority of them (79%) had utilized the PHC and sub-centre services for immunizing their children while 21% had utilized the other health care sources (Table 4). Majority of the houses (70.82%) with acute illness were located beyond 5 kms while 29.18% were located within 5 kms. Majority of the head of the households from both distance categories were educated, amongst which 83.33% resides within 5kms and 65.64% residing beyond 5kms. Out of the 54.59% utilizing the other health care sources - 63.34% of the head of the households had formal education and similarly from among the 45.41% utilizing the PHC, 78.57% of the head of households had formal education. There is no significant association between the educational status and source of health care. 86.96% of the patients with acute illness utilizing the PHC are residing within 5 kms had their head of the households formally educated as compared to 13.04% being not educated. Even in the households located beyond 5kms, educational status is found to be significantly influencing health care utilization at PHC.

## Discussion

The utilization pattern of the various health care services at the Orathur PHC and other health care sources were studied in order to analyse the effective utilization of the health care services at the Orathur PHC. In this study, the population surveyed was from 560 households consisting of 53.54% males and 46.46% females. The 2011 population census also reveals similar findings consisting of 51.88% of males and 48.12% of females. The impact of distance factor on the utilization has been studied by many. Buor D in his study in analyzing the primacy of distance in utilization of health services in the Ahafo-Ano south district, Ghana found that the respondents were prepared to cover an average distance of 5kms to access health care. Also a study by Samuel RGE et al has found that good proportion of people prefer to have an health care facility nearer to their villages (within 2km).<sup>7</sup> It is observed that the utilization of health care services at the PHC fell regularly with the increasing distance. In the present study the utilization of services for acute illness at the PHC varied according to the distance. Nearly 71% of the patients with acute illness have utilized the other health care sources when the distance of PHC, was beyond 5kms from their house when compared to 29.18% utilizing the PHC when the distance was less than 5kms. As per the 2011 population census the total percentages of literates were 65.38%, with 75.85% and 54.16% in male and female respectively. The present study also shows similar findings. 71.25% of the head of the households being males have formal education.

The impact of the education on utilization of health care services has been found in many studies. Grossman M in his study found that education has a positive relationship with the use of health services. Similarly Buor D in his study has found that the one with good level of education would appreciate the need to utilize the PHC inspite of the distance and travel time. Ha NTH et al in their study of health services in Vietnam found that education of the head of the households and number of sick persons in the family did not have significant effect over the utilization of public (or) private health care services. Similarly in the present study, the education factor of the head of the households did not show significant relationship in the utilization of PHC with respect to the distance travelled.

In this study it was observed that 70% of the respondents preferred the PHC while 30% preferred other health care sources for health care. In a similar study done by Samual RGE et al on satisfaction and utilization of primary health care facilities in Karnataka reports 41.3% of the households had visited private practitioners and 56.2% visited government institution for health care.

In the present study, 14.5% of the respondents were not aware of the PHC; probably they might not have visited the PHC. Opinion regarding the quality of health care services, and the reputation of the medical personnel were reported in a study by Buor D et al as influencing factors for the utilization of health care. In the present study, 71.2% had good opinion regarding the health care services at PHC while 28.8% had no idea, for which the reason could be that the respondents did not want to express their opinion.

Though the utilization at PHC is found to be less, this study has not considered other variables such as nature of acute illness, timing of onset of symptoms and the treatment infrastructure available. Consideration of those factors would have had different findings. There are many chronic illnesses for which patients have to take medication for longer periods and those who could not afford the medications for chronic illness, tend to utilize the PHC. Similar findings were reported by Samual RGE et al in their study where it was found that 56.2% utilized the government institutions and 41.3% visited the private practitioner during the prevalence of sickness for 30 days. Al-Eissa et al described their morbidity pattern in Saudi Arabia among adolescent and Prakash R et al described among Geriatric population in India. These patterns were not similar to the morbidity pattern in our study as they were specific to age and location.

In the present study, it was found that the 15 mothers in their first trimester had not registered for antenatal care. It is a common practice to register in the second trimester or late pregnancy. In this study 81.65% of the mothers had reported that they had received nutrition supplementation (IFA tablets) from PHC probably due to the following reasons.

- Because of constant motivation of the health worker.
- Due to the financial assistance given by the government to the antenatal mothers.

The present study shows that almost 77.98% received Tetanus Toxoid from the PHC, and this may be due to the regular visits of village health nurses and domiciliary services. In this study it is shown that only 50 mothers have gone for special investigations utilizing private health



facilities. This is due to the non-availability of facilities for special investigations at the PHC studied. The present study shows that only 24.76% of the deliveries had taken place at the PHC, probably because of non-availability of round the clock services and qualified health personnel. 24 hours services are available at some of the community health centers and taluk HQ hospital and some first referral units.

These findings were similar to the study done by Dos R et al and Shariff A et al studies done in India. Similar pattern was shown by Matsumura M et al in their study done in Nepal among mothers and Celik Y et al in Turkey on looking at the socioeconomic determinants of maternal care utilization. In the present study, the reasons for not utilizing the PHC were enlisted with the distance from the house to the PHC being the prime factor followed by the inconvenient timing and drugs being given only for few days at a time forcing the patients to visit the PHC at least twice a week for medications. However, the services of the doctor at the Orathur PHC were reported to be satisfactory. Mooney C et al reported distance to be an important barrier for veterans in their study. Socioeconomic status could influence the utilization of these centres as described by Dunlop S et al in their study.

The limitations of the study include that the study could not go into the details of acute illness and chronic illness and the consideration of factors like nature and duration of the illness would have thrown some more light into the factors influencing utilization of PHC services. And since the study was based on verbal report from the respondents the element of subjectivity cannot be ruled out, but care was exercised during the survey to maximize the reliability of the data.

## Conclusion

Overall, the utilization of primary level services (PHC and Subcentres) is better for preventive and promotive care. For treatment of acute illness, intranatal care and family welfare services, special investigation services, people prefer other health care sources because of the limitations. The reasons for better utilization of primary care for preventive and promotive services such as IFA nutritional supplementation, tetanus toxoid immunization, child immunization could be because of awareness, availability and motivation of the beneficiaries and incentives offered.

In the backdrop of this study, the following recommendations have been suggested, (a) laboratory facilities for special investigations such as the ultrasound, biochemical tests X-rays, etc. to be made available in the PHC itself, (b) Provision of round the clock (24 hours) services at the PHC like those available at the community health centres and Taluk HQ hospitals may improve the utilization of services effectively.

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