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A Study of Spatial Variation of Women Health Status in Hugli District of West Bengal, India

Poddar Sayanti
Asutosh College. 92, S.P. Mukherjee Road, Kolkata- 700026, INDIA

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Abstract

It is agreed worldwide that good health is one of the fundamental rights of every human being without distinction of race, religion, sex, political belief and economic or social conditions. Beyond its intrinsic value for individuals, improving and protecting health is also central to overall human development and to the reduction of poverty. However, nourishment and health-care facilities that are available to women form areas of major concern in developing countries like India. In most of the parts of the country, women remain the neglected section of the society and are deprived of essentials of life that lead to deterioration in their health standards. Primacy of health sector in augmenting the development process is an undeniable fact. Yet, access to health services has continued to remain poor. The female population stands on the back foot in comparison to the males in the access to health infrastructure. Besides this, the status of maternal health condition among women is also in an alarming state in the country. As per West Bengal Human Development Report, 2010, the Hugli district in West Bengal occupies the third position in terms of gender development index and sixth in the human development ladder. Though the health infrastructure of the district is overall satisfactory, the status of women health poses serious concern. In fact, there is a great deal of inequality in the female health status at the sub-district block level. Given this scenario, it is imperative that the status of female health is explored in detail and the link between health infrastructure and female health outcome is examined at the block level. This paper seeks to run the exercise for Hugli district bringing out the intra-block regional variation. It is expected that this will enable to bring out the current sections of concern and aid in adopting necessary measures for improvement of the situation.

Keywords: Female health status, maternal health status, health infrastructure, health index.

Introduction

The state of health in a country affects its economic growth and social well being of its citizens through various channels. When health improves, the country can produce more output with any given combination of skills, physical capital and technological knowledge[1]. The impact of health on income is an important policy issue that has that has motivated research at various levels. In measuring the dimension of longevity in Human Development Index, UNDP (1990) has considered life expectancy at birth as an important parameter in estimating the health status of an individual country[2].

It is widely believed that preference for male child is deeply rooted in our patriarchal social system. Gender discrimination and inequality in the socio-cultural and economic fronts exists and acts as a deep rooted evil in the Indian society[2]. Women play a pivotal role in the overall progress of a country as they constitute half the human resources of a nation and the economic wealth of a country is seriously depleted if about half of the nation's human resource is neglected. However, nourishment and health-care facilities that are available to women form areas of major concern in developing countries like India. In most of the parts of the country, women remain the neglected section of the society and are deprived of essentials of life that lead to deterioration in their health standards[3].

Table-1
Study Area at a Glance

District	Hugli	Sex Ratio	961 Females/ 1000 Males
Latitudinal Extent	23°01′20′′N – 22°39′32′′N	Literacy (in %)	71.46
Longitudinal Extent	88°30′15′′ E – 87°39′32′′E	Density of Population	1,753 people per sq. km
Total Population	5,519,145	Sub Divisions	4
Male Population	2,589,625	Blocks	18
Female Population	2,452,351	Gram Panchayats	210
		Villages	2585

Source: Provisional Census of West Bengal, 2011[4]

As per West Bengal Human Development Report, 2010, the Hugli district in West Bengal occupies the third position in terms of gender development index and sixth in the human development ladder. Though the health infrastructure of the district is overall satisfactory, the status of women health poses serious concern. In fact, there is a great deal of inequality in the female health status at the sub-district block level. Given this scenario, it is imperative that the status of female health is explored in detail and the link between health infrastructure and female health outcome is examined at the block level.

Objectives of Study: The major objectives of study are as follows: i. To estimate the spatial variation in availability of health infrastructure in the district. ii. To estimate the overall female health status in the district. iii. To measure the disparity in reproductive health status across the blocks. iv. To analyse the causal relationship between health infrastructure and maternal health care in the district. v. To examine the different governmental schemes adopted for improvement of female health status in the district.

Data Sources: For the purpose of the study, data were collected mainly from different secondary sources like District Statistical Handbooks, Primary Census Abstracts, Economic Surveys and related websites. The author also visited offices of the Survey of India, NATMO, Economic and Statistical Bureau, Government of West Bengal, District Hospitals and Block Development Offices, Municipalities, Gram Panchayats and local NGOs to collect the relevant information for the study.

Methodology

The collected data were classified, tabulated and analysed for the purpose of the study. The techniques of analysis include:

Cartographic Techniques: this includes diagrams like bar graphs and maps showing spatial variation with choropleth technique.

Statistical Techniques: These include measurement of central tendencies, health care indices, and combinational analysis and principal component analysis.

Health Scenario of Hugli District: In the last few decades, Hugli district has achieved a considerable progress in providing access to health care services to the people. Still he physical health infrastructures are inadequate to extend quality health services to the people in the district. Table 2 below provides a picture of health scenario of Hugli District.

Health Infrastructure: Health infrastructure is essential to deliver health services to the people. Its efficiency ensures effective utilization of essential health resources. The totality of public health infrastructure includes all governmental and non-governmental entities that provide health services to the people[5]. The status of availability of health infrastructure in the district is summarized below in table 3. A composite health infrastructure index is constructed at the block levels considering three aspects, viz. the total medical institutions (both governmental and private), total number of family welfare centres and total number of doctors available in the medical institutions.

Table-2
Selected Aspects of Health Scenario of Hugli District, 2009

Life Expectancy at Birth (male)	68.68
Life Expectancy at Birth (female)	71.19
Infant Mortality Rate	17.79
Maternal Mortality Rate	0.196%
Total number of Health Institutions(including hospitals, health centres, clinics, dispensaries)	813
Total number of Beds/10,000 people	7.47
Total number of Doctors/10,000 people	0.8

Source: C.M.O.H. Hugli, 2009

At the first stage of calculation for the index, the parameters are made unit free and then the mean value of all the three parameters for each block is calculated to obtain the health infrastructure index.

It can be clearly seen that there is a wide blockwise variation in the availability of institutional health infrastructure in the district, with Chinsura-Mogra occupying a very favourable position, followed by Serampur-Uttarpara Singur and Arambagh. On the other hand, the condition is most dismal in Goghat I. Health infrastructural facilities are also quite poor in the blocks of Goghat II, Pursurah, Khanakul I and II, Polba-Dadpur and Jangipara.

The findings about the available health infrastructural index in different blocks are plotted in figure-1. The map also emphasizes the vast regional disparities blockwise with satisfactory conditions only in the blocks having significant urban centres like Chinsura, Serampur, Uttarpara, Singur and Arambagh.

Population served per bed is an important indicator of health infrastructure. A combined index of bed use in hospitals is calculated from the average of index number of beds, index of bed turnover rate and index of bed occupancy rate, based on data obtained from C.M.O.H. Hugli District[6]. The findings from the available data are shown in table 4.

Table-3
Health Infrastructure Index, Hugli District, 2010

Name of Blocks	Total Medical Institutions (x_1)	Total Family Welfare Centres (x_2)	Total Number of Doctors (x_3)	Unit Free Values (Removing the biasness of scale)			Composite Index
				x_1	x_2	x_3	
Dhaniakhali	12	3	12	1.11	1.25	0.80	**3.16**
Pandua	10	1	12	0.93	0.42	0.80	**2.15**
Balagarh	11	1	9	1.02	0.42	0.58	**2.02**
Chinsura-Mogra	22	11	69	2.04	4.60	4.48	**11.12**
Polba- Dadpur	4	1	7	0.37	0.42	0.46	**1.25**
Tarakeshwar	11	2	7	1.02	0.84	0.46	**2.32**
Haripal	10	1	14	0.93	0.42	0.91	**2.26**
Singur	18	5	29	1.67	2.09	1.88	**5.64**
Jangipara	9	1	11	0.83	0.42	0.71	**1.96**
Chanditala I	14	1	6	1.30	0.42	0.39	**2.11**
Chanditala II	13	1	9	1.21	0.42	0.58	**2.21**
Serampur- Uttarpara	19	9	29	1.76	3.77	1.88	**7.41**
Goghat I	2	1	1	0.19	0.42	0.06	**0.67**
Goghat II	7	-	7	0.65	-	0.46	**1.11**
Arambagh	14	2	36	1.30	0.84	2.34	**4.48**
Khannakul I	9	1	7	0.83	0.42	0.46	**1.71**
Khanakul II	5	1	7	0.46	0.42	0.46	**1.34**
Pursurah	4	1	5	0.37	0.42	0.32	**1.11**
	Mean =10.78	**Mean**= 2.39	**Mean**= 15.39				

Source: Compiled by the Author

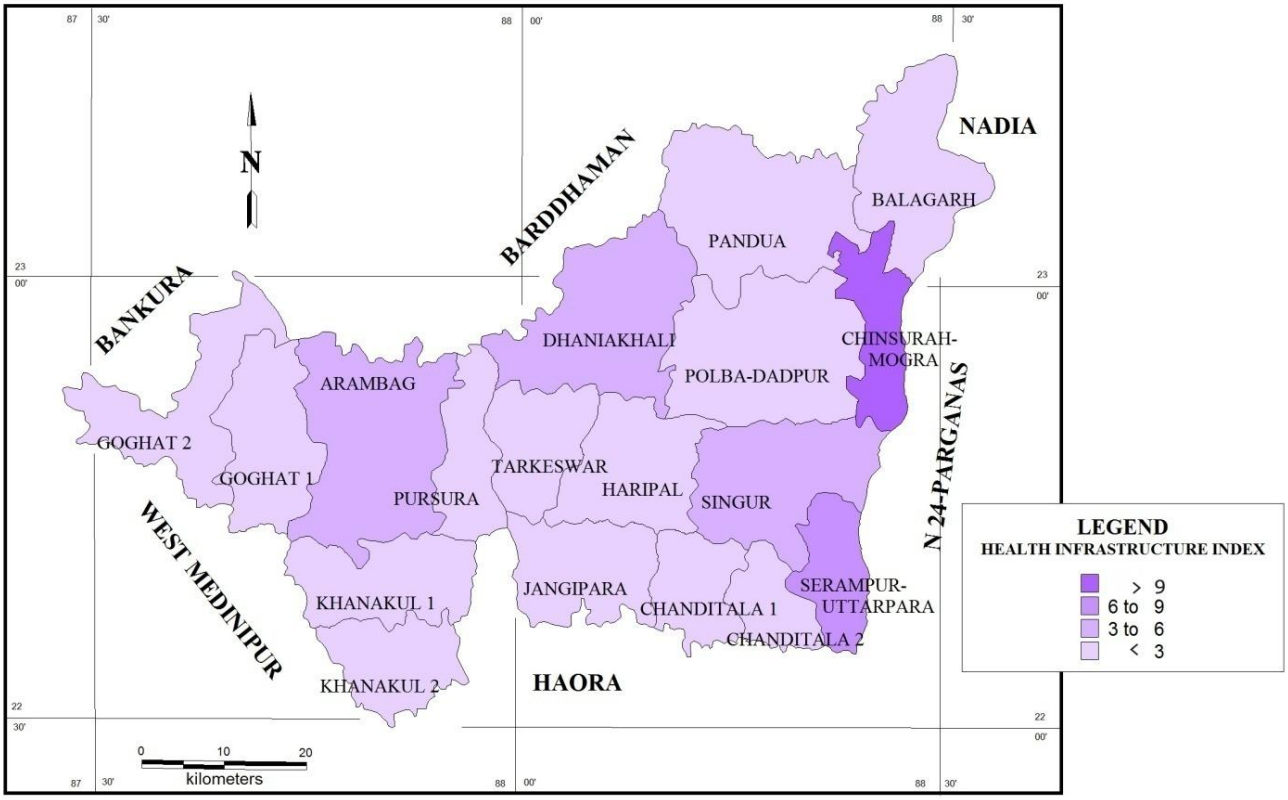

Figure-1
Health Infrastructure of Hugli District, 2010

Table-4
Combined Index of Bed Use, Hugli District, 2010

Name of Blocks	Index of Bed Use	Name of Blocks	Index of Bed Use
Dhaniakhali	0.51	Chanditala I	0.43
Pandua	0.60	Chanditala II	0.39
Balagarh	0.14	Serampur- Uttarpara	0.72
Chinsura-Mogra	0.72	Goghat I	0.13
Polba- Dadpur	0.15	Goghat II	0.14
Tarakeshwar	0.35	Arambagh	0.62
Haripal	0.40	Khannakul I	0.36
Singur	0.60	Khanakul II	0.33
Jangipara	0.16	Pursurah	0.33

Source: Compiled by the Author

It is evident from the above calculation that the situation is best in the blocks of Chinsura-Mogra and Serampur- Uttarpara followed by Arambagh, Singur and Pandua. In this aspect also, the situation is very poor at Goghat I and II, followed by Balagarh, Polba-Dadpur and Jangipara.

Health Status among Women: Primacy of health sector in augmenting the development process is an undeniable fact. Yet, access to health services has continued to remain poor. The female population stands on the back foot in comparison to the males in the access to health infrastructure. Besides this, the status of maternal health condition among women is also in an alarming state in the country[6].

Morbidity: The term m orbidity refers to sickness due to any particular disease. In almost every year, the district is affected by flood in major areas of Khanakul I, Khannakul II, Arambagh, Goghat I and Goghat II. These areas are cut off from road communication and the female population of these blocks is vulnerable and prone to diarrheal and other water borne diseases. The limited health services are also unavailable during the times of flood. Balagarh block has a arsenic prone area. Malaria is also quite common both among the male and female population. Incidences of Dengue, Kala-azar are also reported. Leprosy and respiratory diseases, though less frequent among the females, are other areas of concern as regards the female health status of the district. Besides these, a large percentage of the pregnant women suffer from anemia, low bone density problem, jaundice, malnutrition, thyroid disbalance and iron deficiency.

In Hugli district, 3.3 % of HIV positive cases of West Bengal were identified in 2009, among whom pregnant women consisted of 0.13%. the number of AIDS affected patients shows an increasing temporal trend and both the prevention and cure of this need greater attention in terms of policy as well as funds.

Disability is another issue of health disorder leading to social exclusion and the female population suffers more from this due to our social structure and norms[6]. 3.85% of the female population of the district suffers from different types of disability. Types of disability include visual disability, hearing impairment, speech problem, disability in movement and mental disability.

Indoor air pollution generated while cooking with unprocessed bio-fuels is another issue of concern while discussing the female health status[6]. This issue is more threatening than drinking of unsafe water. Women and children below five years are most affected by this type of pollution. The popular bio-fuels generate pollutants like carbon monoxide, nitrogen dioxide, benzene etc, that cause respiratory and pulmonary diseases, lung cancer, eye cataract and other physical disorders.

Reproductive Health of Mother: Safe motherhood depends on the strength and capability for bearing and rearing healthy children. It is an important form of human capital and an essential aspect of human development which is necessary to achieve a healthy society[1]. The major indicators of safe motherhood at the block level include:

Antenatal Care: this is a kind of medical supervision given to a pregnant woman and her baby starting from the time of conception upto the delivery of the baby[7]. It includes regular monitoring of the woman and her baby throughout pregnancy by various means including a variety of routine regular examinations, tests and treatments of various kinds. Antenatal care helps to maintain the mother in good health during pregnancy. The local level sub-health centres are given the responsibility of providing such antenatal care to the pregnant woman.

Institutional Delivery Care: it is a known fact that giving birth in medical institutions under the supervision of trained health care providers increases the chance of child survival and reduces the risk of maternal mortality[7]. However, inspite of this, institutional deliveries are avoided in many areas where people opt for deliveries at home.

Post Natal Care: the post natal care is taken during the first six weeks after birth as this period is critical to the health and survival of the mother and the new born[7]. Lack of care during this period might result in death, disability and lack of healthy

behaviour in mothers and new born babies. Different immunization schemes and proper nutritional support are provided during this phase.

An attempt is made to estimate the **status of maternal health**, following the method used in Human Development Report of Hugli District, 2010, by combining the available data for these three factors viz. antenatal care (H_1), percentage of institutional deliveries (H_2) and post natal care (H_3) of different blocks of Hugli district using the formulae explained below and shown in table 5:

Let H_{1i}=(Number of Women who Received 3 ANCs)/(Number of Women who were Registered to Receive 3 ANCs)
H_{1i} score= (H_{1i}- min H_{1i})/ (max H_{1i}- min H_{1i})
Let H_{2i} = (Number of Institutional Deliveries / Total Number of Deliveries) * 100
H_{2i} score= (H_{2i}- min H_{2i})/ (max H_{2i}- min H_{2i})
Let H_{3i} = (Number of Mothers Receiving 3 PNCs/ Total Number of Births) * 100
H_{3i} score= (H_{3i}- min H_{3i})/ (max H_{3i}- min H_{3i}) where i= block
Then Health Parity Index = 1/3 (H_{1i} score + H_{2i} score + H_{3i} score)

Table-5
Health Parity Index, Hugli District, 2010

Name of Blocks	ANC Score (H_1)	ID Score (H_2)	PNC Score (H_3)	Health Parity Index
Dhaniakhali	0.32	0.50	0.36	0.39
Pandua	0.37	0.56	0.32	0.41
Balagarh	0.20	0.48	0.21	0.29
Chinsura-Mogra	0.28	0.68	0.19	0.38
Polba- Dadpur	0.29	0.62	0.26	0.39
Tarakeshwar	0.97	0.83	0.49	0.77
Haripal	0.51	0.56	0.59	0.56
Singur	0.60	0.84	0.25	0.57
Jangipara	0.59	0.72	0.80	0.70
Chanditala I	0.50	0.55	0.26	0.43
Chanditala II	0.57	0.65	0.36	0.53
Serampur- Uttarpara	0.54	0.88	0.24	0.55
Goghat I	0.44	0.25	0.37	0.35
Goghat II	0.44	0.25	0.37	0.35
Arambagh	0.23	0.22	0.30	0.25
Khannakul I	0.56	0.00	0.42	0.33
Khanakul II	0.26	0.05	0.17	0.16
Pursurah	0.00	0.78	0.29	0.36

Source: CMOH, Hugli, 2010

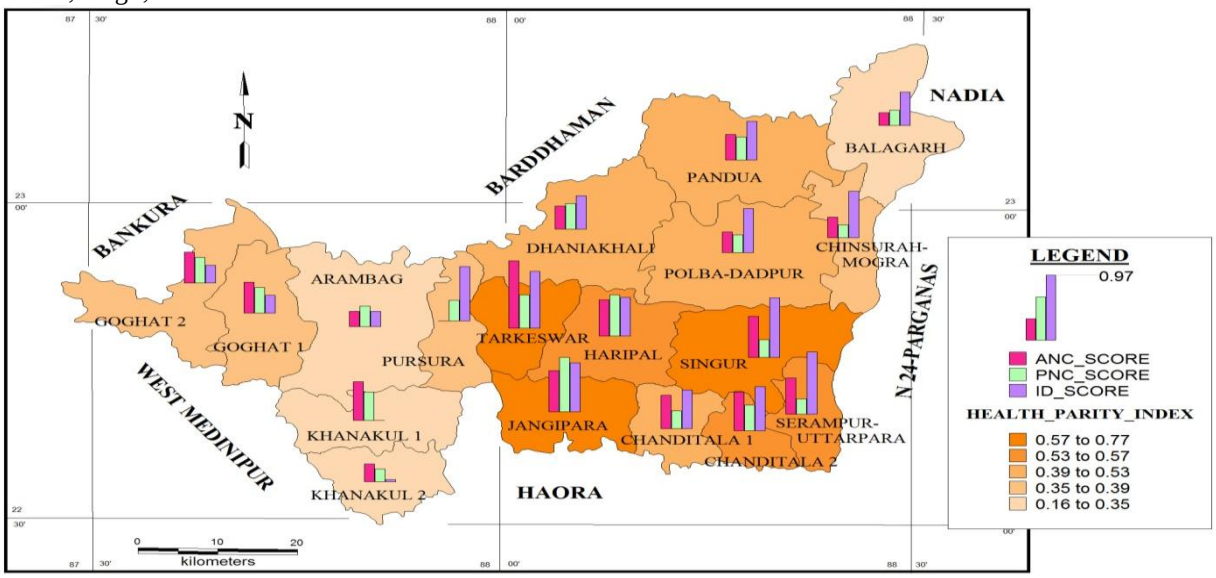

Figure-2
Status of maternal health, hugli district, 2010

The findings from Table 5 are represented in figure-2. Though Hugli district ranks 1st in West Bengal in all the three above mentioned parameters of maternal health care, the percentage of institutional deliveries recorded is still quite low in many areas. This, infact, does not take into account the deliveries at home which remain unregistered. So the actual percentages of institutional deliveries are much lower than they seem. The worst cases are in Khanakul I and II wheras Serampur-Uttarpara and Singur present better pictures. Another area of concern is the antenatal care provided to pregnant women. As proper estimates of pregnant women are not available, it is not possible to exactly estimate women receiving antenatal and post natal care. Even those who were registered for ANC did not receive the stipulated three checkups required. In Pursurah, only 50.72% of the women received three checkups. The best performance was in Tarakeshwar where 96.11% of the pregnant women received three checkups. The percentage of women provided with post natal care after delivery was dismally low in most places. Thus there are significant variations across the blocks in the status of maternal health.

Towards a Health Index: Three types of indicators can be used for estimating the health status of women in Hugli District:

Preventive Health Care Indicator: (using parameters like percentage of households having latrine facility, percentage of households having safe drinking water facility, percentage of households opting for regular health checkups and immunization programmes and percentage of mothers facilitated with antenatal care)[8].

Curative Health Care Indicator (Using parameters like number of beds per 1000 population and number of doctors per 1000 population)[8].

Promotional Health Care Indicator (Using parameters like percentage of institutional delivery and percentage of women and children receiving post natal care)[8].

A combined health care index was constructed using averages of these indices which were obtained through ascertaining appropriate weights by Principal Component Analysis method and shown in table 6.

It can be seen that the most vulnerable blocks in terms of Combined Health Care Index of females are in Khanakul II, Goghat I, Goghat II, Khannakul I. this might be due to unawareness among people, low literacy among females, lack of proper implementation of governmental schemes and precarious health infrastructural facilities.

Health Schemes and Programmes in Operation: Several health programmes of the Government of West Bengal are in operation in the district to improve the female and reproductive health status of the economically weaker sections of the district. Some of the major programmes that need mention are:

Table-6
Combined Health Care Index of Females, Hugli District, 2010

Name of Blocks	Combined Health Care Index	Name of Blocks	Combined Health Care Index
Dhaniakhali	0.33	Chanditala I	0.52
Pandua	0.31	Chanditala II	0.48
Balagarh	0.28	Serampur-Uttarpara	0.38
Chinsura-Mogra	0.64	Goghat I	0.23
Polba-Dadpur	0.27	Goghat II	0.24
Tarakeshwar	0.46	Arambagh	0.41
Haripal	0.34	Khannakul I	0.25
Singur	0.48	Khanakul II	0.19
Jangipara	0.60	Pursurah	0.28

Source: Compiled by the Author

Janata Suraksha Yojana (JSY): This provides financial support to encourage the pregnant women of BPL, SC and ST categories for accepting the norms of pre and post natal cares and institutional delivery[9]. Under this programme, all BPL, SC and ST enlisted pregnant women who have attained 19 years of age and upto two live births will be eligible for an amount of Rs. 500/- after the third ANC checkup. An additional benefit of Rs.200/- (RCH II) will be given to those women if her delivery takes place in any government health facility. Another additional benefit of Rs. 300/- (HSDI) will be disbursed to women after institutional delivery under government health facility.

Ayushmati Scheme: Under this scheme, the BPL, SC and ST women are in a position to avail free services for delivery in empanelled private facility[9].

Referral Transport Scheme: Under this, women benefit Rs. 150/- within 0-10 km, Rs. 250/- within 10-20 km and Rs. 350/- for more than 20 km. in 2009-10, more than 12 thousand women benefitted from this scheme.

Gram Panchayat based Mobile Health Camps: Are arranged for antenatal and post natal checkups, immunization programmes, vitamin A supplementation, promotion of contraceptive services, treatment of anemia and treatments to minor ailments and injuries. In 2009-10, more than 25 thousand women benefitted from this and about 5000 camps were arranged.

Distribution of Hypothermia kits has started from 2008-09.

Public Private Partnership: In health care services has started in the district allowing private collaborations in health services through various MOU. One such collaborative attempt was found in Dhaniakhali Rural Hospital which collaborated with Calcutta Medical Research Institute (CMRI)[10].

National Leprosy Elimination Programme is effectively in operation in the district[10].

Conclusion

Hugli district has made a considerable progress in terms of health infrastructure and female health status. However, the health care facilities in the rural areas are still inadequate. There is ample scope for improvement in overall progress of the health sector with emphasis on basic services provided to women, children and socio-economically under privileged people and population living in hardship. Increase in literacy and levels of education among the female population are resulting in rising level of awareness and ever rising demand for health care facilities. To cope up with the situation, private health centres are developed in the district with better and wider coverage than the government aided health centres. However, this has led to the rise in the cost of private health care which poses serious concern to the poor. Under these circumstances, the focus should be on large scale and efficient expansion of public health care systems. Involvement of NGOs and other service providers can mitigate the problems to some extent.

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