

An Evaluation Of Primary Health Care System In Namakkal District, Tamil Nadu

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Abstract

“Health is not everything in life. But life is nothing without health.”

Health of the people is really the foundation upon which all their happiness and all their power as a state depend. Health is a component of what is known as welfare and it is man’s most precious possession. Good health and long life have therefore traditionally been the most prized goals of mankind. Good health is considered as a pre-requisite for economic development and social welfare. A healthy community is the infrastructure upon which an economically viable society can be built up as unhealthy people can hardly be expected to make any valid contribution. Thus, health is considered as highly valued asset. It is even claimed that health is the only thing that counts in life. The objective of the study is (i) to examine the working of the primary health care system in Namakkal District. (ii) to assess the impact of the working of primary health care system on the health status of the rural population and (iii) to analyse the operational efficiency of the primary health centre in providing primary health care to the rural people. This paper covers rural and urban primary health centre of blocks in Namakkal District. The secondary data have been collected from Deputy Director of Health Service in Namakkal District. Average method has been used for analysis. It is evident from the analysis that the status of rural health infrastructure. The slowly improved that rural health infrastructure facilities, especially in case of health centres in the region some after implementation of government health care programme. The payment of money on the day of delivery to be enforced strictly and funds should be made available at time at health care facilities. It is reduce the maternal mortality rate and infant death rate, condition of the region has been awful in terms of progress in physical health care infrastructure, especially in terms of the facilities available in health centres, quality of health care services and availability of manpower, be it specialists, doctors, nurses or other health works.

Introduction

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Health of the people is really the foundation upon which all their happiness and all their power as a state depend. Health is a component of what is known as welfare and it is man’s most precious possession. Good health and long life have therefore traditionally been the most prized goals of mankind. Good health is considered as a pre-requisite for economic development and social welfare. A healthy community is the infrastructure upon which an economically viable society can be built up as unhealthy people can hardly be expected to make any valid contribution. Thus, health is considered as highly valued asset. It is even claimed that health is the only thing that counts in life.

Primary Health Care: Changing Concepts

One of the great difficulties in delivering health care to the common man in the developing countries is that it does not percolate into the grass root levels in the villages. With political independence, there was a national commitment to improve health in developing countries. Against this background different approaches to providing health care came into existence. They are

Comprehensive health care: The term ‘comprehensive health care’ was first used by the Bhore Committee in 1946. By comprehensive services, the Bhore Committee meant provision of integrated preventive, curative and promotive health services from “womb to tomb” to every individual residing in a defined geographic area. The Bhore Committee suggested that comprehensive health care should replace the policy of providing more medical care. This concept formed the basis of national health planning in India and led to the establishment of a net work of primary health centres and sub centres.

Basic health services: In 1965, the term “basic health services” was used by UNICEF / WHO in their joint health policy. Basic health services is understood to be a net work of coordinated, peripheral and intermediate health units capable of performing effectively a selected group of functions essential to the health of an areas and assuring the availability of competent professional and auxiliary personnel to perform these functions.

Primary healthcare: A new approach to healthcare came into existence in 1978, following an international conference at Alma Ata. This is known as primary health care”. It has all the hallmarks of primary health care delivery, first proposed by the Bhore Committee in 1946 and espoused worldwide by international agencies and national governments.

Before Alma-Ata, primary health care was regarded as synonymous with “basic health services” “easily accessible care”, “Services provided by generalists” etc. The Alma-Ata international conference gave primary healthcare a wider meaning. The Alma-Ata Conference defined primary healthcare as “essential health care made universally accessible to individuals and acceptable to them, through their full participation and at a cost the community could afford”

Rural Health Care System in India

The health care infrastructure in rural areas has been developed as a three-tier system with Sub-Centre (HSCs), Primary Health Centre (PHCs) and Community Health Centre(CHCs) being the three pillars. The Sub- Centre is the most peripheral and first contact point between the primary health care system and the community, whereas the PHC is the first contact point between village community and the medical officer, and CHC is the referral centre for four PHCs, which also provides facilities for obstetric care and specialist consultations. The growth of the Sub Centre is a prerequisite for the overall progress of the entire system. Along with the progress in health Centres, other health care facilities, availability of manpower and quality of health services are other important components of rural health care infrastructure.

The establishment of these health centres is based on certain population norm, which further is different for plain areas and Hilly / Tribal / Desert areas. The population norm in plain areas is 5000 per Sub Centre, 30000 per PHC and 120000 per CHC; whereas that for Hilly / Tribal / Desert areas is 3000 per Sub Centres, 20000 per PHC and per 80000 per CHC.

Sub-centre level

The sub-centre is the peripheral outpost of the existing health delivery system in rural areas. They are being established on the basis of one sub-centre for every 5000 population in general and one for every 3000 population in hilly, tribal and backward areas. Each sub-centre is manned by one male and one female multipurpose health worker. At present, the function of a sub-centre are limited to maternal and child health, family planning and immunization. The work at sub-centre is supervised by male and female health assistants. According to the revised nuns, one female health assistants will supervise the work of 16 female health workers.

Primary health centre level

The primary health care infrastructure provides the first level of contact between the population and health care providers up to including primary health care physicians and forms the common pathway for implementation of all the health and family welfare programmes in the country. It provides integrated promotive, preventive, curative and rehabilitative services to the population close to their hearth and home. Majority of the health care needs of the population is taken care of by the trained health personnel at the primary health care level. Those requiring specialized care are referred to secondary or tertiary care facilities with adequate referral linkages will provide essential health and family welfare services to the entire population.

Community Health Centres

The present primary health centres, while serving a population of 50000 to 60000 will also function as referral centre. The suggestion of the Government of India is to convert all the block primary health centres into community health centres provided they have certain minimum facility. The community health centres should have a minimum of 30 beds, X-ray facilities, operation theatre, laboratory and some specialty services. The community health centers will function as a referral centre for 4 to 5 primary health centres, in addition to being the direct action centre for 50000 to 60000 populations.

Health Infrastructure in Tamil Nadu

The state has a three-tier health infrastructure comprising of Hospitals, Primary Health Centres, Community Health Centres and Sub-Centres. As of March 2011, the state had 30 District Hospitals, 231 Sub-Divisional Hospitals, 385 Mobile Medical Units, 1,204 Primary Health Centres, 8,706 Sub-Centres and 385 Community Health Centres.

Operational Efficiency of Primary Health Care System

Operational efficiency of primary health care system is measured through operational efficiency of health centres from the beneficiary point of view using awareness, accessibility, availability and the efficiency with which these institutions serve the people. In addition, evaluation of maternal and child health care services also analysed in this section.

Operational Efficiency of Primary Health Centres

Operational efficiency of Primary Health Centres are measured through quality assessment using the information collected from the people related to their awareness, accessibility, availability and the efficiency with which these institutions serve people. These are discussed in this section for the performance evaluation of primary health centres.

Health infrastructure in Namakkal District

Overall health infrastructure in Namakkal district consist of two revenue divisions, five taluks, 15 blocks, 322 villages Panchyats, 19 Town Panchayats & five municipalities with a total population of 17,26,601(Census 2011) , this district has followed government health care facilities.

Sl. No	Infrastructure	(in Nos.)
1	District Head Quarters Hospital	1
2	Taluk hospitals	3
3	Non-taluk Hospitals	4
4	CEmONC Centres	4
5	NICU/SNCU	3
6	Primary Health Centres	52
7	UGPHCs	13
8	Hospital on Wheels	15
9	Health Sub Centre	240

Source: DDHS, Namakkal District

Health Indicators

Health Indicators	Namakkal	T.N	India
Total Fertility rate('000)	1.75	1.7	2.6
Birth rate ('000)	13.8	15.8	22.8
Death rate ('000)	7.3	6.1	74
Infant mortality rate ('000)	20.5	21.2	53
Maternal mortality ratio	102	97	212
Under 5 mortality	24.2	24.2	69
Still birth rate	14.7	11.6	-
Decennial growth rate	15.25	15.6	17.64
Sex ratio (No. of Female/1000 male)	986	995	940
Child Sex ration	913	946	914
literacy rate (%)	Male	83.09	86.81
	Female	66.68	73.86
	Total	74.92	80.33

Source: Census 2011

Rural and urban population in Namakkal District As per 2011 census, 59.68 per cent (17,26,601) population of Namakkal districts lives in rural areas of villages of which males and females are 5,20,684 and 5,09,792 respectively and (40.32 per cent) lives in urban regions of district. In total 6,96,125 people lives in urban areas of which males are 3,48,596 and females are 3,47,529.

Objectives

1. To examine the working of the primary health care system in Namakkal District.

2. To assess the impact of the working of primary health care system on the health status of the rural population.
3. To analyze the operational efficiency of the primary health centres in providing primary health care to the rural people.

Methodology

The present study is based on secondary data collected from Deputy Director of Health Service (DDHS) Office, Namakkal District. Ministry of Health and Family Welfare Reports, Economic Survey, Central Bureau of Health Intelligence (CBHI), journals and periodicals. The collected data have been analysed by using average growth rate and percentage method.

Results and Discussion

Sex Ratio

Sex ratio is number of females per thousand of males. According to 2011 census, sex ratio is Namakkal District population. Sex ratio is 986 females per 1000 males. If child ratio is considered, it is 914 girls 1000 boys. It is child in the age (0-6).

If urban areas sex ratio is 997 as per 2011 census records. Similarly child sex ratio was 938.child population (0-6) in urban region.

Literacy Rate

Literacy rate in rural areas was 71.34 percent as per census 2011, Gender wise, it was 80.21 percent of male and 62.36 percent of female. It is literacy rate was 79.51 percent of which males and female are 86.28 percent and 72.77 percent literates in urban areas.

Periodical Medical Check-up

When pregnancy has been confirmed, the pregnant women must be medically checked up as follows, Pregnancy is measured in trimesters from the first day of your last menstrual period, totalling 40 weeks. The first trimester of pregnancy is week 1 through week 12, or about 3 months. The second trimester is week 13 to week 28. And the third trimester of pregnancy spans from week 29 to week 40 the birth.

Table – 1 Antenatal care checkups (in Numbers)

Sl. No.	Year	First Trimesters	Second Trimesters	Third Trimesters	Total
1	2005-06	19128 (73.2)	5924 (22.6)	1076 (4.1)	26128 (100)
2	2006-07	18710 (71.6)	6061 (23.2)	1345 (5.1)	26116 (100)
3	2007-08	19478 (74.3)	5767 (21.9)	970 (3.7)	26215 (100)
4	2008-09	19420 (76.7)	5065 (20.0)	827 (3.3)	25312 (100)

5	2009-10	20631 (82.5)	3711 (14.8)	654 (2.6)	24996 (100)
6	2010-11	19767 (79.4)	4591 (18.4)	549 (2.2)	24907 (100)
7	2011-12	18774 (77.8)	4793 (19.8)	562 (2.3)	24129 (100)
8	2012-13	18803 (81.5)	3650 (15.8)	620 (2.6)	23073 (100)
9	2013-14	19230 (76.5)	5149 (20.5)	750 (2.9)	25129 (100)
10	2014-15	17507 (72.4)	6125 (25.3)	560 (2.3)	24192 (100)

Note: Figures in parentheses are percentage

From the above table it was clearly observed that antenatal checkups were more at the first trimester (73.2 percent) and were reduced (22.6 percent) in second and third trimester (4.1 percent) in initial period 2005 to 2006. The high rate of checkups during the early period of pregnancy is out of curiosity, to undergo routine antenatal tests to know the health status of the foetus and the mother. At the end of period, 72.4 percent, 23.3 per cent and 2.3 percent the reduced checkups in the later periods were, due to decreased interests in males to take care of wife's antenatal checkups, improper guidance and poor awareness regarding the importance of antenatal checkups.

Iron Folic Action

The vaccinations are given two times during antenatal period to protect mother as well baby against tetanus infection because tetanus is cause of new born babies. Thus ,it promotes health status of mother like the same during pregnancy there is take of iron in the baby of mother owing to baby bearing. So under prophylaxis against anaemia, iron tablets are distributed to mother supplementary nutrition along with advice of more intake of food.

Prophylactics

If the Hb level more than 11 gms, give prophylactic dose of IFA tablets. The expectant mother is given a pack of 100 IFA tablets with an instruction to take one tablet a day after food as a prophylactic measure.

Therapeutic

If the Hb level 7.1 to10.9 gms, give therapeutic dose of IFA tablets. If mother has visible signs of anaemia, she is advised two tablets a day as a therapeutic measure.

Intra Uterine Devices (IUD)

If the Hb level less than 7 gms, she has to be referred to Comprehensive Emergency Obstetric and Newborn Care (CEmONE) centres for Blood transfusion and further management.

Table -2 Iron Folic Action (IFA) (in Numbers)

Sl. No	Year	Prophylactics	Therapeutic	Intra Uterine Devices	Total
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1	2005-06	15051 (71.4)	4233 (20.1)	1773 (8.4)	21057 (100)
2	2006-07	17407 (74.3)	4819 (20.5)	1214 (5.2)	23440 (100)
3	2007-08	16833 (75.8)	4958 (22.3)	393 (1.7)	22184 (100)
4	2008-09	14875 (75.0)	4478 (22.5)	475 (2.4)	19828 (100)
5	2009-10	14262 (71.8)	5012 (25.2)	590 (2.9)	19864 (100)
6	2010-11	13023 (64)	6671 (32.8)	640 (3.1)	20334 (100)
7	2011-12	12624 (63)	6780 (33.8)	650 (3.2)	20054 (100)
8	2012-13	12023 (62)	6697 (34.5)	658 (3.4)	19378 (100)
9	2013-14	1212 (62.6)	589 (34.3)	580 (3.0)	19181 (100)
10	2014-15	11682 (61.1)	6680 (34.8)	745 (3.9)	19107 (100)

Note: Figures in parentheses are percentage

From the above table it was clearly observed that table, anaemia during pregnancy is a major public health problem in rural areas. During the study period 2005 to 2015, beginning period (71.4 percent) pregnant women get the Iron Folic Action tablets for Hb level more than 11 gms in prophylactics followed by (20.1 percent) pregnant mothers Hb level 7.1 to 10.9 gms intake the Iron Folic Acid tablets and (8.4 percent) pregnancy mother intake less than 7 gms used to intra uterine devices in period 2005 to 2006. At the end of study period, reduced to intake in IFA tablets in prophylactic (61.1 percent), followed by (34.8 percent) increasing the therapeutic and intrauterine device (3.9 percent).

It's clearly shows that very high prevalence of anaemia indicates that the anaemia continues to be a major public health problem in rural and urban areas people. Strategic efforts are needed to broaden the coverage of Iron and Folic acid distribution and its consumption. The prevalence of iron deficiency and iron deficiency anaemia continues to be high in spite of effective interventions that have brought down other forms of malnutrition. There is a substantial amount of evidence showing that maternal iron deficiency anaemia early in pregnancy can result in low birth weight subsequent to delivery. Anaemia control requires clearly defined and specific strategies that will bring about an increase in iron stores leading to an increase in haemoglobin concentration.

Crude Birth Rate

Crude Birth Rate (CBR) is an important indicator of health status. It refers to the ratio of the number of live- births in a year to midyear population, normally expressed per thousand of population. That is

$$\text{CBR} = \frac{\text{Number of Live Births}}{\text{Total Population}} \times 1,000$$

While the Crude Birth Rate (CBR) is a basic measure of fertility, it is only occasionally used as a public health measure. There are other fertility measures that are more population-at-risk specific and more comparable across time and geography, such as the general fertility rate and the total fertility rate. The reason the CBR is “crude” is because the total population is represented in the denominator, similar to the crude death rate for example. Obviously, the “population at risk” of giving birth to a live neonate is poorly represented by the total population.

Table – 3 Crude Birth Rate (in per '000)

Sl. No	Name of the Block	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Total	Mean
1	Namagiripet	15.0	15.0	14.2	14.4	14.5	14.2	14.1	14.0	15.2	130.6	14.5
2	Kollihills	21.3	21.2	21.2	20.1	18.0	20.0	19.01	18.0	21.2	180.14	20.0
3	Sendamangalam	13.4	13.4	14.0	13.5	13.5	13.5	13.5	13.0	14.3	122.1	13.6
4	Erumapatti	16.0	16.0	15.1	16.0	14.4	15.0	14.4	14.0	15.4	136.3	15.1
5	Mohanur	13.0	13.0	12.3	12.4	12.1	12.3	12.0	12.0	13.0	112.1	12.4
6	Namakkal	15.1	15.1	15.0	15.0	14.1	13.4	13.4	13.4	16.0	130.5	14.5
7	Paramathy	14.0	14.0	13.2	13.0	13.2	12.5	13.0	12.4	14.0	119.3	13.2
8	Kabilarmalai	14.0	14.0	13.1	13.0	12.1	12.5	11.4	12.0	14.0	116.1	12.9
9	Thiruchengodu	16.0	16.0	16.1	15.4	15.0	15.0	14.0	14.0	17.0	138.5	15.4
10	Pallipalayam	17.1	17.1	16.1	16.0	14.4	14.0	13.1	13.0	17.0	137.8	15.3
11	Vennanthur	15.0	15.1	14.0	14.0	13.1	13.1	13.1	12.3	16.0	125.7	13.9
12	Rasipuram	15.0	15.0	14.0	14.0	12.4	13.0	13.0	12.2	15.0	123.6	13.7
13	Puduchattaram	15.1	15.2	15.0	14.0	13.1	14.4	13.5	13.5	15.4	129.2	14.3
14	Elachipalayam	15.2	15.3	14.2	14.0	14.0	13.0	12.0	12.1	15.0	124.8	13.8
15	Mallasamudram	15.0	15.0	14.0	14.0	12.4	14.0	12.5	11.3	14.3	122.5	13.6
Rural Total		15.2	15.2	15.0	14.4	14.0	14.0	13.2	13.0	15.3	129.3	14.4
1	Namakkal	12.0	12.0	12.0	11.4	11.2	11.0	11.0	11.0	12.1	103.7	11.5
2	Rasipuram	13.0	12.0	12.1	11.3	12.0	11.4	11.3	11.2	12.1	106.4	11.8
3	Thiruchengodu	12.0	12.1	11.2	11.0	11.0	10.0	13.0	12.3	12.0	104.6	11.6
4	Kumarapalayam	12.3	12.3	14.2	5.2	7.0	8.0	11.4	9.0	15.0	94.4	10.5
5	Pallipalayam	0.0	0.0	21.2	0.0	0.0	0.0	0.0	12.0	0.0	33.2	3.7
Urban		12.0	12.1	14.0	9.5	10.0	9.0	12.0	11.02	13.0	102.6	11.4
Grand Total		15.0	15.0	15.1	13.5	13.0	13.3	13.0	12.5	15.0	112.1	12.4

Source: Deputy Director of Health Services, Namakkal District

From the table -3, the Crude Birth Rate was 15.0 in the year (2006-07) which is steadily maintained till the year 2014-15 with the mean value of 12.4. The highest birth rate of 11.8 has recorded in Rasipuram followed by Thiruchengodu (11.6). Lowest birth rate was (3.7) in Pallipalayam for urban blocks.

In the block, the birth rate was 15.2 and it has gradually improved to 15.3 with the average value of 14.4 during the period 2006-07 to 2014-15. Among the rural blocks, Kolli hills recorded the

highest birth rate throughout the study period i.e., 21.3 in the beginning of the study period and 21.2 at the end. The mean value of birth during entire analysis period is highest in Kolli hills block with 20.0. It is evident from the analysis that the birth rate was higher in rural areas than urban areas.

The observation of above table reveals of high crude birth rate was, the main cause of high growth rate of population, birth rate is high because there are no urge to control the family size. Death rate is high because there are no proper facilities of health and sanitation. Hence, in this case the growth of the population is checked. The death rate is checked by providing better facilities of medical aid, growing consciousness of standard of living. However, the birth rate is continued to be high. Due to low death rate and high birth rate, the population to grow leading to creating wide gap between the two. This is known as population explosion.

Delivery characteristics

Place of Delivery

Table – 4 Type and Place of Delivery (in Numbers)

Sl. No	Year	Govt. Hospital	Pvt. Hospital	Home	Total
1	2005-06	10125 (43.3)	12504 (53.5)	713 (3.05)	23342 (100)
2	2006-07	9512 (41.5)	12870 (56.1)	538 (2.3)	22920 (100)
3	2007-08	12601 (53.6)	10413 (44.3)	488 (2.1)	23502 (100)
4	2008-09	13998 (62.6)	8082 (36.1)	275 (1.2)	22355 (100)
5	2009-10	13289 (60.8)	8444 (38.6)	114 (0.5)	21847 (100)
6	2010-11	12519 (59.0)	8622 (40.6)	60 (0.3)	21201 (100)
7	2011-12	13389 (59.2)	9166 (40.5)	47 (0.2)	22602 (100)
8	2012-13	14025 (59.0)	9673 (40.7)	67 (0.3)	23765 (100)
9	2013-14	14772 (59.7)	9456 (38.9)	64 (0.2)	24292 (100)
10	2014-15	16615 (60.4)	9213 (36.0)	50 (0.1)	25581 (100)

Figures in
are percentage

Note:
parentheses

The table – indicates the information related to Institutional delivery breakup during the period 2006 to 2015. It could be seen that majority of the people, in the beginning of the study period the highest institutional delivery was (53.5 per cent) belong to the used to private hospital followed by

Government hospital (43.3 per cent) and (3.05 per cent) in home delivery in period 2005 to 2006. For the medial period utilized of the (60.8 percent) in government hospital, reducing the 38.6 percent and 0.5 percent in the 2009 to 2010. At the end of study period, the government hospital was recorded the maximum level of used to (60.4 per cent), followed by (36.0 per cent) private hospital and (0.1 percent) in home delivery.

It's clearly shows that many of the people before used to private hospital delivery increasing than after that some government scheme implementation of the reduced the home and private hospital delivery. For the slowly improve that primary healthcare facilities.

Type of Institutional Delivery

Table – 5 Place of Institutional Delivery (in Numbers)

Sl. No	Year	H.S.C	P.H.C	G.H	Pvt. Hospital	Home	Total
1	2005-06	2680 (11.4)	1259 (5.3)	6186 (26.5)	12504 (53.5)	713 (3.05)	23342 (100)
2	2006-07	2350 (10.2)	1281 (5.5)	5881 (25.6)	12870 (56.1)	538 (2.3)	22920 (100)
3	2007-08	2995 (12.7)	2060 (8.7)	7546 (32.1)	10413 (44.3)	488 (2.1)	23502 (100)
4	2008-09	1957 (8.7)	4818 (21.5)	7223 (32.3)	8082 36.1	275 (1.2)	22355 (100)
5	2009-10	1182 (5.4)	5738 (2.2)	6369 (29.1)	8444 (38.6)	114 (0.5)	21847 (100)
6	2010-11	541 (2.5)	5516 (26.0)	6462 (30.4)	8622 (40.6)	60 (0.3)	21201 (100)
7	2011-12	288 (1.3)	5630 (24.9)	7471 (33.05)	9166 (40.5)	47 (0.2)	22602 (100)
8	2012-13	185 (0.7)	6137 (25.8)	7703 (32.4)	9673 (40.7)	67 (0.3)	23765 (100)
9	2013-14	103 (0.4)	7613 (31.3)	7056 (29.0)	9456 (38.9)	64 (0.2)	24292 (100)
10	2014-15	89 (0.3)	7958 (31.1)	8137 (32)	9213 (36.0)	50 (0.1)	25581 (100)

Sources: Deputy Director of Health Services, Namakkal District

Note: Figures in parentheses are percentage

The table – 5 indicates the information related to Institutional delivery breakup during the period 2005 to 2015. It could be seen that majority of the people, In the beginning of the study period the highest institutional delivery was (53.5 per cent) belong to the used to private hospital followed by Government hospital (26.5 per cent) and Health Sub- centre (11.4 per cent), (5.3 percent) in the primary health centre and (3.05 percent) in home delivery. At the end of the study period, the private hospital was recorded the maximum level of used to private hospital (56.7 per cent), belong to (0.4 per cent) Health sub-centre and primary health centre, dominating the selected institutional delivery during the study period with the (0.1 per cent) reduced the home delivery.

It's clearly shows that many of the people before used to private hospital so for home delivery increasing than after that some government scheme implementation of the reduced of home delivery. It's the only the people emergency visit to the private hospitals.

Types of Delivery

➤ Normal Delivery

It is the natural method of birth.

➤ Forceps

A large pair of forceps with broad gripping parts, used to encircle a baby's head and assist in birth.

➤ Lower Segment Caesarean Section (LSCS)

A caesarean section is a surgical procedure in which incisions are made through a woman's abdomen and uterus to deliver her baby.

Table -6 Types of Delivery (in Numbers)

Sl. No	Year	Normal	Forceps	LSCS	Total
1	2005-06	18092 (79.9)	248 (1.1)	4294 (18.9)	22634 (100)
2	2006-07	17214	193	4970	22377

		(76.9)	(0.8)	(22.2)	(100)
3	2007-08	16684 (72.5)	195 (0.8)	6135 (26.6)	23014 (100)
4	2008-09	12682 (65.6)	52 (0.3)	6592 (34.1)	19326 (100)
5	2009-10	14545 (66.9)	190 (0.8)	7004 (32.2)	21739 (100)
6	2010-11	13464 (63.6)	129 (0.6)	7548 (35.7)	21141 (100)
7	2011-12	12844 (59.8)	129 (0.6)	8492 (39.5)	21465 (100)
8	2012-13	11448 (56.4)	69 (0.3)	8788 (43.3)	20305 (100)
9	2013-14	9423 (50.0)	52 (0.3)	9364 (49.7)	18839 (100)
10	2014-15	8965 (50.2)	102 (0.6)	9573 (53.6)	17865 (100)

Note: Figures in parentheses are percentage

Table -6 present the details regarding the types of institutional delivery during the period (2005-06 to 2014-15). In the year 2005-06, the maximum mode of delivery is witnessed in normal delivery (79.9 %) followed by LSCS (18.9 %) and the forceps delivery (1.1 per cent). At the end of the study period LSCS (53.6%) was the method used maximum for the delivery followed by normal delivery (50.2%) and then forceps delivery (0.6 %). The reduction in normal method of delivery was observed at the end of the study. This might be due to increase in the complications at the time of delivery.

It is evident from the analysis that among the types of institutional delivery, caesarean was used higher. It is because of malnutrition, anaemia and illness. (Low amniotic fluid, low birth weight of baby, unbearable pain, complications in baby position in the womb)

Live Birth Weight

Low birth weight has been defined by the World Health Organization (WHO) as weight at birth of less than 2,500 grams (5.5 pounds). This is based on epide- biological observations that infants weighing less than 2,500 g are approximately 20 times more likely to die than heavier babies. For the normal birth weight around 3.2kgs, low new born weight less than 2.5kgs and very low born weight 1.5kgs.

Table – 7 Live Birth Weight(in Numbers)

Sl. No	Year	< 2Kgs			2 - 2.5Kgs			2.6-3Kgs			>3Kgs			Grant total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Total	Male	Female
1	2005-06	158 (48.5)	140 (46.9)	298 (1.3)	673 (49.4)	690 (50.6)	1363 (6.0)	6865 (51.4)	6482 (48.5)	13347 (58.2)	41185 (54.5)	3433 (45.5)	7551 (33.5)	22559 (100)	11814 (52.3)	10745 (47.6)
2	2006-07	164 (50.1)	163 (49.8)	327 (1.4)	842 (50.6)	822 (49.4)	1664 (7.2)	6911 (51.8)	6417 (48.1)	13328 (57.6)	4301 (55.1)	3511 (44.9)	7812 (33.7)	23131 (100)	12218 (52.8)	10913 (47.2)
3	2007-08	179 (51.4)	169 (48.5)	348 (1.5)	850 (50.7)	825 (49.2)	1675 (7.6)	6172 (51.1)	5906 (48.8)	12078 (54.8)	4279 (54.0)	3642 (45.9)	7921 (35.9)	22022 (100)	11480 (52.1)	10542 (47.8)
4	2008-09	141 (47)	159 (53)	300 (1.4)	130 (53.9)	111 (46.0)	241 (1.2)	6079 (51.2)	5786 (48.7)	11865 (58.2)	4340 (54.5)	3626 (45.5)	7966 (39.1)	20372 (100)	10690 (52.5)	9682 (47.5)
5	2009-10	152 (53.9)	130 (46.1)	282 (1.3)	868 (44.1)	1099 (55.8)	1967 (9.4)	5943 (52.2)	5433 (47.7)	11376 (54.3)	4205 (57.6)	3093 (42.4)	7298 (34.8)	20923 (100)	11168 (54.2)	9755 (46.6)
6	2010-11	180 (51)	174 (49)	354 (1.6)	1061 (48.2)	1141 (51.8)	2202 (10.3)	6012 (52.1)	5528 (47.9)	11540 (54.2)	4099 (0.5)	3076 (42.8)	7175 (33.7)	21271 (100)	11352 (53.4)	9919 (46.6)
7	2011-12	190 (43.2)	250 (56.8)	440 (2.5)	1055 (49.2)	1089 (50.8)	2144 (12.6)	4012 (56.2)	3120 (43.7)	7132 (41.9)	4110 (56.3)	3190 (43.7)	7300 (42.9)	17016 (100)	9367 (55.0)	7649 (44.9)
8	2012-13	195 (45.8)	230 (54.1)	425 (2.4)	1033 (45.4)	1240 (54.5)	2273 (13.1)	5010 (62.4)	3016 (37.5)	8026 (46.4)	3215 (48.9)	3350 (51.0)	6565 (37.9)	17289 (100)	9453 (54.6)	7836 (45.3)
9	2013-14	200 (46.7)	215 (51.8)	415 (2.3)	1045 (50.2)	1035 (49.7)	2080 (11.4)	4016 (47.1)	4516 (52.9)	8532 (46.8)	3015 (49.9)	3026 (50.1)	6041 (39.3)	18227 (100)	8906 (48.8)	9321 (51.1)
10	2014-15	250 (59.8)	168 (40.2)	418 (1.7)	1030 (49.3)	9326 (50.6)	10356 (43.7)	4025 (46.5)	4616 (53.4)	8641 (36.5)	2063 (54.5)	2045 (45.5)	4108 (17.3)	23655 (100)	7368 (31.1)	16287 (68.8)

Note: Figures in parentheses are percentage

The live birth weight of delivery is presented in table -5. It could be seen from the table that the pregnant mothers is properly check-up than intake diet food and iron folic acid tablets so for normal birth weight in newborn. Overall beginning period newborn highest birth weight was (52.3 per cent) in male and female (48.6 per cent) in year (2005 to 2006). At the end of study period baby weight was (31.1 per cent) in male and (68.8 per cent) in female in year (2014 to 2015). Newborn birth weight for (1.3 per cent) in 2.6 to 3 kgs followed by (33.5 per cent) in above 3 kgs, (6.0 per cent) in 2to 2.5 kgs and less than 2kgs (1.3 per cent) in the period 2005 to 2006. But end of the period (43.7 per cent) followed by (36.5 percent), 17.3 (per cent) and (1.7 per cent). It is evident from the analysis that the new born birth weight begging period low birth weight increased and slowly improved the baby birth weight in the end period 2014 to 2015.

Infant Mortality Rate

Another indicator of health status is infant mortality rate (per' 000 of Population). Infant mortality rate (IMR) is the ratio between numbers of newborn's death per year to the number of live births during a year. It is one of the most universally accepted indicators of health status. Newborn infant perish within a year of birth, because of low birth weight, pre maturity, malnutrition, diarrheal diseases and acute respiratory infections.

$$\text{IMR} = \frac{\text{Number of Death}}{\text{Number of live birth}} \times 1,000$$

The crude mortality rate is a very general indicator of the health status of a geographic area or population. Crude death rate has four components. A specified measurement period, the numerator, the number of death that occurred in a specified geographic area during a given period of time, and.

Table – 8 Infant Mortality Rate (in per '000)

Sl. No	Name of the Block	2006-7	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Total	Mean
1	Namagiripet	16.6	21.0	25.1	23.7	21.4	17.5	26.2	22.7	18.9	193.2	21.5
2	Kollihills	19.8	27.4	20.0	20.9	8.3	15.5	44.1	36.5	28.3	220.8	24.5
3	Sendamangalam	25.1	15.4	12.9	20.0	22.0	18.8	16.8	13.4	6.6	151.0	16.8
4	Erumapatti	20.9	19.9	18.2	21.4	15.9	20.8	15.8	21.5	11.5	165.9	18.4
5	Mohanur	26.6	18.4	20.8	17.1	27.9	13.6	16.7	7.9	10.5	159.5	17.7
6	Namakkal	23.5	17.9	14.4	21.0	12.3	15.9	13.3	17.6	12.5	148.4	16.5
7	Paramathy	18.9	15.2	13.8	16.9	7.8	14.3	7.0	14.4	14.1	122.4	13.6
8	Kabilarmalai	14.8	16.6	15.3	13.1	18.0	8.6	13.2	12.5	6.2	118.3	13.1
9	3Thiruchengodu	11.9	20.2	13.8	14.2	4.9	9.8	8.5	10.3	7.8	101.4	11.3
10	Pallipalayam	17.9	16.1	16.1	13.7	14.8	10.7	11.5	5.4	7.9	114.1	12.7
11	Vennanthur	31.3	21.5	19.4	23.5	30.3	23.3	19.1	20.6	24.4	213.4	23.7
12	Rasipuram	20.3	18.8	15.3	18.1	12.2	12.8	15.2	16.4	20.5	149.6	16.6
13	Puduchattaram	20.0	39.8	20.9	25.1	27.4	21.2	15.8	23.4	12.3	205.9	22.8
14	Elachipalayam	13.2	18.3	14.9	17.7	12.1	10.8	11.9	9.1	13.2	121.2	13.45
15	Mallasamudram	18.4	30.5	17.3	15.3	20.5	15.2	16.5	25.7	14.9	358.8	39.8

Rural Total		19.7	20.4	17.2	18.5	16.9	15.0	16.1	16.4	13.4	153.6	17.1
1	Namakkal	0.0	10.9	6.2	7.8	3.2	6.5	5.0	3.3	9.5	52.4	5.8
2	Rasipuram	4.8	4.9	8.1	3.4	4.9	8.3	5.0	3.3	7.1	49.8	5.5
3	Thiruchengodu	0.0	0.0	0.0	0.0	2.1	0.0	0.8	0.0	0.0	2.9	0.3
4	Kumarapalayam	0.0	0.0	0.0	0.0	2.0	1.7	0.0	0.0	0.0	3.7	0.4
5	Pallipalayam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	5.7	16.9	1.8
Urban		1.0	3.1	3.1	2.7	3.0	3.6	2.2	2.8	3.9	25.4	2.8
Grand Total		17.2	18	15.3	16.6	15.1	13.5	14.0	14.0	11.7	120.1	15.04

Source: Deputy Director of Health Services, Namakkal District

From the table-8 shows that the infant mortality rate of 15.04 per 1000 live birth over period from 2006 to 2015. In the rural blocks, the infant mortality rate was 19.7 per 1000 live birth in the 2006-07, and gradually reduced to 13.4 in the 2014-15 with the mean value of 17.1 Among the rural blocks, Vennanthur block recorded the maximum infant mortality rate of 31.3 in the beginning period but at the end of the period the minimum number was noted by kollihills (28.3). Thiruchengodu has recorded the good performance of health service with low mortality rate of 11.03 in rural primary health centre.

In urban blocks, the infant mortality rate was 1.0 in year 2006-07 and 3.9 in year 2014-15 with average value was 2.8. Among the urban primary health centres, the low infant mortality rate were 0.3 has recorded by Thiruchengodu and followed by Kumarapalayam (0.4) than Pallipalayam (1.8), Rasipuram (5.5) and Namakkal (5.8). It is evident from the analysis that the infant mortality rate was higher in rural blocks. So the health department has provided more health facility to reduce the IMR in rural areas.

The observation of above table shows women exposed to drugs, alcohol, and cigarettes during pregnancy are more likely to have low birth weight or very low birth weight babies. Mothers of lower socioeconomic status are also more likely to have poorer pregnancy nutrition, inadequate prenatal care, and complications of pregnancy. All are factors that can contribute to very low birth weight infants.

Maternal Mortality Rate

The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

$$\text{MMR} = \frac{\text{Number of Maternal Deaths}}{\text{Number of Live Births}} \times 1,000$$

A maternal mortality rate is considered a primary and important indicator of a geographic area's overall health status or quality of life. Deaths from any cause during pregnancy or within one calendar year of delivery or pregnancy termination, regardless of the duration or anatomical site of the pregnancy, are termed pregnancy-associated deaths. Pregnancy-associated deaths include not only deaths commonly associated with pregnancy such as haemorrhage, pregnancy-induced hypertension, and embolism—which are captured in the WHO definition—but also deaths not traditionally considered to be related to pregnancy such as accidents, homicide, and suicide.

Table – 9 Maternal Mortality Rate (in per '000)

Sl.No	Name of the blocks	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Total	Mean
1	Namagiripet	1.9	0.0	1.3	1.3	0.6	1.3	0.6	0.6	0.6	0.9	0.9
2	Kollihills	2.4	7.1	4.7	7.3	0.0	1.2	0.0	1.3	2.3	2.9	2.9
3	Sendamangalam	0.0	0.0	0.9	3.0	0.9	0.1	0.9	0.0	0.0	0.6	0.6
4	Erumapatti	0.0	0.0	0.0	1.9	2.0	0.0	2.1	0.7	0.0	0.7	0.7
5	Mohanur	2.4	1.6	0.0	0.8	0.0	1.6	0.0	0.8	0.0	0.8	0.8
6	Namakkal	0.6	1.7	1.2	0.0	0.6	0.0	0.6	0.6	1.2	0.7	0.7
7	Paramathy	0.9	0.9	0.0	0.0	1.0	0.0	1.0	0.0	0.2	0.4	0.4
8	Kabilarmalai	0.8	1.6	0.8	1.7	0.4	0.0	0.9	0.0	0.9	0.7	0.7
9	Thiruchengodu	0.0	0.0	1.5	0.0	0.0	0.8	0.0	1.7	1.6	0.6	0.6
10	Pallipalayam	1.6	1.3	1.7	1.7	0.4	1.1	0.4	0.5	0.7	1.04	1.04
11	Vennanthur	0.8	2.4	0.9	0.9	0.0	4.6	0.0	0.0	1.3	1.2	1.2
12	Rasipuram	1.9	0.0	0.0	4.0	2.8	0.0	2.2	0.0	0.8	1.3	1.3
13	Puduchattaram	0.9	1.7	0.9	1.9	0.9	0.0	0.9	0.9	0.0	0.9	0.9
14	Elachipalayam	0.0	0.8	0.0	0.9	0.0	0.0	0.0	1.01	0.8	0.4	0.4
15	Mallasamudram	0.0	0.0	0.0	0.0	2.3	1.1	2.3	2.5	0.0	0.9	0.9
Rural Total		1.02	1.0	1.2	0.9	1.5	0.8	0.8	0.7	0.7	14.0	1.6
1	Namakkal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.7	0.2	0.2
2	Rasipuram	0.0	0.0	0.0	0.0	1.6	0.0	1.6	0.0	0.0	0.3	0.3
3	Thiruchengodu	0.0	0.0	2.1	2.1	0.8	0.0	0.8	0.0	0.0	0.6	0.6
4	Kumarapalayam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Pallipalayam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Urban		0.0	0.0	0.0	0.6	0.7	0.0	0.0	0.6	0.2	2.1	0.2
Grand Total		1.02	1.0	3.3	3.6	4.6	0.8	3.2	2.9	1.6	22.0	2.4

Source: Deputy Director of Health Services, Namakkal District

From the table – 9, it is observed the variable of Maternal Mortality Rate (MMR) in rural and urban blocks. During the study period (2006-07 to 2014-15), the overall mean value of MMR was (2.4). Among the total blocks high maternal mortality rate of 1.6 has recorded by to rural blocks followed by lowest average value of (0.2) in urban blocks.

In rural blocks, the maternal mortality rate was 1.02 and it has gradually reduced to 0.7 with mean value of 1.6 during the period (2006 to 2015). Among the rural blocks Kollihills and Mohanur blocks recorded the highest maternal mortality rate of 2.4 in the beginning of the period. But at end of the period the place of occupied by Kollihills block with the maternal mortality rate of 2.3. In the average value of maternal mortality rate during entire analysis period Kollihills block dominated with (2.9). It is evident from the analysis that the maternal mortality rate was highest in rural blocks than urban blocks.

The observation of above table reveals decline the maternal mortality the availability of medical facility is better in urban areas than the rural area and also the people in rural are not lack of aware about the medicines facilities.

Utilization for contraception of adopted Methods

The Interval between first child deliveries to second child birth, In family planning there is a method called interval or spacing methods for birth control, namely tubectomy , Abdominal , Laparoscope, copper T and pills utilized to women few person used to vasectomy. It is inertial from the physical wellbeing of mother as well as proper growth and development of child. Studies have that where all births are postponed by one year, in each age group, there was decline in total fertility. It followed that spacing of children may have a significance impact on the general reduction in the fertility rate.

Table – 10 Family Planning Method (in Numbers)

Year	Vasectomy	Tubectomy				Total
		Abdominal	Laparoscope	Intra Uterine Devices	Oral Pills	
2006-07	35 (0.2)	6823 (38.02)	2 (0.01)	7430 (41.4)	3655 (20.4)	17945 (100)
2007-08	0 (0.0)	7285 (41.6)	2 (0.01)	7493 (42.8)	2704 (15.5)	17484 (100)
2008-09	82 (0.5)	7044 (45.5)	3 (0.02)	5613 (36.3)	2727 (17.6)	15469 (100)
2009-10	35 (0.2)	6823 (41.2)	2 (0.01)	7430 (44.8)	2266 (13.6)	16556 (100)
2010-11	52 (0.3)	6650 (41.1)	45 (0.2)	6675 (41.2)	2760 (17.0)	16182 (100)
2011-12	14 (0.09)	6460 (43.7)	65 (0.4)	7253 (49.1)	982 (6.6)	14774 (100)
2012-13	80 (0.6)	3675 (29.6)	15 (0.1)	7809 (62.8)	850 (6.8)	12429 (100)
2013-14	81 (0.7)	3881 (37.1)	62 (0.6)	5885 (56.2)	562 (5.4)	10471 (100)
2014-15	16 (0.2)	2015 (22.8)	45 (0.6)	5216 (49.5)	326 (9.5)	7618 (100)

Note: Figures in parentheses are percentage

The provision of contraceptive information is fundamental to women and men to make choices about reproductive health. Table- 10 indicates the extent of knowledge of contraceptive methods among currently married women by specific Method. Contraceptive method of utilized to the women, during the study period (2006 to 2015) maximum of utilized was (41.2 per cent) in intrauterine devices, followed by (38.0 per cent) abdominal, (20.4 per cent) pills, (0.2 per cent) vasectomy and (0.1 per cent) laparoscopic in the beginning study period 2005to 2006. At the end of study period of reduced in abdominal (22.8 per cent) pills (9.5 per cent), than increase the laparoscope and intra uterine devices IUD in (2014 to 2015). It is evident from the analysis that the contraception utilization of the higher in used to tubectomy sterilization for abdominal, laparoscope, IUD, Pills and few person sterilization for vasectomy, it is observed birth control, headache and dizziness Protection of emergency contraception against STI/HIV/AIDS. Prescription medications are available to control the bleeding and pain, which, in any event, usually subside after a few months. It's suffered from heavy menstrual bleeding but may be perceived as a problem for others.

Maternal Mortality

The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

$$MM = \frac{\text{Number of before delivery mortality}}{\text{Total number of death}} \times 100$$

Table – 11 Maternal Mortality (in Numbers)

Sl. No	Years	Before Delivery	During Delivery	After within Weeks Delivery	Total
1	2005-06	10 (34.5)	3 (10.3)	16 (55.2)	29 (100)
2	2006-07	9 (25)	8 (22.2)	19 (52.7)	36 (100)
3	2007-08	6 (25)	3 (12.5)	15 (62.5)	24 (100)
4	2008-09	9 (42.8)	2 (9.5)	10 (47.6)	21 (100)
5	2009-10	9 (33.3)	2 (7.4)	16 (59.2)	27 (100)
6	2010-11	4 (25)	0 (0.0)	12 (75)	16 (100)
7	2011-12	8 (38.1)	3 (14.3)	11 (52.4)	21 (100)
8	2012-13	7 (25)	5 (17.8)	16 (57.1)	28 (100)
9	2013-14	1 (4.7)	2 (9.5)	18 (85.7)	21 (100)
10	2014-15	3 (15)	0 (0.0)	17 (85)	20 (100)

Note: Figures in parentheses are percentage

From the above table it was clearly observed that before and after delivery maternal mortality. It could be seen that majority of people, in the beginning of the study period (2005-06). Maternal mortality was (34.5 per cent) in before delivery mortality followed by (10.3per cent) during deliver die and (55.2 per cent) within weeks delivery maternal death. At the end of the study period reduced of the before delivery death (15 per cent) and (85 per cent) increases the after within week delivery maternal mortality.

It is evident from the analysis that the before and after maternal mortality was higher in after delivery death. Delay in deciding to seek care, in reaching care in time, and delay in receiving adequate treatment. Most birth occurs at home with unskilled attendants, and it takes skill to predict or prevent

bad outcomes and medical knowledge to diagnose and immediately act on complications. By the time the lay midwife or family realizes there is a problem, it is too late.

Conclusions

It is evident from the analysis that the primary health care system in rural suggested that there were two critical ways to improve health outcomes. The first was to enhance the efficiency of health sector. The second was to create more infrastructures and thus provide better health access to rural people and make more physicians available in rural areas. So, in order to cure what ail the health systems in many health rural areas, efforts need to be made in the direction not only of proving more infrastructures but also using them in the most efficient way.

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