

Public Healthcare Sector: Is Losing Its Importance in Rural Tamil Nadu?

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Abstract

In India, though Tamil Nadu is one of the best performing states in health, it is losing its importance in many areas. There is no specialist in Community Health Centres (CHCs) functioning in Tamil Nadu; all specialist posts are vacant, though there is excess number of doctors in primary health centres (PHCs) and enough number of SCs (sub-centres), PHCs and CHCs. The number of PHCs functioning without lady doctors is also the maximum in Tamil Nadu. The shortfall of health workers in PHCs and CHCs is also very much, female health workers (the 2nd highest) and male health workers (the third highest among the states taken for discussion). In the shortfall of female health assistants in PHCs also Tamil Nadu shows a backward position. Operation theatre facility is available only in 6% of PHCs functioning in Tamil Nadu, but Gujarat is having this facility in all its PHCs. On the basis of rural population served, rural area covered, number of villages covered and radial distance covered, Tamil Nadu is not a better placed state. The budget allocation in revenue budget is continuously falling and the fall is very much in Tamil Nadu in comparison with other states except Odisha. All these force the people of Tamil Nadu to make use of private hospitals instead of public healthcare sector (only about 40%).

Keywords: Healthcare sector; Community health centres; Health assistants; Rural population

Introduction

Equal and equitable access to health care facilities is available to all sections of a society only if its public healthcare sector's performance is good. The healthcare services are provided to people of various sections through public hospitals and private hospitals. Public sector hospitals' ownership is divided between the central and the state governments, and the municipal and the local governments. Apart from these, there are public healthcare institutions for selected occupational groups like organized work force (ESI), defence, government employees, railways, post and telegraph and mines. Among these public sector service providers, the healthcare services provided by state governments through their institutions such as sub-centres, primary health centres and community health centres apart from sub-district and district hospitals, are more important than the services provided through other public sector institutions. However, due to the malfunctioning or non-functioning of the public sector, the private sector has grown in leaps and bounds. The private sector is the dominant sector though it had only an insignificant beginning. At the time of independence, the share of the modern medical care provided by the private sector was only 8%. As per the report of the Ministry Health and Family Welfare, now it provided more than 80% of all out-patient care and 60% of all in-patient care [1]. It is not good for an economy like India, where nearly 70% of people are rural. The main scope of these rural people is the public healthcare sector as most of the rural people are poor and marginalized. To make the mass of people healthy, it is a prerequisite to have a strong public healthcare sector, but it is weakening in many states due to lack of support from governments and policy makers. As it is necessary to evaluate the performance of public healthcare sector, the researcher intends to

evaluate the performance public healthcare sector in rural Tamil Nadu in comparison with a few other states.

The broader objective of this article is to assess the performance of public healthcare sector in rural Tamil Nadu and the specific objectives are enlisted as follows.

- To assess the status of healthcare centres in terms of their numbers in rural areas
- To make the readers to understand the facilities available in various centres
- To bring to light the shortfall in healthcare services available in these centres
- To know how the public healthcare sector in rural Tamil Nadu is working
- To suggest ways and means to improve the public healthcare sector in rural Tamil Nadu.

Data Analysis

Over view of health care scenario in Tamil Nadu

Tamil Nadu is one of the better performing states in India. The main reason for better performance of Tamil Nadu is that healthcare policies and government spending on health have emphasized the improvement of primary healthcare services, especially in rural areas and for the poor and disadvantaged sections such as women and children. It is reported that the Health and Family Welfare Department of Tamil Nadu has spent about 45% of its annual budget on primary healthcare. Another reason for the success is that there is greater autonomy to agencies within the public sector. There is a full autonomy and flexibility to plan immunization campaigns and other primary healthcare initiatives and to get all kinds of support from charitable bodies wherever necessary. District officers are given the authority to

develop local solutions to problems that emerged from maternal deaths and successful local strategies have been replicated in other districts to reduce the maternal mortality rate (MMR). Tamil Nadu is the only Indian State with a district public health management cadre at the district level. It is vital for the effective health delivery system. Tamil Nadu effectively uses the resources it receives from the central government and spends more efficiently in comparison with most other states [2].

The government of Tamil Nadu took four complementary actions during 1980s and 1990s, which made a significant contribution to improving health, especially the health of women and children in rural areas. First, Tamil Nadu implemented the multi-purpose workers scheme faster than most other states. It opened nearly 60 schools to train thousands of women. They are given 18 months training in basic primary healthcare. Secondly, the central government of India launched an initiative to expand the number of primary healthcare centres and sub-centres in rural areas, but Tamil Nadu seriously embraced it and built facilities much faster than almost all other states. Another development was the concept 24-hour PHC, which was started in 1997. Within two years, nearly 250 PHCs started giving the round-the-clock service and by 2012, all of the 1612 PHCs joined in this scheme. Three staff nurses are posted to strengthen the primary healthcare system to provide 24x7 delivery care in all PHCs. Thirdly, the universal immunization programme was scaled up across the country with the support of United Nations International Children Emergency Fund (UNICEF) since 1986. Since 1990, Tamil Nadu ranked first among all states in India in the number of children vaccinated. Only 6% of rural and 1.7% of urban received no immunization at all. Fourthly, after 1990s, in Tamil Nadu much importance is given to procure drugs. The establishment of Tamil Nadu medical services corporation (TNMSC) is another significant forward step in procuring drug and about 15% of the state's health budget is spent for drugs [2].

To train healthcare workers there were 20 medical colleges, 18 dental colleges, 113 nursing colleges, 24 colleges for Indian medicine, 41 pharmaceutical colleges, 31 physiotherapy institutions and two occupational therapy institutions [3]. Tamil Nadu state government has also introduced two medical insurance schemes, one is for all workers in organized sector and the other is for the rural poor called, the Tamil Nadu Chief Minister's Health Insurance Scheme, which was introduced in 2009. Further, in the early 1970s, 80% gave birth in their homes, in 1990s it fell to 42% and in 2005 it was only 10%. The percentage of institutional deliveries in public health institutions was 72% in 2010-2011, which increased to 77% in 2012-2013. Safe drinking water is provided to 92.5% (92.2% in rural and 92.9% in urban) as per the data available in the 2011 Census [4], but it is 90.60% (94.5% in rural areas and 86.9% in urban areas) as per the phase I of national family health survey (NFHS)-4 [5].

Due to all these efforts, health indicators in Tamil Nadu show a glowing picture and health indicators such as IMR, MMR and CDR, CBR, LEB and TFR are bright in comparison with the national average and many other states taken for the analysis except Kerala. The Table 1 shows important health indicators both in Tamil Nadu and in India.

Healthcare infrastructure

The public healthcare infrastructure available in a state is the most suitable factor to analyze the performance of the public healthcare sector. The important infrastructure facilities taken for discussion are: number of SCs, PHCs and CHCs and facilities available in these

centers. All the infrastructure facilities available in Tamil Nadu are compared with four developed states, Gujarat, Karnataka, Kerala and Maharashtra and four developing states, Bihar, Odisha, Madhya Pradesh and Uttar Pradesh.

Health Indicators	Tamil Nadu	India
Crude birth rate (per 1000 population)	15.6	21.4
Crude death rate (per 1000 population)	7.3	7.0
Total Fertility rate (per women)	1.7	2.4
Neonatal Mortality Rate (per 1000 live births)	19 (2010)*	33 (2010)*
Under Five Mortality Rate (per 1000 live births)	27	50 (2015)
Infant Mortality Rate (per 1000 pop.)	21	40 (2015)
Maternal Mortality Rate (per lakh live births)	73	178
Life Expectancy at Birth	68.9 (2010)	65.8 (2012)
Male	67.1	64.16
Female	70.9	68.48
*Sample Registration Survey, 2012, Economic and Political Weekly, 2.4.2016.		

Table 1: Selected health indicators in Tamil Nadu and India in 2013.

Health centers and their shortfalls

Tamil Nadu has a strong medical base in comparison with other states. In early 1980s, there were only about 400 PHCs and 4000 SCs across rural areas of Tamil Nadu. In 2015, it had 8706 SCs, 1372 PHCs and 385 CHCs. The details regarding the number of SCs, PHCs and CHCs in 1985, in 2005 and at the end of March 2015 are presented in Table 2.

It is easily observed that there is much increase in the number of SCs, PHCs and CHCs between 1985 and 31st March, 2015 in every state including the developing states. The number of sub-centers in Tamil Nadu increased from 5860 in 1985 to 8706 in 2015, PHCs from 436 to 1372 and CHCs from 30 to 385 in the respective years. In the same way, India the country experiences a good increase in the number of health centers [6,7].

It is appropriate to compare the existing number with the minimum required. The difference is called shortfall. As for as shortfall is concerned, of the nine states taken for discussion all states excluding Karnataka, Kerala and Tamil Nadu have shortfall in these infrastructures in comparison with the minimum requirement. The details of the shortfall are given in Table 2.

Table 3 shows that there are shortfalls in the number of sub-centres, primary health centres and community health centres. The shortfall of sub-centre is the maximum in Bihar with 48%. There are three states, Karnataka, Kerala and Tamil Nadu, with excess number of sub-centres. In the same way, the shortfall of primary health centres is the maximum in Madhya Pradesh with 41%. In Uttar Pradesh, PHCS in position are 34% less than that of the required. The three states mentioned above have excess number of PHCS than the minimum required. As for as CHCs are concerned, the shortfall ranges from 91% in Bihar to zero/excess in three states, here Kerala, Odisha and Tamil Nadu.

STATE	1985			2005			31st March, 2015		
	SCs	PHCs	CHCs	SCs	PHCs	CHCs	SCs	PHCs	CHCs
Bihar	8299	796	52	10337	1648	101	9729	1883	70
Gujarat	4869	310	22	7274	1070	272	8063	1247	320
Karnataka	4964	365	98	8143	1681	254	9264	2353	206
Kerala	2270	199	4	5094	911	106	4575	827	222
MP	6615	680	58	8874	1192	229	9192	1171	334
Maha.	6391	1539	147	10453	1780	382	10580	1811	360
Odisha	4127	484	59	5927	1282	231	6688	1305	377
TN	5860	436	30	8682	1380	35	8706	1372	385
UP	15633	1169	74	20521	3660	386	20521	3497	773
All India	84376	9115	761	146026	23236	3346	152326	25020	5363

Maha.=Maharashtra, UP=Uttar Pradesh, TN=Tamil Nadu, Reqd.=Required
In Post.=in position, Short=shortfall, *=Excess

Table 2: No. of SCs, PHCs and CHCs in different states during 1985 to 2015.

STATE	SCs			PHCs			CHCs		
	Reqd.	In Post.	Short	Reqd.	In Post.	Short	Reqd.	In Post.	Short
Bihar	18637	9729	8908	3099	1883	1216	774	70	704
Gujarat	8008	8063	*	1290	1247	43	322	320	2
Karnataka	7951	9264	*	1306	2233	*	326	206	120
Kerala	3551	4575	*	589	829	*	147	222	*
MP	12415	9192	3223	1989	1171	818	497	334	163
Maha.	13512	10580	2932	2201	1811	390	550	360	190
Odisha	8193	6688	1505	1315	1305	10	328	377	*
TN	7533	8706	*	1251	1369	*	312	385	*
UP	31200	20521	10679	5194	3497	1697	1298	773	525
All India	179240	153655	35145	29337	25308	6556	7322	5396	2316

MP=Madhya Pradesh, Maha.=Maharashtra, UP=Uttar Pradesh, TN=Tamil Nadu, Reqd.=Required, In Post.=in position, Short=shortfall, *=Excess

Table 3: Shortfall of SCs, PHCs and CHCs is different in 2015.

Healthcare persons and their shortfalls

The availability of healthcare persons such as doctors, health workers and nursing staff and specialists is another factor to determine the status public healthcare sector. The shortfall of doctors and specialists is presented in Table 4.

From Table 4 it is clear that there is a shortfall of doctors in PHCs in five states, Gujarat, Karnataka, Madhya Pradesh, Odisha and Uttar Pradesh, the maximum is in Uttar Pradesh with 1288. However, the number of PHCs without doctor is Maximum in Madhya Pradesh with

491. It is followed by Karnataka with 285. The number of PHCs functioning without lady doctor is the maximum in Tamil Nadu with 961. It is followed by Maharashtra with 687. It is the minimum in Madhya Pradesh. As far as the shortfall of specialists is concerned, it is the maximum in Uttar Pradesh with 2608. It is followed by Tamil Nadu with 1540. However it is wonder to note that there is even a single specialists in CHCs functioning in Tamil Nadu, all the post are not filled in, the number of specialists in position is zero against the minimum requirement of 1540. But, Bihar is having the minimum shortfall of only 217 specialists [8].

STATE	Doctors			PHCs		Specialists		
	Reqd.	In Post.	Short	w/o Dr	w/o LDr	Reqd.	In Post.	Short
Bihar	1883	2521	*	6	156	280	63	217
Gujarat	1158	889	358	87	342	1200	74	1206
Karnataka	2233	2196	157	285	414	772	502	322
Kerala	829	1169	*	0	459	896	39	849
MP	1157	999	172	491	89	1336	263	1073
Maha.	1811	2937	*	0	687	1440	578	862
Odisha	1305	1008	297	114	340	1508	356	1152
TN	1369	2375	*	0	961	1540	0	1540
UP	3497	2209	1288	0	319	3092	484	2608
All India	25020	27421	3022	2041	6436	21452	4078	17525

MP=Madhya Pradesh, Maha.=Maharashtra, UP=Uttar Pradesh, TN=Tamil Nadu, Reqd.=Required, In Post.=in position, Short=shortfall, *=Excess, w/o=without, LDr=Lady doctor.

Table 4: Shortfall of doctors in PHCs and specialists in CHCs in different states in 2015.

State	Females (F)			Males (M)			SCs without ANM (F)or/ and (M) Health Workers		
	Reqd.	In Post.	Short	Reqd.	In Post.	Short	F.	M.	Both
Bihar	9729	18935	*	9729	1074	8655	354	3325	323
Gujarat	7274	6938	1125	8063	5778	2285	336	3390	247
Karnataka	9264	8977	287	9264	3148	5855	1359	2587	743
Kerala	4575	4590	*	4575	3401	1174	0	0	0
MP	8764	11057	*	9192	4295	4897	0	3408	0
Maha.	10580	15249	*	10580	6690	3890	277	2471	140
Odisha	6688	7339	*	6688	3546	3142	193	2740	132
TN	8706	7676	1030	8706	2284	6422	1030	1912	0
UP	20521	20265	256	20521	3152	17369	0	14291	0
All India	152326	178480	3934	153655	55657	97998	8138	71433	5053

MP=Madhya Pradesh, Maha.=Maharashtra, UP=Uttar Pradesh, TN=Tamil Nadu, Reqd.=Required, In Post.=in position, Short=shortfall, *=Excess

Table 5: Shortfall of health workers in SCs in different states in 2015.

The shortfall of health workers is an indicator of poor performance of the healthcare institutions. The Table 5 shows the shortfall of health workers in states taken for analysis. It is obvious from Table 5 that there is a shortfall of female health workers (ANM) in four states including Tamil Nadu. The shortfall is the maximum in Gujarat with 1125. It is followed by Tamil Nadu with 1030. The shortfall of male workers is very huge in all states taken for discussion. It is the maximum in Uttar Pradesh with 17369. It is followed by Bihar with 8655 and Tamil Nadu with 6422. There are 14291 sub-centres without male health workers in Uttar Pradesh. The number of sub-centres

without both male and female health workers is the maximum in Karnataka with 743. Tamil Nadu is having 1030 SCs without any female health workers and 1912 SCs without male health workers. These details are available in Table 5.

Another negative factor affecting the performance of public healthcare sector is shortfall of health assistants and nursing staff in health centres. The shortfall of health assistants in PHCs and nursing staff in SCs and PHCs is presented in Table 6.

STATE	Females HA			Males HA			Nursing Staff		
	Reqd.	In Post.	Short	Reqd.	In Post.	Short	Reqd.	In Post.	Short
Bihar	1883	358	1525	1883	25	1858	2373	1736	637
Gujarat	1247	546	701	1247	755	492	3487	2705	782
Karnataka	2353	1030	1323	2353	3409	*	3795	3176	619
Kerala	827	13	814	827	2197	*	2381	3969	*
MP	1171	519	652	1171	288	883	3509	3629	*
Maha.	1811	1801	10	1811	1620	191	4331	2535	1796
Odisha	1305	712	593	1305	0	1305	3944	1260	2684
TN	1372	857	515	1372	1787	*	4067	7349	*
UP	3497	1916	1581	3497	954	2543	8908	4412	4496
All India	25308	13372	12448	25308	12646	15513	63080	65039	12953

MP=Madhya Pradesh, Maha.=Maharashtra, UP=Uttar Pradesh, TN=Tamil Nadu, Reqd.=Required, In Post.=in position, Short=shortfall, *=Excess

Table 6: Shortfall of health assistants (HA) in PHCs and nursing staff in SCs and PHCs in different states in 2015.

From the Table 6, it is clear that there is shortfall of female health assistants in all states and male health assistants in all states, except Karnataka, Kerala and Tamil Nadu. The shortfall of female health assistants is the maximum in Uttar Pradesh with 1581. It is followed by Karnataka with 1323 against the minimum of only 10 in Maharashtra. The shortfall of male assistants is also the maximum in Uttar Pradesh with 2543. The next place is occupied by Bihar with 1858. The shortage of nursing staff is very heavy in UP and Odisha, the respective numbers are 4496 and 2684. There are excess nursing staff members in three states, Kerala, Madhya Pradesh and Tamil Nadu [9,10].

STATE	Labour Room	Operation Theatre	Referral Transport
Bihar	795 (42.2)	496 (26.3)	370 (19.65)
Gujarat	1123 (90.1)	1158 (92.9)	1158 (100)
Karnataka	1677 (71.3)	1239 (52.7)	1050 (44.62)
Kerala	62 (7.5)	60 (7.3)	58 (7)
MP	1140 (97.4)	435 (37.1)	807 (68.92)
Maharashtra	1640 (90.6)	1489 (82.2)	1785 (97.63)
Odisha	1013 (77.6)	0	44 (13.79)
Tamil Nadu	1229 (89.6)	73 (5.3)	1372 (100)
UP	1587 (45.4)	1416 (40.5)	379 (10.84)
All India	17815 (70.4)	9875 (39)	11036 (41.33)

Figures within parentheses show percentage values to total. (Calculated figures). MP=Madhya Pradesh UP=Uttar Pradesh

Table 7: Facilities available in PHCs in different states in 2014.

Other facilities available and their shortfalls

As for as availability of operation theatre in PHCs is concerned, the worst performing state is Odisha and the next worst is Tamil Nadu. However, in the availability of labour room and referral transport, Tamil Nadu is a well performing state, but Kerala is the worst performing state, only 7.5% PHCs have labour rooms and only 7% PHCS have referral transport. In these two areas Kerala's performance is not good though which is the most advanced state in terms of healthcare indicators. These details are given in Table 7.

The other facilities required for the well-functioning of healthcare centres is the availability of regular water supply and electricity. These facilities are available in all SCs only in two states, Tamil Nadu and Gujarat. As for as availability of these facilities in SCs is concerned, Bihar is the worst performing state and in PHCS is concerned Odisha is having the largest number of PHCs without water and power supply. These services are available in all PHCs only in three states, Gujarat, Kerala and Tamil Nadu.

The area covered and the average numbers of persons served by a healthcare centre are also having importance in deciding the performance of healthcare centers in any area. The Table 8 given below shows the average rural population covered by a sub-centre, primary health centre and a community health centre in different states taken for discussion. Kerala is the best performing state in both the years taken for discussion, 2005 and 2015 [11]. It is followed by Madhya Pradesh in 2005 but in 2015, Karnataka is in the second place. The third place goes to Tamil Nadu both in 2005 and in 2015. In the average number of rural population covered by a PHC, Kerala is placed at first, but Tamil Nadu is placed at the fourth and in the coverage of rural population by a CHC, Kerala has the minimum rural population coverage in 2005, but larger population coverage than that of Karnataka in 2015 [12]. In both the years the average rural population covered by a CHC is very high in Tamil Nadu. It is extraordinarily high, 997762 persons per community centre in 2005 against 96700 in 2015. The average number of persons covered by a CHC was 735809 in

Bihar in 2005, but it increased to 1319163 in 2015. It may be due to standardization of health centres, conversion of CHC into PHC, and so in Tamil Nadu, there were only 35 CHCs in 2005, but there were 385 in 2015 and so there was a sudden decrease in the number of persons covered by a CHC in Tamil Nadu in 2015. All these details are presented in Table 9.

State	SCs		PHCs	
	Water	Electricity	Water	Electricity
Bihar	4875 (50.1)	6364 (65.4)	NA	0
Gujarat	0	0	0	0
Karnataka	424 (4.6)	324 (3.5)	92 (3.9)	40 (1.7)
Kerala	607 (13.3)	108 (2.4)	0	0
MP	2922 (31.8)	1885 (20.5)	112 (9.6)	0
Maharashtra	4254 (40.2)	1577 (14.9)	0	36 (2)
Odisha	2797 (41.8)	2632 (39.4)	292 (22.4)	141 (10.8)
Tamil Nadu	0	0	0	0
UP	6660 (32.5)	7377 (35.9)	270 (7.7)	213 (6.1)
All India	43695 (28.5)	39295 (25.6)	1773 (7)	1107 (4.4)

Figures within parentheses show percentage values to total. (Calculated figures), MP=Madhya Pradesh, UP=Uttar Pradesh

Table 8: SCs and PHCs without regular water supply and power supply in different states in 2015.

STATE	2005			2015		
	SC	PHC	CHC	SC	PHC	CHC
Bihar	7189	45095	735809	9491	49040	1319163
Gujarat	4364	29664	116694	4770	32551	115649
Karnataka	4285	20755	137358	4045	16780	19414
Kerala	462	2584	22212	3819	21075	77996
MP	500	37232	193803	5997	45426	157358
Maharashtra	5336	31336	146015	5818	33990	170989
Odisha	5660	24405	135443	5229	26797	92760
Tamil Nadu	4022	25306	997762	4276	27195	96700
UP	6416	35972	341084	7569	44414	200928
All India	5085	31954	221904	5473	33323	155463

Source: Calculated from Table 2 by using Population Census Reports 2001 for 2005 and 2011 for 2015. MP=Madhya Pradesh, UP=Uttar Pradesh.

Table 9: Average rural population covered by a SC, PHC and CHC in different states in 2005 and 2015.

Table 10 indicates the average number of villages covered by a SC, PHC and CHC in two years taken for the discussion, 2005 and 2015.

It is very clear from Table 10 that the average number of villages covered by a SC is the maximum in Odisha in the years, 2005 and 2015, respectively 8.66 and 7.67. The lowest number is in Kerala, 0.2 and 0.22. The second lowest number is found in Tamil Nadu with 1.84 both in 2005 and in 2014. This is the reality as for as PHC is concerned. However, CHC is concerned, Kerala is having the smallest number, only 9.60 villages in 2005 and only 4.54 in 2015, but Tamil Nadu is having the largest number, i.e., 456.54 in 2005, but having the second lowest number (41.50) in 2015. The state which is having the largest number of villages covered by a CHC is Bihar with 641. It is followed by Madhya Pradesh with 164.

STATE	2005			2015		
	SC	PHC	CHC	SC	PHC	CHC
Bihar	4.34	27.23	444.30	4.61	23.83	641.06
Gujarat	2.51	17.03	67	2.51	15.74	60.75
Karnataka	3.60	17.45	115.51	3.17	13.14	152.02
Kerala	0.2	1.12	9.60	0.22	1.23	4.54
MP	6.19	46.06	239.75	6.26	47.45	164.38
Maharashtra	4.17	24.53	114.30	4.13	24.11	121.29
Odisha	8.66	40.03	222.13	7.67	39.32	136.11
Tamil Nadu	1.84	11.58	456.54	1.84	11.67	41.50
UP	5.20	29.15	276.44	5.20	30.51	138.04
All India	4.39	27.58	191.53	4.21	25.61	119.50

MP=Madhya Pradesh, UP=Uttar Pradesh.

Table 10: Villages covered by a SC, PHC and CHC in different states in 2005 and 2015.

Another indicator of the performance of a healthcare institution is the area covered and the radial distance covered by a SC, a PHC, and a CHC. As it is given in Table 11, the average rural area covered by a SC is the minimum in Kerala, only 7.78 km against the maximum of 34.38 km in Madhya Pradesh in 2015. Kerala is also having the least number, both in rural area and radial distance covered by a PHC and a CHC. The average rural area covered by a PHC is 42.96 km and by a CHC is 158.98 km. It is the maximum in Madhya Pradesh for PHC, 260.40 km and for CHC Bihar is having the largest number, 1319.41 km. Tamil Nadu is concerned; it is third for SC, 4th for PHC and third for CHC. In radial distance also Kerala stands first, least number, with only 1.57 km. The next place goes to Bihar with 1.74, but Tamil Nadu occupies third, 1.91 km. The state in which a sub-centre covers the maximum radial distance is Madhya Pradesh, 3.31 km. In the radial distance covered by a PHC also Madhya Pradesh is having the maximum, 9.10 km against the minimum of 3.70 km in Kerala. The next place goes to Bihar with 3.95 km. The 5th place is occupied by Tamil Nadu with 5.23 km. The radial distance covered by a CHC is the minimum in Kerala, 7.11 km. It is followed by Uttar Pradesh, 9.82 km. The 3rd place goes to Tamil Nadu with 9.86 km. Bihar occupies the last place with 20.49 km.

STATE	Rural Area (Sq.km) Covered by a			Radial Distance (km) covered by a		
	SC	PHC	CHC	SC	PHC	CHC
Bihar	9.49	49.05	1319.41	1.74	3.95	20.49
Gujarat	26.23	164.76	635.99	2.89	7.24	14.23
Karnataka	20.15	83.58	966.96	2.53	5.16	17.54
Kerala	7.78	42.96	158.98	1.57	3.70	7.11
MP	34.38	260.40	902.05	3.31	9.10	16.94
Maharashtra	28.39	165.85	834.33	3.01	7.26	16.29
Odisha	22.86	117.17	405.60	2.70	6.11	11.36
Tamil Nadu	13.50	85.85	305.28	2.07	5.23	9.86
UP	11.42	67.02	303.20	1.91	4.62	9.82
All India	20.47	124.63	581.45	2.55	6.30	13.60

MP=Madhya Pradesh, UP=Uttar Pradesh.

Table 11: Average rural area and average radial distance covered by a SC, PHC and CHC in CHCs in different states in 2015.

Healthcare expenditure of different states

Expenditure on healthcare is the basic factor in deciding the availability of all the above mentioned facilities. If a state's expenditure on health increases, it will lead to increase in facilities available. In India, the contrary to this is occurring and the details are given in Table 12.

States	Years				
	1985-1986	1995-1996	2004-2005	2009-2010	2011-2012
Bihar	5.68	7.8	3.1	3.5	4.1
Gujarat	7.45	5.34	2.8	3.8	4.2
Karnataka	6.55	5.85	3	3.6	4.1
Kerala	7.69	6.81	4.5	4.8	5.2
Maharashtra	6.05	5.18	2.7	3.3	3.5
Madhya Pradesh	6.63	5.07	3.1	3.3	3.8
Odisha	7.38	5.42	4	3.8	3.5
Tamil Nadu	7.47	6.4	3.2	4.8	4
Uttar Pradesh	7.67	5.73	3.8	5	4.6
All States	7.02	5.7	3.4	4.2	4.2

Table 12: Expenditure on health in revenue budget of different states (in %).

It is very clear from Table 12 that the expenditure on health in revenue budget is continuously declining. In many states, it is nearly

halved in between 1985-'86 and 2011-'12, though at the national level it decreased from 7.02% in 1985-1986 to 4.2% in 2011-2012. In Odisha, it declined from 7.38% to 3.50% between the two periods. Next it is Tamil Nadu, where it decreased from 7.47 in 1985-1986 to 4.00% in 2011-2012. In other states though decreased, it is not that much as it is in Odisha and Tamil Nadu. The table 13 shows the above mentioned details [13].

All these make the people to choose private healthcare centres instead of public healthcare centres. The usage of public healthcare facilities is very much limited in comparison with the usage of private healthcare services. The primary data collected from two southern districts (Kanyakumari and Tirunelveli) of Tamil Nadu support this view. The Table 13 shows the usage of the distance-wise usage of healthcare providers.

It is obvious from Table 13 that in Kanyakumari district only 36.50% of the respondents have utilized the public healthcare providers, while in Tirunelveli district it is 45%. The utilization of public healthcare facilities in India was only 20% in 2002 (Sangole 2003). In Kanyakumari district, on an average a public health care centre is available within four kilometres and a private clinic is available within three kilometres and in Tirunelveli district the respective distances are 5 and 4.67 kilometres. However a few respondents make use of a distant centre as they feel that the treatment given in that centre is good. In some areas, people have visited public hospitals even though they are far away. For example, in Agasteeswaram taluk, six households have made use of public hospitals though they are 14 km to 18 km away. On the other hand, out of 15 respondents having public hospitals with a distance less than three kilometres, only seven have made use of public healthcare. In Kalkulam taluk, no one has made use of public hospital though public hospital is available within three kilometres. In Vilavancode taluk, two households have public hospitals within three km, but both did not use the service of the public hospitals.

Distance in km		≤ 3	04-Aug	Sep-13	14-18	19+	Total
Kanyakumari	Public	11	38	18	6	0	73
	Private	20	62	27	15	1	127
	Total	31	100	42	26	1	200
Tirunelveli	Public	39	36	7	8	0	90
	Private	40	50	7	9	4	110
	Total	79	86	14	17	4	200
Total		110	186	59	43	5	400

Table 13: Distance-wise utilization of healthcare providers.

Discussion

From the data given in Tables 2 and 3, it is easy to observe that there is a substantial increase in the number of sub-centres, primary health centres and community health centres functioning in different states. However in comparison with minimum requirement, there is widespread shortage in all states except Karnataka, Kerala and Tamil Nadu. The healthcare infrastructure in terms of number of health centres functioning is very strong, more than the minimum required, in Tamil Nadu. However there is no increase in the number of sub-centres after 2012, it is 8706 in 2012 and it remains the same even at the end of March 2015. To a well-functioning of the public healthcare sector the number has to be increased according to the increase in population [14].

Another lacunae in the functioning of public healthcare sector is the availability of doctors in PHCs and specialists in CHCs. It is disheartening to note that there is no specialist in CHCs functioning in Tamil Nadu; all specialist posts numbering 1540 are vacant, though there is excess number of doctors in PHCs. The number of PHCs functioning without lady doctors is also the maximum in Tamil Nadu with 961 (Table 4). The shortfall of health workers in PHCs and CHCs is also very much, female health workers (the 2nd highest) and male health workers (the third highest) at the end of March 2015 [15]. As for as the shortfall of male health workers is concerned, Tamil Nadu stands third only after Uttar Pradesh and Bihar and in the shortfall of female health workers Tamil Nadu is better than only Gujarat behind all other states taken for comparison (Table 5). In the shortfall of female health assistants in PHCs also Tamil Nadu shows a backward position, the shortfall is to the tune of 515 in 2015, though there are excess numbers of male assistants and nursing staff (Table 6).

The other facilities available in health centres also have a strong impact on the functioning of healthcare institutions. Though nearly 90% of PHCs and 100% of SCs are having labour rooms and referral transport facilities, operation theatre facility is available only in 5% of PHCs functioning in Tamil Nadu, but Gujarat is having this facility in all its PHCs (Table 7). However, in Tamil Nadu all SCs and PHCs have regular water supply and electricity connection along with Gujarat while Bihar is having the maximum number of SCs without these facilities and Odisha is having the maximum number of PHCs without these facilities (Table 8) [16].

Kerala is the best performing state in terms of average number of rural population served by a sub-centre in both the years taken for discussion, 2005 and 2015. The third place goes to Tamil Nadu both in

2005 and in 2015. In the average number of rural population served by a PHC, Kerala is placed at first, but Tamil Nadu is placed at the fourth and in the coverage of rural population by a CHC, Kerala has the minimum number in 2005, but Karnataka is the best state in 2015. In both the years the average rural population covered by a CHC is very high in Tamil Nadu, 997762 persons in 2005 and 96700 in 2015 (Table 9).

In terms of number of villages covered by a CHC also Tamil Nadu shows only poor results. Though Tamil Nadu is next to Kerala in terms of average number of villages covered by a SC and a PHC, CHC is concerned, Kerala is having the smallest number in both the years, but Tamil Nadu is having the largest number in 2005, but having the second lowest number in 2015. The reason for this sudden improvement in the coverage of villages covered by a CHC in Tamil Nadu is due to a sudden rise in the number of CHCS, from 35 in 2005 to 385 at the end of March 2015. However, on an average a community health centre covers nearly 42 villages against only five villages in Kerala (Table 10).

On the basis of rural area covered and radial distance covered by a SC, a PHC and a CHC, Tamil Nadu exhibits only a poor show. Tamil Nadu is concerned; it is 4th for SC even after Bihar and UP, 5th for PHC even after Bihar and UP and third for CHC, even after UP on the basis rural area covered. Its performance is poorer in 2015 than that was in 2005. In both the rural area covered and radial distance covered Kerala stands first. The next place goes to Bihar, but Tamil Nadu occupies third. The radial distance covered by a CHC is concerned Tamil Nadu is even after Uttar Pradesh (Table 11).

All these mean that though Tamil Nadu is very strong on the basis of the number of health centres functioning, it is behind even the most backward states like Bihar and Uttar Pradesh in some areas like availability of specialists in CHCs and health workers in SCs and the rural area covered by a health centre. It is easy to researcher and academicians to infer that though there was strong health infrastructure in Tamil Nadu, it is losing its stand in terms of its public health sector performance mainly due to a continuance fall in the financial allotment in annual budgets. While the percentage of budget allotment has declined between 1985-1986 and 2011-2012, from 7.02% in 1985-1986 to 4% in 2011-2012 (less by 43%) for the nation as whole, in Tamil Nadu it has fallen very sharply from 7.47 to 3.2 (less by 57%) in 2004-2005 and slightly increased to 4.00 (less by 46%), in 2011-2012. The percentage of expenditure on health in 2011-2012 is lower in Madhya Pradesh, Maharashtra and Odisha than that is in Tamil Nadu

(Table 12), but the percentage was very much less even in 1985-1986 except Odisha. It is less by 53% between these two periods in Odisha, 43% in Madhya Pradesh and 42% in Maharashtra. In all other states the fall is not to that extent. Due to all these reasons, the usage of public healthcare is very limited in both the districts surveyed (Table 13). If these conditions continue, certainly Tamil Nadu will lose its position in health very soon [17].

It is the duty of the state take suitable measures to regain its position in the health status. The foremost thing the government of Tamil Nadu has to do is to fill the vacancies in all its health centres. It is also necessary to increase the number of health centres according to the increase in the state population. The facilities available in these centres, particularly operation theatre facility should be enhanced. The amount allotted to public health in revenue budget should be increased at least to 6% so to provide enough funds for improving every facility required for the good performance the public healthcare sector in rural Tamil Nadu as it is first and best scope for the rural poor and also to avoid impoverishment of rural households.

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