CHAPTER II

REVIEW OF LITERATURE AND CONCEPTS

2.1 INTRODUCTION

Many contributors have recorded and reflected on the main aspects of Health Economics, since early nineties. In this chapter, the researcher has discussed the earlier studies related to health care programmes under the following two broad sub-themes namely,

(i) Studies on the general health care
(ii) Studies on women and child health care
(iii) Studies on Primary Health Centres
(iv) Studies on Health Expenditure and Health Insurance

2.2 REVIEW OF LITERATURE

I. Studies on the General Health Care

Karpagam\(^1\) (1981) examined some aspects of the theory of health economics and their application to hospital. She stated that hospitals may be divided into two, special and general. Special hospitals deal with specific systems of the body such as eye, ear, nose, throat, etc., or certain special diseases like

cancer, tuberculosis etc. General hospitals contain a range of special services. It provides treatment for men, women and children suffering from many forms of illness except highly infectious and dangerous conditions such as small pox, etc. For the provision of medical care to a community, the general hospital is a more useful institution. Besides these two, there are also private hospitals. They are managed by different groups, religious communities, societies, industrial undertakings etc. and run on a commercial basis. The Government hospitals provide services at lower costs or free of cost. A greater rush is for general hospitals rather than private ones. The hospital is having an outpatient and inpatient department. Inpatient services are provided in general wards, special wards, A, B, C Class wards. The charges differ based on the ward, where the patient undergoes the treatment.

Hospital beds, drugs, etc., are inputs used and output of the hospital can be measured in terms of the number of patients treated, number of operations done, number of X-rays taken etc. According to the case study of the Government General Hospital in Madras, the output of the hospital in terms of the outpatients treated is very high in attendance. The cost of output estimates for the General Hospital does not reveal the efficiency of medical services in general. Being a priority unit of the health department it is given a larger grant. The true cost should comprehend the nature of medical services rendered all over the state.
According to WHO, raising of health standards of the nation does not mean merely the curing of disease, but much more, namely, the prevention of it. It has various disease control programmes like Malaria Eradication, TB control, Vaccination against Small Pox, Tetanus, Polio, etc.

Panikar and Soman (1984)\(^2\) attempted an analysis of the developments in health and non-health sectors leading to the improvement in Kerala’s health status. They viewed that the health studies of a population are shaped by a variety of factors such as the level of income and standard of living, housing, sanitation, water supply, education, health consciousness, personal hygiene, and accessibility of medical care facilities. Kerala’s achievements in health had attracted wide attention, particularly in the context of the global efforts to attain “Health for All by 2000 A.D.”.

In the first chapter the authors narrated the history of Kerala right from the formation of Kerala in 1956, social organisation and caste system in Kerala, economic conditions of the people, health infrastructure and political setting in Kerala. The second chapter dealt with nutritional status in Kerala, birth rate, death rate, change in morbidity pattern and trends in mortality rates. The third chapter included development policies in Kerala, health strategy, non-health care sectors, namely agriculture, public distribution system, housing, water supply, 

sanitation and education. The fourth chapter depicts the prevailing health situation in the state and the health care delivery system. The fifth chapter discloses the various government programmes to enhance the health status of people in Kerala. The authors drew the following conclusions from the study.

(i) The per capita income in Kerala was Rs.913 during the mid seventies. The employment situation had been deteriorating.

(ii) Prompt curative intervention in the event of illness and various immunisation programmes seemed to have helped to keep down infection rates and therefore ensured better assimilation of nutrients taken.

(iii) The spread of education had helped to heighten health consciousness.

(iv) In terms of survival norms the prevailing health situation in Kerala is comparable to that obtained in developed countries. The infant mortality rate in Kerala during 1977 worked out to 47 compared with 130 for the country as a whole. By 1979, life expectancy at birth stood at about 64 and 67 years for males and females. A higher life expectancy for females is a unique feature of this state. Kerala had already achieved the targets set by the government for the year 2000.

(v) The levels of calorie and protein intake in Kerala were the lowest among the states, according to the results of some diet surveys. The paradox was that people with low intake of food managed to maintain the health status with prompt curative intervention.
The morbidity profile presented a mixture of the disease of poverty and diseases of affluence.

The public health expenditure was worked out to be about 15 per cent of the state budget.

Kerala’s health status had emerged as a low mortality - high morbidity syndrome.

There were a few non-governmental organisations in Kerala that had close contacts and good support to the communities. A certain degree of decentralisation of planning and administration was desirable to make the health project successful one.

Ghai (1985)\(^3\) dealt with the management of primary health care. This was the text book on primary health care. It was useful to the students of preventive and social medicine. In this book, the author had discussed the exigency of increasing the efficiency of the health infrastructure and principles of management and delivery of services. The four components of primary health care were, (i) satisfying the urgent health needs of the people, (ii) problems of women and children, (iii) control of communicable diseases and (iv) referral services.

On the primary health level, there was one medical officer, who was in-charge of Primary Health Centre. There was one health nurse, and also auxiliary nurse, mid wife, health guides, community health worker and paramedical

workers. At secondary health levels, referral cases from Primary Health Centres and other immediate cases are attended to by undergraduate basic doctors. A territory health level, specialist medical teachers and post-graduate doctors were employed. The medical college is attached to the general hospital.

Health workers were designed differently in different countries. In India it is auxiliary nurse, mid-wife, in Nepal auxiliary health workers, in Sri Lanka public health midwife, in USSR Feldspar and in U.S.A. medex. The primary health care system should be backed by all levels of the health care delivery system to ensure that the maximum benefits were derived from the investment made in primary health care. Drugs, immunising agents, vitamins, haematinics and food supplements were needed for primary health care.

A study of the cost-effective analysis in health care by Michael Drummond⁴ (1986) argued that all methods of economic evaluation had the common feature that some combination of the inputs to a health care programme is compared with some combination of the output.

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The measurement of inputs and their translation to money values, is relatively uncontroversial. However, the output can be assessed in a number of ways. First, they can be measured in the most convenient natural units (effects) such as years of life gained, number of fully immunized children or cases successfully treated. A study measuring output in this way could be called a cost-effectiveness analysis. The output can be measured in quality known as the cost-utility analysis. The output in health care programmes can be measured in money terms known as cost-benefit analysis. The practical limitations of the cost benefit approach have led to the cost-effectiveness and cost-utility analysis.

Kataria and Srivastava (1989)\(^5\) presented cost analysis of Primary Health Centres, in their research project, funded by the World Health Organisation.

As per government norms, for every 30,000 population in the plains or for every 20,000 population in a hilly area, one Primary Health Centre was sanctioned to function. An average of 43.17 per cent of the total cost was spent on salaries of manpower at Primary Health Centre head quarters; 29.78 per cent at sub-centre level and 17.03 per cent at village / field level, as calculated at Ujjain district in Madhya Pradesh.

The findings of the cost structure of Primary Health Centre in different states are summarised as follows:

(i) The cost of operating a Primary Health Centre in Uttar Pradesh state was Rs.6.61 lakhs and it was Rs.6.63 lakhs in Madhya Pradesh during 1983-1984.

(ii) The average per capita health expenditure per month was Rs.6.53 per year for Primary Health Centre in plains and it was Rs.12.10 per year for Primary Health Centre in hilly areas in Uttar Pradesh.

(iii) It was noted that more than 60 per cent cost was spent on manpower posted at Primary Health Centre and a sub-centre; 21 per cent for programme cost and 13.2 per cent for medicines.

(iv) Regarding staff strength of a new primary health centre, there was one medical officer, one pharmacist, one staff nurse, one multipurpose health worker, one female health assistant, one male health assistant, one health worker, one female health assistant, one male health assistant, one health educator, one laboratory technician, one driver and four Class IV employees.

(v) 45 per cent of the time was used in direct services.

(vi) More than 25 per cent of the total cost was spent in family planning; 20 per cent of the cost was spent on medical care; 10.5 per cent of the cost was
spent on maternal and child care and 3.8 per cent of the cost was spent in control of communicable diseases.

**Banerjee** (1989)\(^6\) described that “Alma Ata declaration of 1978 (WHO/UNICEF) was a shift to integrated health services, basic health services, and to relating health services to the wider strategy for dealing with the socio-economic problems of the deprived sections of populations in different countries. More significantly, it envisaged social control over technology and health services development but on part of inter-sectoral efforts to improve the health of the country population”.

**Banerji Debabar** (1990)\(^7\) examined a social-cultural, political and administrative analysis of health policies and programmes in India in the eighties. He traced the historical background of health policies in India right from the colonial rule. Bshore Committee (1946), Sokhey Committee (1962) on health policies gave different recommendations. The author viewed that health was a state subject as per Indian Constitution. The Central government in controlling the health schemes and states has been reduced to the position of supplicants. The author opined that colonial rule introduced a western system of medicine and


followed curative method of costly treatment and it paved way for colonial exploitation. India’s National Health Policy (1983) gave emphasis upon curative approach rather than preventive, promotive public health and rehabilitative aspects of health care.

The author was critical about the functioning of public health care services. The rapid proliferation of health institutions in the private sector including the registered medical practitioners is a standing testimony to the failure of government health institutions to meet the felt-needs of the people.

**Mead Over** (1991) explained various ingredients of health sector in a developing economy. In the first chapter, he introduced production module, health and population module, welfare module and expenditure module. In expenditure module, taxes and disposable income were spent on health care, education, agricultural development and other expenditures. National income that was not spent by the government or private sector was saved and invested.

The author cited a Table regarding public and private expenditures on health care as a percentage of the budget for some developing countries. India’s disposable income per capita as of 1985 was 130; private percentage of total health expenditure was 86.3 per cent; total expenditure on health per capita was 3.17 per cent; health as percentages of government expenditure was 2.0 per cent;
and private expenditure on health as percentage of disposable income was 2.23 per cent. The elasticity in developed countries was estimated to be between 0.1 and 0.5.

Many factors contributed to health education, nutrition and income, in addition, to preventive and curative health care. The possibility of spending money on health care must be weighed against the possibility of spending it on a development project, on education or on consumption. The author viewed that health expenditure affected the growth rate of the population, both by reducing mortality and by directly reducing fertility through family planning programmes. Chapter two and Chapter three of the Manual dealt with the tools and techniques to achieve the goals of its current programmes at the least possible cost and to allocate resources in the economy towards new health care programmes.

Tiwari9 (1992) viewed strengthening of the health delivery system. Describing health as an integral part of the development activities, Tiwari has focused on the notable progress made in the field of health care since independence as well as various problems faced by the country such as the continuance of the communicable diseases, the prevalence of malnutrition, shortage of nursing personnel and increase in the non-communicable diseases.

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According to him, the private sector will have to play a more dominant role in the coming years in the health care delivery.

Kurusu (1994)\textsuperscript{10} in his unpublished thesis examined the effects of socio-economic demographic and health infrastructural variables on health status in major states of India to understand the ability and success or failure in providing health care services especially to the weaker sections of the society. The researcher viewed that health status is not directly related to health variables alone. There are a number of intervening variables like education, income, employment, density, housing, nutrition, health expenditure, health facilities, etc.

The study period of this analysis was between 1981 and 1991. The researcher considered a set of mortality (5 variables) and morbidity (6 variables) which formed a comprehensive and composite index revealing the health status of each state. He classified the 14 major states of India on the basis of its ranks and determined the patterns and development of health status using the taxonomic method, developed by a group of Polish Mathematicians in early 1950’s and recommended in 1968 to UNESCO. The major findings of the study were:

(i) It was necessary to incorporate both mortality and morbidity statistics to estimate health status.

(ii) The health status index was high in states like Kerala, Gujarat and Haryana, whereas it was low in states like Orissa, Karnataka and Rajasthan. However these states had improved their health status in 1991.

(iii) Kerala had low mortality but high morbidity, whereas Gujarat had high mortality and low morbidity.

(iv) The prevalence rate of specific diseases such as Malaria, Tuberculosis and Leprosy had declined during the study period between 1981 and 1991.

(v) Social status of women and poverty were directly correlated with an improvement in health status.

(vi) Overall literacy rate, women’s employment, female mean age at marriage, births with medical attention and health supervisors per lakh population were found to have maximum contribution in determining the health status.

(vii) The demographic variables followed by social variables had played a significant role in the improvement of health status in major Indian states during 1991.

**Manonmoney (1994)**\(^\text{11}\) exhibited deep insight into an economic analysis of health status in Tamil Nadu. This paper attempted to discuss the issue of “Health for All by 2000 A.D.” with the existing health care systems and health services available to people in Tamil Nadu state. A WHO study groups on “Measurement

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of levels of Health” grouped the health indicators into (a) comprehensive and (b) specific indicators. The comprehensive indicators are (i) crude death rate, (ii) proportional mortality rate and (iii) expectation of life. The specific indicators are (i) infant mortality rate, (ii) death from communicable diseases, (iii) indicators of health services and activities and (iv) indicators of social and mental health.

The author had considered three indicators of health status namely birth rate, crude death rate and infant mortality rate. The six determinants of health indicators taken into account in the present study are per capita income, government expenditure on public health, the number of hospitals per million population, number of primary health centres per million population, number of dispensaries per million population and bed strength per million population. The study covered a period of 10 years from 1981-82 to 1990-91. This study was entirely based on secondary statistics collected from various statistical reports published by the Government of Tamil Nadu. The main objective of this paper was to evaluate the health situation in Tamil Nadu and to suggest possible lines of approach in the formulation of health policies and programmes that would help to promote the health status in the coming years.

The following inferences were drawn by the author from the study:

(i) Among all the determinants of health status in Tamil Nadu during 1981-82 to 1990-91, services of PHC had been the significant variables in reducing the infant mortality rate (IMR).
(ii) The per capita income available to people in the state had also improved the health status of Tamil Nadu.

(iii) To increase the health status in Tamil Nadu, the government’s expenditure on public health programmes along with a better water supply, sanitation, nutrition programmes was to be encouraged in the coming years.

Prohit and Siddique\textsuperscript{12} (1994) in the analysis on "Utilisation of health services in India" used the reports of National Sample Survey Organisation 1992 and National Council of Applied Economic Research 1992. The authors had studied utilisation of health services at the micro level, taking into account the following aspects – distance of health facility for patients, type of care, availability of facilities, cost of treatment, quality of care, awareness about existing facilities, as well as other socio-economic aspects of patients in a particular regional set up. They had also tried to understand the utilisation of health care services under various systems, allopathic, homeopathic, ayurvedic and unani. NSSO sample extended over 8346 villages in rural areas and 4568 blocks in urban areas. The survey was conducted between May 1990 and July 1990. NCAER sample encompassed in rural and urban areas respectively.

Bhore Committee (1946), Srivastava Committee (1975) and National Health Policy of India (1983) brought out certain factors that affect the utilisation

of health care services and suggested some guidelines namely dispersal of network of comprehensive primary health care, worked out referral system, appropriate location of correlative centres, density of population, distances, transport connection, health facilities and mechanism to repair and maintain biomedical equipment. These suggestions would be of immense use for policy makers of public health.

The authors drew the following inferences from the Tables given by NSSO and NCAER.

(i) The degree of utilisation had increased in Indian and non-allopathic systems of medicine (homeopathy by 10 per cent, ayurvedic by 7 per cent in rural and 2 per cent in urban areas).

(ii) The majority of out-patients had utilised the services of private doctors. Government institutions are utilised more for providing in-patients care.

(iii) Free wards in Government hospitals and primary health centres were availed of.

(iv) Out-patients and in-patients services were utilised at higher levels in rural areas than in urban areas.

(v) Due to low education and preferential treatment for scheduled caste / scheduled tribe, sickness is generally untreated in rural areas.

(vi) The households were ready to spend 3 per cent of the income for health expenditure economic groups.
Rural-urban disparity in terms of treatment cost in the private sector had indeed widened.

Alex George et al., (1994)\textsuperscript{13} made an attempt to study household expenditure in Madhya Pradesh under the auspices of the Foundation for Research in Community Health, Bombay. The authors had made enquiry into household expenditure in the context of the morbidity pattern and pattern of utilisation of health care services in one rural cluster of Madhya Pradesh having primary health centre, health sub-centre and remote village. They contacted persons in 114 households. There were 857 individuals interviewed. The sex ratio of the sample was 808 females per 1000 males. The 0-4 age group consists of 16 per cent of the individuals, whereas those aged 60 years and above had only five per cent individuals. Thirty per cent of the individuals were in 5-14 age group.

The main findings of the survey were

(i) Around Rs.25 per month is the per capita monthly out of pocket expenditure for health care for acute diseases.

(ii) The per episode cost of rural areas registers a higher Rs.137.67 as gains urban areas at Rs.128.30.

(iii) In the PHC villages, with relatively better developed health care infrastructure, the per episode cost on health is Rs.135.04. It rises to

\textsuperscript{13}Alex George, Ila Sha and Sunil Nandaraj, \textit{A Study of Household Health Expenditure in Madhya Pradesh}, Foundation for Researcher in Community Health, Bombay, January 1994.
Rs.139.74 in sub-centre villages and still higher to Rs.145.63 in remote villages.

(iv) The per event cost for pregnancies, abortions and deliveries was Rs.566.63. Nearly 367 of maternity events spent above Rs.400.

(v) The prevalence of chronic diseases was relatively higher in rural areas at 132.32 per 1000 as against urban areas at 121.06 per 1000.

(vi) The acute diseases were higher in urban areas at 179.07 per 1000 compared to rural areas which have a lesser 152.03 per 1000 episodes only.

(vii) There was high positive correlation of persons (r = 0.99) between chronic morbidity and class status.

(viii) Only 17 per cent of rural people and 14 per cent of the urban people used public health care services.

(ix) There was the poor state of functioning of public health services in the state under study.

Xian Hua Gao (1995)\textsuperscript{14} narrated the rural health care system in China. The author said that China was a poor and backward country. Under the guidance of socialist system in the country, it had emerged as a successful nation in developing its national economy. During 1949-1990, the health status of China improved. Life expectancy in China rose from 35 to 69. Infant mortality rate fell from 20 per cent to 5.1 per cent. Maternal mortality rate fell from 15 per 1000 to

\textsuperscript{14}Xian Hua Gao, “Rural Health Care System in China”, \textit{Health for Millions}, April 1995, pp.2-9.
0.9 per 1000. China gave top emphasis to preventive health care services. Chinese medicine and western medicine were integrated. New China has worked hard and made remarkable progress in public health.

The author was of the opinion that considerable financial inputs were required to establish a primary health care system in rural areas. Instead of the Government taking the entire burden of health expenditure, the author proposed a new system, which involved government organisations, collective and co-operative enterprise, associations and individuals. In addition, the country had developed international co-operation with World Health Organisation, World Bank, UNICEF and other funding agencies.

Khandewale (1996)\textsuperscript{15} in his study on “Health Administration and Weaker Sections in an Indian Metropolis” focussed on the health care facilities available to the economically weaker section of east zone of Delhi municipal administration.

The objectives of the study were to analyse the structure and organisation of health administration, to study the health policy and decision-making policy and to know the utilisation of municipal health facilities by the economically weaker section.

\textsuperscript{15}Shراكант \textit{V.} Khandewale, \textit{Health Administration and Weaker Sections in an Indian Metropolis}, Devika Publications, Delhi, 1996.
The following problems in the health sector were identified:

(i) There was a growing trend in urbanisation and its impact on poor living conditions.

(ii) There were urban slums and poor drainage system that became breeding ground for mosquitoes and flies.

(iii) Provision of mobile van facilities was not found co-ordinated to render the health delivery system effectively.

(iv) Lopsided emphasis either on family planning or universal immunisation programme at the expense of other health programmes was a matter of great concern in the field of public health administration.

Panchamukhi (1996)\textsuperscript{16} had made an attempt to bring out the salient features of decisions relating to resource allocation in the above plan period, at the same time reminding the principles and strategies of “Health for All by 2000 A.D.”.

The first two chapters dealt with the problem of the study with objective and general existing considerations for financing of health, family welfare services and nutrition. The third chapter discussed the system of financing health, family welfare and nutrition. The author estimated that the allocation of funding for the health sector was eight per cent.

Chapter four discussed the components of national health policy and its importance in financing the Five Year Plans. First, the lack of attention for preventive, promotive and rehabilitative aspects of health care was taken up. Much importance was given to curative care, which was beneficial only to the upper classes of the society. Second, the current health system was obviously inconsistent with the goal of “Health for All by 2000 A.D”.

The author claimed that infant mortality rate had declined by 33 per cent points from 139 to 106 during 1972-1985 period. Of course, Kerala had achieved its goal. Tamil Nadu and Goa were nearing these targets. Even in Uttar Pradesh, people had become more aware of family planning, maternal and child care due to various efforts by government and non-governmental organisations.

The author explained how poor infrastructure would affect the objective of equity in the health service utilisation. The Seventh Plan recorded 32 per cent rise of health care allocation. But if the inflation was taken into consideration, the allocations for rural health may fall short of the desired magnitudes to the service levels of the Sixth Plan.

Many studies had revealed that illiteracy along with poor household economic status places greater impediments and hurdles in achieving the family welfare planning. The important point to note here was that the real increase in
health care spending between plan periods was marginal and out of which major share went to the salary and wage components. In Uttar Pradesh, the state had one Primary Health Centre per 78,000 people in rural areas, and it highlighted the total inadequacy of health services.

Charles (1997)\textsuperscript{17} studied creatively the following research issues. The supply aspect represented the health care infrastructure which provides curative and preventive care to the people, whereas the demand aspect pointed to the need for health care which arose from the incidence of morbidity and also the ability of the people to pay for health care. The study depended mainly on primary data. For this a questionnaire survey was conducted in a marine village. 2051 fisherman households were identified and only 100 random samples were interviewed. The researcher had analysed low levels of education of fishermen, high density of population, low levels of land holding, poor housing, drinking water problems, sanitation, health hazards and the role of religion in health awareness.

The researcher found that the working hours of the Primary Health Centre were not convenient to the fishermen and fisher women. By the time they returned from the sea, the Primary Health Centre was closed. Naturally they were forced to avail of the health care services provided by the private clinics. The

\footnotesize{\textsuperscript{17}L. Charles, \textit{Health Status and Health Care System among the Fisher Folk – A Microlevel Analysis}, Centre for Development Studies, Thiruvananthapuram, July 1997.}
researcher suggested that (i) the quality of PHC should be ensured and maintained, (ii) arrangements might be made for diffusion of people’s toilet, construction of community housing flats, promotion of herbal medicines and home remedies, propagation of kitchen garden, job diversification and health insurance scheme.

Gupta et al., (2000)\(^{18}\) examined health expenditure pattern in a rural area of Wardha district, Karnataka state. The study was conducted in 33 villages covered by selecting Primary Health Centres (PHC) 30 clusters were identified utilizing population proportion method. 10 families in each cluster were included in the study. One family member above the age of 25 years, was interviewed based on a pre-designed questionnaire. Information was collected regarding the expenditure incurred on health, for both preventive and curative reasons during the month prior to the survey.

295 families were interviewed from January 2000 to March 2000. It was found that in 74 families at least one person became sick. Out of these, 67 persons required consultation and 13 persons required hospitalization. The total amount of money spent on preventive health care during one month was Rs.6383.00 (mean Rs.21.60 per family). The total amount of money spent on curative health care was Rs.40140.00 (mean Rs.136.60 per family).

It was found that the low socio-economic group spends higher percentage of their monthly income on curative health. Indirect health expenditure, namely transport, stay and food items, made a large proportion of the total expenditure on curative care. There was no significant relationship between socio-economic background and the health facilities the family used. There was a need to expand the self-help group and co-operative sector for providing finance during medical emergencies to families with low socio-economic status.

Ahorlu, et al., (2001)\textsuperscript{19} in their study using focus group discussions and in-depth interviews was conducted to determine the consequences of hydrocele and the benefits of hydrocelectomy on physical activity and social life in three lymphatic filariasis - endemic villages where males had recently been offered surgical operations to repair their hydroceles. Respondents were of the view that hydrocele, especially large ones, severely reduced the patients’ work capacity and impaired sexual function, and that overall it had a considerable negative effect on the quality of living for the patients, their families and the community. The main reasons for refusing hydrocelectomy in the past were the high cost of surgery, and to some extent, fear of death, impotence and / or sterility that might result from the operation. The recently offered hydrocele operations, which included 40

males, were financially supported and preceded by appropriate counselling, and from the patients’ point of views were highly successful. Patients spent between 4 and 12 days in hospital and there were no post-operative complications. Patients observed that, between 3 and 6 months after surgery, there were remarkable improvements in their work capacity and sexual function, and restoration of self-esteem, thus enabling them to participate more in community activities. The need for hydrocelectomy to be incorporated as an important morbidity control measure in lymphatic filariasis control programmes is discussed.

Addiss (2005)\textsuperscript{20} in his study lymphatic filariasis states that it is a leading cause of chronic disability worldwide; an estimated 120 million persons were infected with the filarial parasites that cause the disease and an estimated 40 million persons suffer from chronic clinical manifestations, primarily lymphedema and hydrocele. Following a flurry of scientific advances during the late 1980s and early 1990s, the World Health Organization announced a Global Programme to Eliminate Lymphatic Filariasis (GPELF) in 1998. Unlike most other disease eradication or elimination programmes, the goals of the GPELF are twofold; to interrupt transmission of the filarial parasite and to alleviate the suffering of those with filariasis-related disease. Embracing the challenge of morbidity control or disability alleviation has both challenged and enriched the

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GPELF. The paper reviews the scientific developments and decisions that led to the creation of the GPELF, highlights progress towards achieving programme goals and discuss the remaining challenges.

Agrawal and Sashindran (2006)\textsuperscript{21} in their article stated that filariasis is a major public health problem in India and inspite of existence of the National Filaria Control Programme since 1955, currently there may be up to 31 million microfilaraemics, 23 million cases of symptomatic filariasis, and about 473 million individuals potentially at risk of infection. Over the last 10 years advances have led to new diagnostic/treatment tools and control strategies for filariasis. The new control strategy is aimed at transmission control through mass treatment and disease control through individual patient management. As a signatory to 50\textsuperscript{th} World Health Assembly resolution on global elimination of lymphatic filariasis in 1997, revised filariasis control programme was launched in India in 13 districts in seven endemic states where mass drug administration was undertaken. Single dose mass administration annually in combination with other techniques has already eliminated lymphatic filariasis from Japan, Taiwan, South Korea and Solomon Islands and markedly reduced the transmission in China. Very high treatment coverage (probably > 85\%) is required to achieve interruption of transmission and elimination in India. Hence, there is an urgent need for effective drug delivery strategies that are adapted to regional differences.

This requires powerful advocacy tools and strategies as well as procedures for monitoring and evaluating the impact of elimination programme.

Ashwani Kumar et al., (2007)\textsuperscript{22} in their study stated that in India, nine Anopheline vectors are involved in transmitting malaria in diverse geo-ecological paradigms. About 2 million confirmed malaria cases and 1,000 deaths are reported annually, although 15 million cases and 20,000 deaths are estimated by WHO South East Asia Regional Office. India contributes 77 per cent of the total malaria in Southeast Asia. Multi-organ involvement/dysfunction is reported in both Plasmodium falciparum and Plasmodium Vivax cases. Most of the malaria burden is borne by economically productive ages. The states inhabited by ethnic tribes are entrenched with stable malaria, particularly Plasmodium Falciparum with growing drug resistance. The profound impact of complicated malaria in pregnancy includes anemia, abortions, low birth weight in neonates, still births, and maternal mortality. Retrospective analysis of burden of malaria showed that disability adjusted life years lost due to malaria were 1.86 million years. Cost-benefit analysis suggests that each rupee invested by the National Malaria Control Programme pays a rich dividend of 19.7 rupees.

\textsuperscript{22}Ashwant Kumar, Neena Valecha, Tanu Jain and Aditya P. Dash, “Burden of Malaria in India: Retrospective and Prospective View”, \textit{The American Journal of Tropical Medicine and Hygiene}, 77(6), 2007, pp.69-78.
Shona Wynd et al., (2007) discussed in their paper that the sustainable and equitable health programmes require a grounded understanding of the context in which they are being implemented. This socio-cultural understanding is pivotal for effective delivery of elimination programmes. Standardised valid methods are needed for gathering authentic socio-cultural insights. The currently recommended protocol for collecting Lymphatic Filariasis (LF) related socio-cultural data, while moving in the right direction, is inadequate. To collect data which provides an understanding of local health beliefs and practices, and communities’ understanding of Lymphatic Filariasis (LF), techniques must be developed that are both valid and time efficient. An approach developed in the Pacific provides a basic snapshot of socio-cultural insights, which are crucial to the development of relevant and sustainable health education and elimination programmes.

Gupta Neeru et al., (2008), in their article entitled “Bellary, India Achieves Negligible Case Fatality due to Japanese Encephalitis Despite no Vaccination; An Outbreak Investigation in 2004” confirmed the existence of the


outbreak of suspected Japanese encephalitis, identified the source, understood the circumstances due to which the outbreak was taking place and suggested measures for its control. It was concluded that a good community awareness of encephalitis, a prompt referral system and a good supportive treatment for the patients and a good surveillance system and response were observed. Very close proximity with amplifying hosts of pigs was avoided by the community, though piggeries were still not very far away (1-3 km). These may explain the reduction in cases, deaths and disabilities due to this disease in this district over the years. Possibilities of mutant strain which is less virulent and / or a better immune status of at risk population may also need to be explored.

II. Studies on Women and Child Health Care

Another notable study on the health care and market inefficient was done by Ahalya Krishnamoorthy. It finds that sector-wise, health suffers all the more from socio-economic impediments than the other related sectors like education. Health is a less competitive sector and so the welfare state has taken upon itself the duty of paying attention to this, in the context of its importance in human resources development. Health care facilities should be provided by the state on the basis of Pareto optimality principle. Public sector has to provide

health care from the welfare point of view. Poor people should attain better health care facilities free of cost. Communicable diseases should be prevented through immunization. Adequate health education should be given for getting awareness. The principle of “Prevention is better than Cure” can be practised.

Ramankutty\textsuperscript{26} (1987) in a village study in Kerala had attempted to analyse socio and economic factors having contributory effect in improving child survival ratio in Kerala, as compared to the rest of India, such as role of women, emphasis on education and health, gender equity, etc.

The methodology of this study was to choose one mother from each household, so that there were seventy-eight sets of responses in all. Each mother was given a set of fifty statements and ten questions each on (i) child health status awareness, (ii) breast feeding, (iii) care of sick children, (iv) artificial feeding and (v) immunization. Mothers were asked to respond to each as ‘agree’ , ‘disagree’ or ‘do not know’.

This study was mainly based on primary data. A micro level village study revealed the following inferences: (i) Education of the mother as well as father determines the health status of the child, the latter for income and the former for rearing and health care, (ii) father’s education seems to have a strong influence

on immunization and other health decision, (iii) better sanitary living conditions, health institutions and making them accessible to the poorer sections of the society. The impact of working mother on child health has not been discussed in this study and it was the limitation of the study.

**Malkit Kaur**\(^{27}\) (1987) in his study states that the maternity and child health care, the most crucial and vulnerable area, is now being given increased attention in the health policy and planning of the government. But, in spite of the various efforts made at policy and programme implementation level, the condition is not very satisfactory. Infant mortality in India is still around 105 per 1000 live births and is much higher in rural than in urban areas. Mortality for the children under 5 years is 158. Of the 23 million children born every year, 2.5 million die within the first two years. Of the rest, one out of nine dies before the age of four and five out of ten suffer from malnutrition. Only 25 per cent are covered by the immunization programme. About 13 million (3000 a day) children die of diseases which could have been prevented by immunization.

Thus, mothers, the main upbringers of children, were found to be caught in a vicious circle of ignorance, conservative practices and even fatalism when it came to the birth of their child and extending care to them. Their main source of information on child care was the illiterate and traditional mother-in-law, who

herself was ignorant about these aspects except in terms of experiences which was also sporadic and incidental. A breakthrough has to be attained in this field and urgent repairs have to be made through education and information to wipe out irrational and negative practices. The results of the study clearly indicate the need for measures to improve the mental attitudes of the rural women through the medium of health education. The shortage of trained personnel and the supposed lack of community participation could be easily broken through proper training given to local folk associated with medicine like the dais, vaids and hakims. This scheme already in force needs to be further strengthened. The health worker has to be well trained and oriented with a new set of practices before an attempt is made to impart health education to them. It would be judicious to encourage the new practices accepted by people than tackle the more negative practices which would be only given up once the health workers begun to enjoy the faith and confidence of people.

Adikari\textsuperscript{28} emphasizes the efficacy and utility of naturopathy and says that nature care is not just cure of a disease, it is an attempt to prevent disease altogether by simply observing laws of nature. Good health could be preserved by following the principles of this system. Medicines and drugs are only a short cut to cure diseases.

Focussing on health education and its vital role in health promotion, Parthasarathy,\textsuperscript{29} (1992) feels that disease control should be our goal as it is the cheapest way, to ensure health. He stresses the need for involvement of media in health education programmes and opines health should be a social movement rather than a medical movement.

\textbf{Kabir and Krishnan} (1993)\textsuperscript{30} concentrate in their study on health status of Kerala prior to the formation of Kerala State, and the manner in which the introduction of western medicine was initially received and what measures were taken for its circulation. Vaccination to all, women and health care, education and social intermediation, social access, objectives of the British in rendering health care services under caste system of Kerala are explained in detail.

The following conclusions were drawn from the study:

(i) The Kerala experiences demonstrated that the mode of demand and ‘right to access’ were as important as the expansion in health care for health transition.

(ii) A major element in Kerala’s health transition was the integration of women and women’s health in the main stream of health development.

\textsuperscript{29}T.K. Parthasarathy, “Preventing Diseases through Health Education”, \textit{Yojana}, Republic Day Special, January 1992.

High literacy rates and a long period of schooling of girls contributed to hasten these cultural and social changes.

(iii) The importance of preventive and public health measures reduced morbidity and mortality rates.

**Sundararaman** (1996)\(^{31}\) had produced a source book on district health management. The first part of the book gave a panoramic glimpse of health status in India. To trace the history of health policy in India, the first landmark in independent India was the acceptance of the Bhore Committee recommendation of 1946, which laid the foundations of comprehensive rural health services through the concept of Primary Health Centres (PHCs). It came up in the country side from 1952 onwards, population control occupied the centre stage from the mid 1960’s and sanitation and drinking water programmes were launched during the fifth five year plan. The integrated child development programme was started in 1975.

The second part of the book deals with public health delivery systems in India and the condition of the poor. The role of village health workers, interventions at PHC level, the importance of health education, improvement of the management of district level hospitals and assessment of the district level health status were elaborated and discussed in this part.

\(^{31}\)T. Sundararaman, **Reaching Health to the Poor – Source Book on District Health Management**, Published by Voluntary Health Association of India, New Delhi, 1996.
The third part deals with women’s health, child health, mental health and infectious diseases. How these health problems affected the poor people, was also recounted. The authors were critical about the public health strategies since public health system depended mainly on medical professionals, particularly the doctors. The vertical programmes like family universal immunisation programmes were target based but not need based.

The authors concluded that a major cause of poor public health was the low status of women in India, both within the family and in the community. Women are discriminated against from birth and it is reflected in poor nutrition, poor education, greater psychological stress and lower priority for curative health care.

Sreenivasa Reddy\(^{32}\) (1998) suggested an innovative approach to improve the maternal and child health through Primary Health Centre. The results of this approach helped to enhance the quality of services as well as to make them more accessible, available and acceptable to the community throughout the country in order to reach the goal of “Health for All by 2000 A.D.”.

The researcher selected Kurnool district, one of the backward districts in Andhra Pradesh at random. The backward Mandal Alur was selected as it had low literacy rate of 25 per cent, a female literacy rate of 13 per cent and low

socio-economic status. A Primary Health Centre with a population of 45,000, spread over 18 villages was taken up for the intensive maternal and child health services. A baseline survey was conducted before launching the project to assess the existing health status of the community. There were 7 sub-centres under Primary Health Centre. In the project one ANM was appointed on contract basis in each of 18 villages.

One auxiliary nurse, midwife for every village with adequate drugs to treat minor ailments, a sub-centre building with compulsory stay of ANM in the sub-centre, referral unit and the ANM visiting at least 25 to 35 added as inputs. They conducted deliveries at home, organised weekly antenatal check up and educational sessions in the community. The service utilisation after 8 months improved beyond expectation. The project input namely drugs worth of 2000 for each village, did the magic in establishing credibility and rapport with the community.

Qadeer (1998)\textsuperscript{33} stated that from a public health perspective two things are clearly needed. First, within reproductive health, priorities should be clearly articulated and reflected in the budgetary allocations. Secondly, maternal and child health, nutrition, contraceptive services, and communicable disease control must be integrated. Within the sphere of the health service system, this will

\begin{itemize}
\item {Qadeer, Imrana, “Reproductive Health – A Public Health Perspective”, Economic and Political Weekly, Vol.XXXIII, No.41, October, 1998, pp.10-16.}
\end{itemize}
provide a solid foundation for women’s health including their reproductive health. Handling reproductive health in isolation is not only an inefficient way of dealing with the problems of women’s reproductive health but it also robs them of their dignity. An integrated approach alone can give optimal results by handling women’s health as an entirety. To achieve the best results, the health service system needs supportive social, economic and legislative action favouring women.

**Jatinber Bajaj** (1999) attempted to study the knowledge and utilisation of maternal and child health services available to women residing in the slums of South Delhi. Five slums situated near Ramakrishnapuram in South Delhi were selected. Every tenth household in each slum was selected. The total sample households were 500. The findings of the survey were,

(i) 80 per cent of women had availed themselves of care during pregnancy.

(ii) Awareness of free maternal and child health facilities was at 82 per cent, but people prefer home delivery.

(iii) An important reason for the non-utilisation of these services may be lack of knowledge about these services offered by the government which may in turn be attributed to lower accessibility of these institutions providing the services.

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(iv) Deliveries are attempted by untrained nurses under the most unhygienic condition.

(v) Vaccination rate in these slums fell short of the achievement goals.

**Padmanabhan** (2000)\(^{35}\) viewed that though the health status in India had been improving remarkably, it had not reached the goal of “Health for All by 2000 A.D”. The author cautioned about resurgence of diseases like dengue, plague and malaria which were once thought to have been eradicated. New diseases like Hepatitis and AIDS were posing a threat. The increase in life expectancy and life style changes had led to incidence of diseases like cancer, diabetes and cardio-vascular ailments.

A review of the rural health care infrastructure development by the Central Council of Health and Family Welfare in April 1999, revealed not only gaps in the establishment of infrastructure but also in the manpower required. The gap was the highest at 65.5 per cent in respect of specialists; 48 per cent in respect of laboratory technicians and 11.5 per cent in respect of doctors at PHCs.

The author had suggested the following for better functioning of state – run health care infrastructure.

(i) Allowing local recruitment of doctors on part-time basis.

(ii) Primary health care for urban slum dwellers also.

(iii) Involving industrial establishment, co-operatives, religious and charitable institutions to run hospitals autonomously.

(iv) Deployment of mobile clinics.

(v) Health expenditure should be increased from 6 per cent to 8 per cent in GDP.

Nilanjan Patra (2008) in his study attempted to analyse the effects of some selected demographic and socio-economic predictor variables on the likelihood of immunization of a child for six vaccine – preventable diseases covered under the Universal Immunization Programme. It focuses on immunization coverage (a) at the all India level, (b) in rural and urban areas, (c) in Bihar, Tamil Nadu and West Bengal and (d) for three groups of states, the empowered action group, north-eastern and other states. The study applies a logistic regression model to National Family Health Survey –2 (1998-99) data. The likelihood of immunization increases with urban residence, mother’s education level, mother’s exposure to mass media, mother’s awareness about immunization, antenatal care during pregnancy and other such variables. Further research with both demand – and supply-side issues and current data is critical to help policymakers make the immunization programme universal.

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III. Studies on Primary Health Centres

**World Health Organisation** publication (1978) issued the deliberations of international health conference on primary health care at Alma-Ata, Soviet Russia. It is a landmark in the history of primary health care.

(i) The conference strongly reaffirms that health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. It is a fundamental human right and the attainment of the highest possible level of health is most important.

(ii) Existing gross inequality in health status of the people between developed and developing countries, is unacceptable.

(iii) The promotion and protection of the health of the people is essential to sustained economic and social development.

(iv) People have the right and duty to participate in planning and implementation of their health care.

(v) Health for all means the level of health that will permit them to lead a socially and economically productive life.

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(vi) Primary health care forms an integral part both of the country’s health system, of which it is central function and main focus and of the overall social and economic development of the community.

(i) All countries should co-operate in a spirit of partnership.

Kataria and Srivastava (1989) presented cost analysis of Primary Health Centres, in their research project, funded by World Health Organisation.

As per government norms, for every 30000 population in plains or for every 20000 population in hilly area, one Primary Health Centre was sanctioned to function. An average of 43.17 per cent of the total cost was spent on salaries of manpower at Primary Health Centre head quarters; 39.78 per cent in sub centre level and 17.03 per cent at village / field level, as calculated at Ujjain district in Madhya Pradesh.

The findings of the cost structure of primary health centre in different states are summarised as follows:

(i) The cost of operating a primary health centre in Uttar Pradesh state was Rs.6.61 lakhs and it was Rs.6.63 lakhs in Madhya Pradesh during 1983-1984.

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(ii) The average per capita health expenditure per month was Rs.6.53 per year for Primary Health Centre in plains and it was Rs.12.10 per year for Primary Health Centre in hilly areas in Uttar Pradesh.

(iii) It was noted that more than 60 per cent cost was spent in manpower posted at Primary Health Centre and sub-centre; 21 per cent for programme cost and 13.2 per cent for medicines.

(iv) Regarding staff strength of a new primary health centre, there was one medical officer, one pharmacist, one staff nurse, one multipurpose health worker, one female health assistant, one male health assistant, one health worker, one female health assistant, one male health assistant, one health educator, one laboratory technician, one driver and four class IV employees.

(i) 45 per cent of the time was used in direct services.

(v) More than 25 per cent of the total cost was spent in family planning; 20 per cent of cost was spent in medical care; 10.5 per cent of cost was spent in material and child care and 3.8 per cent of cost was spent in control of communicable diseases.
John Hodgson (1991)\textsuperscript{39} in his research paper “Location as a factor in providing effective primary health care services: the role and requirements of location allocation models”, gave the geographical angle to primary health care planning. He analysed the pattern of utilisation of health services based on distance and level or size of health services. His findings emanated from a study he conducted in Goa, India. In a large country like India, where people live in remote areas, the decision to correctly locate the health centres assumed a strategic importance for the maximum utilisation of scarce resources were decided on political factors utilised by the majority of the targeted population.

Ghai (1985)\textsuperscript{40} dealt with management of primary health care. This was the text book on primary health care. It was useful to the students of preventive and social medicine. In this book, the author had discussed the exigency of increasing the efficacy of the health infrastructure and principles of management and delivery of services. The four components of primary health care were, (i) satisfying the immediate felt health needs of the people (ii) problems of women and children (iii) control of communicable diseases (iv) referral services.


\textsuperscript{40}Ghai, O.P., “Management of Primary Health Care”, Interprint, New Delhi, 1985.
At primary health level there was one medical officer, who was in-charge of primary health centre. There was one health nurse, and also auxiliary nurse, midwife, health guides, community health worker and paramedical workers. At secondary health levels referral cases from primary health centres and other immediate cases are attended to by undergraduate basic doctors. At territory health level, specialist medical teachers and post graduate doctors were employed. The Medical college is attached to the general hospital.

Health workers were designated differently in different countries. In India it was auxiliary nurse, midwife, in Nepal auxiliary health worker, in Sri Lanka public health midwife, in USSR. Feldspar and in U.S.A, medex. Primary health care system should be backed by all levels of health care delivery system to ensure that the maximum benefits were derived from the investment made in primary health care. Drugs, immunising agents, vitamins, haematinics and food supplements were needed for primary health care.

**Yasodha Shanmugasundaram** (1994)\(^4\) considered the hospital as a firm and applied the theories of profit maximization and cost minimisation. She had built service maximising hospital model, by assuming two products \(P_1\) and \(P_2 = S\) where \(S=\)Hospital services; \(P_1 = \) Inpatient care; \(P_2 = \) outpatient care. Patients consume any one of products \(Q_2\) \(P_2 = \) Number of out patients. Edgeworth Box

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diagram and production possibility curve was used in the model. State-run hospitals did not meet the entire health demand of the community. Among the total of 11254 hospitals in India, only 4732 were government hospitals including 353 hospitals under local bodies. The rest of the 6522 were under the ownership of private and voluntary bodies (Health Information 1991).

The author had elucidated the economic dimensions of hospital firm, the role of physician in demand and supply analysis, market structure of the hospital, production function of hospital and cost function of hospital. Production efficiency of hospital is a social prerogative and responsibility. Consumer Council could play a crucial role in providing all aspects of health information to the public. Ignorance of consumer is phenomenal in the health sector.

The author was of the opinion that

(i) The growth of hospitals in India was inadequate in terms of the total needs of the community. There were only 13 hospitals per million population in India.

(ii) Inter state differences were glaring

(iii) The hospitals would have to play a major role even beyond 2000 A.D.
Xian Hua Gao (1995) narrated the rural health care system in China. The author said that China was a poor and backward country. Under the guidance of socialist system in the country, it had emerged as a successful nation in developing its national economy. During 1949-1990, the health status of China improved. Life expectancy in China rose from 35 to 69; infant mortality rate fell from 20 per cent to 5.1 per cent. Maternal mortality rate fell from 15 per 1000 to 0.9 per 1000. China gave top emphasis to preventive health care services. Chinese medicine and western medicine were integrated. New China has worked hard and made remarkable progress in public health.

The author was of the opinion that considerable financial inputs were required to establish primary health care system in rural areas. Instead of the government taking the entire burden of health expenditure, the author proposed a new system, which involved government organisations, collective and co-operative enterprise, associations and individuals. In addition, the country had developed international co-operation with World Health Organisation, World Bank, UNICEF and other funding agencies.

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Charles (1997) made an insight into the following research issues. The supply aspect represented the health care infrastructure which provides curative and preventive care to the people whereas the demand aspect pointed to the need for health care which arose from the incidence of morbidity and also the ability of the people to pay for health care. The study was to depend mainly on primary data. For this a questionnaire survey was conducted in a marine village. 2051 fisherman household was identified and only 100 random samples were interviewed. The researcher had analysed low levels of education of fishermen, high density of population low levels of land holding, poor housing, drinking water problems, sanitation, health hazards and the role of religion in health awareness.

The researcher found that the working hours of the Primary Health Centre were not convenient to the fishermen and fisher women. By the time they returned from the sea, the primary health centre was closed. Naturally they were forced to avail of the health care services provided by the private Chinies. The researcher suggested that (i) the quality of PHC should be ensured and maintained (ii) arrangements might be made for diffusion of people’s toilet, construction of community housing flats, promotion of herbal medicines and home remedies, propagation of kitchen garden, job diversification and health insurance scheme.

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improved beyond expectation. The project input drugs worth Rs.2000 for each village, did the magic in establishing creditability and rapport with the community.

**Rama V.Baru** (1999)\(^{45}\) in his paper explained first, the importance of world development report of 1993; second the health care services in India provided by public, private and voluntary bodies; third using the national sample survey 42nd Round 1986-87, Centred Statistical Organistion, New Delhi, making an inter-state analysis. In economically backward states like Bihar, Orissa, Uttar Pradesh, there has been very little growth of hospitals in rural areas. As far as the PHCs are concerned, some states like Tamil Nadu, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Orissa and West Bengal had shown significant progress during 1980’s.

In rural areas in Tamil Nadu, over 50 per cent of hospitalized cases got treated in public hospitals. In Tamil Nadu high income people, using public hospitals constituted 36 per cent and the remaining 64 per cent used private hospitals. The author felt that reduction on welfare spending and urban based growth of private sector would further aggravate rural urban inequalities.

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(iv) Deployment of mobile clinics.

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Health expenditure should be increased from 6 per cent to 8 per cent in GDP.

Using upgraded paramedical professionals as people did in China, with the concepts of bare foot doctors.

IV. Studies on Health Expenditure and Health Insurance

A certain pertinent study especially related to health expenditure and health insurance is taken into consideration for this section.

Kenneth Lee and Anne Mills (1983) began their book by arguing the relevance of economic theory to the problems of health and health care in developing countries. In the second part, the authors dealt with resources and costs in primary health care. Anti-poverty measures, food production and distribution, water, sanitation, housing, environmental protection and education contributed to health. Financing the source for primary health care was given as follows. (i) The public sources were general tax revenue, deficit financing, earmarked taxes, social insurance, local tax revenue and state-run lotteries. (ii) The private sources were private health insurance, employer financed services, charitable contributions, community fund raising and private household expenditure.

The last section of the book dealt with some health policy issues namely health and economic development, organisation and delivery systems, finance of the health sector, demand analysis, supply analysis, health manpower, financial management, organisational behaviour project evaluation, health policy, equity and social justice.

Mead Over (1991) explained various ingredients of health sector in a developing economy. In the first chapter he introduced production module, health and population module, welfare module and expenditure module. In expenditure module, taxes and disposable income were spent on health care, education, agricultural development and other expenditures. National income that was not spent by the government or private sector was saved and invested.

The author cited a Table regarding public and private expenditures on health care as a percentage of the budget for some developing countries. India’s disposable income per capita as on 1985 was 130; private percentage of total health expenditure was 86.3 per cent; total expenditure on health per capita was 3.17 per cent; health as percentages of government expenditure was 2.0 per cent; and private expenditure on health as percentage of disposable income was 2.23 per cent. The elasticity in developed countries was estimated to be between 0.1 and 0.5.

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Many factors contributed to health-education, nutrition and income, in addition, to preventive and curative health care. The possibility of spending money on health care must be weighed against the possibility of spending it on development projects, on education or on consumption. The author viewed that health expenditure affected the growth rate of the population, both by reducing mortality and by directly reducing fertility through family planning programmes. Chapter two and chapter three of the manual dealt with the tools and techniques to achieve the goals of its current programmes at the least possible cost and to allocate resources in the economy towards new health care programmes.

Alex George et al., (1994)\textsuperscript{49} made an attempt to study household expenditure in Madhya Pradesh under the auspices of Foundation for Research in Community Health, Bombay. The authors had made enquiry into household expenditure in the context of the morbidity pattern and pattern of utilisation of health care services in one rural cluster of Madhya Pradesh having primary health centre, health sub centre and remote village. They contacted persons in 114 households. There were 857 individuals interviewed. The sex ratio of the sample was 808 females per 1000 males. The 0-4 age group consists of 16 per cent of the individuals, whereas those aged 60 years and above had only 5 per cent individuals. Thirty per cent individuals were in 5-14 age group.

The findings of the survey were (i) Around Rs.25 per month is the per capita monthly out of pocket expenditure for health care for acute diseases.

(ii) The per episode cost for rural areas register a higher Rs.137.67 as against urban areas at Rs.128.30.

(iii) In the PHC villages, with relatively better developed health care infrastructure, the per episode cost on health is Rs.135.04. It rises to Rs.139.74 in sub centre villages and still higher to Rs.145.63 in remote villages.

(iv) The per event cost for pregnancies, abortions and deliveries was Rs.566.63. Nearly 367 of maternity events spent exceeded Rs.400.

(v) The prevalence of chronic diseases was relatively higher in rural areas at 132.32 per 1000 as against urban areas at 121.06 per 1000.

(vi) The acute diseases were higher in urban areas at 179.07 per 1000 compared to rural areas which have a lesser 152.03 per 1000 episodes only.

(vii) There was high positive correlation of persons $r=0.99$ between Chronic morbidity and class status.

(viii) Only 17 per cent of rural people and 14 per cent of the urban people used public health care services.
(ix) There was poor state of functioning of public health services in the state under study.

Reddy (1994) examined the level of health care expenditure in India. During the past three decades (1960 to 1990) India had achieved considerable progress in health status. In comparison to other countries, notably those of developing countries there was not much to be proud of. The life expectancy had increased in India from 47 to 58; in China from 43 to 69; in Sri Lanka from 52 to 68. The child mortality had decreased from 235 to 127 during the period.

The reason for these disparate achievements was sought after. It was felt that the resources spent on health care in India were inadequate and comparatively low.

The author had conducted empirical studies to test the validity of this reason. From the comparative statement of his estimate and other estimate by Indian Institute of Management, Ahmedabad (1987), Foundation for Research in Community Health (1987), Duggal, R (1986), Ravisankar. V. and K. Subbarao (1989) and World Bank (1993), India was spending 6 per cent or 3.75 per cent in public sector and private sector combined. It was spending on par or higher than most of the developing countries in the world namely Sri Lanka, Philippines, Malaysia and Thailand in terms of percentage of gross domestic product (GDP).

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TABLE 2.1

HEALTH CARE EXPENDITURE IN INDIA BY PUBLIC AND PRIVATE SECTORS AND AS PER PERCENTAGE OF GNP: 1990-1991

<table>
<thead>
<tr>
<th>Sector</th>
<th>Volume Rs. in lakh</th>
<th>Per Capita Rs.</th>
<th>Per cent Share in Total</th>
<th>As Percentage of GNP at factor cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Public Sector</td>
<td>770850</td>
<td>91.30</td>
<td>44.17</td>
<td>1.65</td>
</tr>
<tr>
<td>2. Private Sector</td>
<td>974361</td>
<td>115.45</td>
<td>55.83</td>
<td>2.09</td>
</tr>
<tr>
<td>Total</td>
<td>1745211</td>
<td>206.71</td>
<td>100.00</td>
<td>3.75</td>
</tr>
</tbody>
</table>


The author opined that health expenditure is fairly high and the problem lies with poor performance in health status improvement. According to a study made by the author, per capita income, female literacy, poverty alleviation had significantly influenced health status. Expenditure on health care had very little influence. This finding collborates with the findings for other developing countries.

The findings of the study were,

(i) After careful examination of the methodologies followed by earlier studies on what constituted health care expenditure, estimate had been made on
expenditure in (a) public sector (b) private sector and (c) in the country as a whole. It had been found out that public and private sectors together had spent 3.75 per cent of GDP in 1990-91.

(ii) The share of private sector constituted about 56 per cent and the rest 44 per cent was accounted for by public sector.

(iii) An interesting aspect of this estimate was that the share of public sector turned out to be much higher than what others had estimated so far.

(iv) The reason for poor progress in health status was not lack of resources for health care but it could be inefficiency and misallocation of resources between health and other sectors.

Hari Kurup (1994)\(^ {51}\) attempted to formulate pricing policy of health sector by conducting a micro level study at Sree Chitra Tirumal hospital in Kerala. He had studied cost structure, cost recovery and pricing in the hospital. The author viewed that improvement in health status was vital to the habitues. Expenditure on health accounted for about 5 per cent of the total expenditure and on an average 2 per cent to 4 per cent of the Gross Domestic Product (Feldstein 1983)\(^ {52}\)


The author stressed efficiency pricing and also pricing with efficiency and equity. He also discussed the medical services; quality of service, admission to hospital, length of stay, waiting period to get service, cost recovery and subsidy allotment. He had used mathematical tools to study the cost structure such as fixed cost and marginal cost. Since hospitals are multi product institutions, the cost analysis was carried out in a multi-product framework. The function was selected arbitrarily. This function was flexible in nature. The findings of the study revealed that the present system was not based on economic efficiency consideration.

Panchamukhi (1996)\textsuperscript{53} had made an attempt to bring out the salient features of decisions relating to resources allocation in the above plan period, at the same time reminding the principles and strategies of “Health for All by 2000 A.D”.

The first two chapters dealt with the problem of the study with objective and general existing considerations for financing of health, family welfare services and nutrition. The third chapter discussed the system of financing health, family welfare and nutrition. The author estimated that allocation of fund for health sector was eight per cent.

Chapter four discussed the components of national health policy and its importance in financing the Five Year Plans. First, the lack of attention for preventive, promotive and rehabilitative aspects of health care was taken up. Much importance was given to curative care, which was beneficial only to the upper classes of the society. Second, the current health system was obviously inconsistent with the goal of “Health for All by 2000 A.D”.

The author claimed that infant mortality rate had declined by 33 per cent points from 139 to 106 during 1972-1985 period. Of course, Kerala had achieved its goal. Tamil Nadu and Goa were nearing these targets. Even in Uttar Pradesh, people had become more aware of family planning, maternal and child care due to various efforts by government and non-governmental organisations.

The author explained how poor infrastructure would affect the objective of equity in the health service utilisation. The Seventh Plan recorded 32 per cent rise of health care allocation. But if the inflation was taken into consideration, the allocations for rural health may fall short of the desired magnitudes to the service levels of the sixth plan.

Many studies had revealed that illiteracy along with poor household economic status raised considerable impediments in achieving the family welfare planning. The important point to note here was that the real increase in health care spending between plan periods was very less and out of which major share
went to the salary and wage components. In Uttar Pradesh, the state had a Primary Health Centre per 78,000 people in rural areas and it highlighted inadequacy of health services.

Peter Berman (1996) elaborated the size and composition of health expenditure in India and offered some comments and questions about what this information had to offer for the future development of the health system. Health expenditure estimate varied from the figures compiled by different researchers.

In 1992, World Bank team worked with Government of India counterparts and researchers. They produced the following estimate.

**TABLE 2.2**

**ESTIMATE OF TOTAL HEALTH EXPENDITURE: INDIA, 1990-91.**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Total in Crores</th>
<th>Per Capita Rs.</th>
<th>Per cent of Total</th>
<th>Per cent of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Sector</td>
<td>5779</td>
<td>68.8</td>
<td>21.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Private Sector</td>
<td>21042</td>
<td>250.5</td>
<td>78.5</td>
<td>4.7</td>
</tr>
<tr>
<td>Total</td>
<td>26821</td>
<td>319.3</td>
<td>100.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>


India, in terms of per health spending, was close to the Philippines which had an estimated GDP almost double that of India. Korea had a higher level of

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54 Peter Berman, “Health Care Expenditure in India”, (Ed.) in Health, Poverty and Development in India, Oxford University Press, Delhi, 1996.
spending which was eight times higher than India’s. India’s total health expenditure amounted to 6 per cent of GDP, according to World Bank estimate.

_Tulasidhar_ (1992) had estimated that about 62 per cent of Health Ministry spending by centre and states went to ‘medical’ in 1986-1989. The author gave the following suggestions to the government of India for policy formulation.

(i) Low levels of utilisation of public services suggested that without major improvements in the way money was used, large increase in health spending will not produce the impact they should.

(ii) The efficiency and quality of public services could be improved by better management and administration.

(iii) The national health policy had to pay attention to private health system which accounts for almost 80 per cent of health expenditure.

_Sodani and Gupta_ (1998)\(^{55}\) had studied health care expenditure from a case study of tribal area of Rajasthan State for the period 1997. The general objective of the study was to provide insight into the health care expenditure and utilisation. It also tried to elicit information on the patterns of household expenditure on government and private sources of treatment in both rural and urban segment of tribal areas of Rajasthan.

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The specific objective of the study were

(i) analysing health services utilising factor in rural and urban areas.
(ii) Estimating average health care expenditure per illness.
(iii) Estimating direct and indirect expenditure.
(iv) Suggesting policy implication for reducing health care expenditure.

The study covered 3 districts in Rajasthan and the study is based mainly on primary data. The health care services in this study related to allopathic, ayurvedic, homeopathy, unani and naturopathy system of medicine. The study covered government services in three tribal districts, which included 13 hospitals, 26 dispensaries, 32 community health centres 155 PHCs, 1037 sub-centres.

The data were collected through a one-time survey and a multi-stage sampling design was adopted. Data were collected from a sample of 450 households in 3 districts. Total households selected were 225 for urban and 225 for rural area. In this study, the length of the recall period was of 12 weeks. Each household’s information related to the nature of illness, the expenditure incurred, the pattern area of residence. A break up of total health care expenditure by direct and indirect categories was collected. The available health care facilities were divided into five categories namely public, private, traditional practices, chemist shop and family/friends.
Health care expenditure was defined as expenditure incurred on various items to recover from illness during the reference period of 12 types (a) direct and (b) indirect. Direct expenditure is defined as expenditure incurred on items which have direct bearing - doctor fee, medical expenses etc. Indirect expenditure was defined as those items, such as special diet expenses and transport expenses.

The main findings of the study were,

(i) nearly 50 per cent of the people in rural areas are dependent or traditional practitioners.

(ii) There was a substantial rural and urban difference in the average expenditure per illness.

(iii) Rural people spent an average of Rs.931 per illness episode for treatment which is 1½ times more than that of urban people both in acute and chronic diseases.

(iv) The study revealed that rural people had borne higher burden of almost all components of indirect expenditure for treatment.

Some policy implication had also been suggested to increase health status and reduce health care expenditure.

The study pointed out that household sector in the Indian economy was the main contributor in financing insurance which was not universal in India.
Therefore, policy makers and health planners would have to pay more attention to how to reduce the financial burden of household for getting treatment, specially in tribal areas.

The reason was the people in tribal area had no other way but to approach low quality public/ private facilities, when they are confronted with serious illness. Thus efforts are needed to bring quality improvement in health and hospital management practices so as to improve the health status at lower health expenditure and reduce the financial burden of the household for getting the treatment in rural and urban area. Thus this study provided a deep insight into the health care expenditure at household level for both rural and urban segments of tribal areas of Rajasthan.

Gupta et al., (2000)\textsuperscript{56} examined health expenditure pattern in rural area of Wardha district, Karnataka State. The study was conducted in 33 villages covered by selecting Primary Health Centre (PHC) Anji 30 clusters were identified utilizing population proportion method. 10 families in each cluster were included in the study. One family member above the age of 25 years, was interviewed based on a predesigned questionnaire. Information was collected regarding the expenditure incurred on health, for both preventive and curative reasons during the one month prior to the survey.

In all, 295 families were interviewed from January 2000 to March 2000. It was found that in 74 families at least one person became sick. Out of these, 67 persons required consultation and 13 persons required hospitalization. The total amount of money spent on preventive health care during one month was Rs.6383.00 (mean Rs.21.60 per family). The total amount of money spent on curative health care was Rs.40140.00 (mean Rs.136.60 per family).

It was found that the low socio-economic group is spending higher percentage of their monthly income on curative health. Indirect health expenditure, namely transport, stay and food items, made a large proportion of the total expenditure on curative care. There was no significant relationship between socio-economic background and the health facilities the family used. There was a need to expand the self-help group and co-operative sector for providing finance during medical emergencies to families with low socio-economic status.

Krishna Soman (2002) viewed that rural health care delivery in West Bengal was at the cross roads. The World Bank was the largest investor in health sector, operating in the state for more than a decade. While World Bank was insisting on privatisation, the planning wing of the state government had put up an agenda of alternative approach to reforms within the limited power of the state.

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This paper attempted to explore some of these dimensions through a serenity of the state of rural health services in West Bengal taking illustrations from Birbhum district. Co-existence of public and private health care was not new in the villages. The author outlined modes of health care, staff shortage in primary health centres, the role of non-governmental organisation in health sector and private practitioners. There was another group of healers in the informal network who lived in the village neighbourhood. They had formal education upto graduate level with or without block level training in veterinary treatment. The villagers recognised them as ‘doctors of the village’.

A study of three census villages in close proximity to Bolpur town revealed that on an annual average, 33 per cent of the villagers of above 15 years of age reported some symptoms of chronic illness that persisted for more than three months.

The main findings of the study were:

(i) Utilisation of the for profit and not-for-profit private institutions was the highest for 70 per cent ailments

(ii) Sub divisional hospital and PHC were used for 25 per cent of ailments and 4 per cent of ailment were treated by not-for-profit NGO chinies.
45 per cent household in the villages constituted the poor, largely wage-earning dalits and adivasis. They chose the village doctors or self-trained healers.

Health is largely the State’s responsibility, but interestingly the growth and development of the health services in any state is influenced by the direction of the centre. Despite limitations, the state of West Bengal aims at achieving self-reliance through alternate approach to economic reform.

The researcher observed that earlier studies related to health care programmes explained the importance of health care programmes. Studies relating to general health care programmes attempted to discuss the effectiveness of various preventive, curative, promotive health programmes. Studies relating to the women and child programmes discussed the importance of immunization to protect the children and explained the significance of the pre-natal and post natal care for women.

2.3. CONCEPTS USED

A brief account of health concepts and economic concepts used in different studies relating to various aspects of health economics is given in this section. The meaning in which the concepts are used, has been taken as theoretical background for the analysis of primary data in the present study. The meaning of concepts used in various aspects of health economics is summarized under different
headings namely health status and health care services, Primary Health Centre and health expenditure with health insurance and cost analysis in health.

**Health Status:**

The ultimate aim of Health Economics is to enhance and maximise health status of people. Health status refers to the living status of the people without disease or infirmities. Various studies have dealt with health status of people belong to different regions, different countries and different states.

Panicker and Soman (1984)\(^{58}\), Foundation for Research in Community Health (1987), Vaidyanathan (1994)\(^{59}\), Manonmoney (1994)\(^{60}\) and Satyanarayana et al., (1995)\(^{61}\) analysed various determinants of health status of the people. They studied positive or negative relationship between health determinants and health status of the people and also examined how far the health variables were influencing health status in an area.

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**Life Expectancy at Birth:**

Life expectancy at birth means the average life time the people live from birth. This is the strongest indicator of health status of a nation, among all other indicators of health status.

Suman Jain (1994)\textsuperscript{62} and Seal (1982)\textsuperscript{63} used life expectancy at birth as one of the health indicators to assess health status of the respective states in India.

**Crude Birth Rate:**

Ratio of the number of births in a year to the mid year population normally expressed per 1000 population. (Census of India, 1991).

Debabar Banerji (1992)\textsuperscript{64} and Chatterjee (1988)\textsuperscript{65} argued that both crude death rate and crude birth rate had declined in India slowly, compared to other nations. Government’s vertical programmes like family planning and mass immunisation yielded results but they were not upto our expectations.

**Crude Death Rate:**

The ratio of the number of deaths in a year to the mid year population normally expressed per 1000 population. (Census of India, 1991)


Under-Five Mortality Rate:

Under-five mortality rate is defined as the ratio of number of deaths under 5 years of age during a given period to total number of deaths during the same period for 1000 children (J.E.Park and K.Park 1989).\textsuperscript{66}

UNICEF (1995)\textsuperscript{67} disclosed that India’s efforts have been successful in reducing under-five mortality rate from the target of 143 per 1000 by achieving 122 per 1000.

Nigam (1994)\textsuperscript{68} explained that the families living on the streets due to poverty and under-five mortality was due to malnutrition and unhygienic atmospheres.

Infant Mortality Rate:

It means the probability of dying between birth and the age one of children. The infant mortality rate gives the ratio of number of deaths in a year of children aged less than one year to the number of births in that year. (Census of India 1991)

It is also a good indicator of health status of a nation. Bhattacharya (1982)\textsuperscript{69} and Martorell and Sharma (1985)\textsuperscript{70} Jain and Visaria (1988) review the various efforts to reduce infant mortality rate and analyse the reasons for differentials in infant mortality rate.

**Morbidity:**

Morbidity refers to illness. Morbidity is called acute when the illness lasts for 3 to 7 days or at the most upto 10 to 14 days. Morbidity is called chronic when the illness lasts for 6 months or more and less than 1 year (Raman Kutty, 1999).

Mathiyazhagan (2002)\textsuperscript{71} and Sukanya (2002)\textsuperscript{72} had analysed the morbidity pattern in rural area. The former had inferred that reporting short term morbidity was positively related with income, social status, age, sex, household size, ownership of land and residential locations in different states. A similar pattern existed in the case of reporting of long term morbidity also. The latter found that there was a decline in the rate of untreated illness and the rate of utilisation was


the highest for private medical services, irrespective of the socio economic characteristics of the households.

Belcher et al (1976)\(^{73}\) made health examination survey in rural Africa and examined the level of morbidity in the area.

**Health Care System:**

Health care system denotes a particular type of methodology which is followed in the diagnosis of disease, source of medicine and treatment. There are four kinds of health care system. They are (i) Allopathy, (ii) Ayurvedic, (iii) Homeopathy and (iv) Unani. Western type of health care system is called Allopathy. Ayurveda is ancient and traditional in India. Homeopathy is a modern medicine. Unani is also introduced in recent years with different medicinal plants.

Kakar\(^{74}\) (1982), Singh\(^{75}\) (1992) and Ghai and Ghai\(^{76}\) (1994) have elaborated the importance and efficiency of different health care systems followed


in India. Xian Hua Gao\textsuperscript{77} (1995) explained Chinese health care system, blending both western medicine and traditional Chinese medicine.

**Health Care Expenditure:**

Health care expenditure is defined as expenditure incurred on various items to recover from illness during a specified period. Health expenditure is of 2 types; (i) direct and (ii) indirect. Direct health expenditure is defined as expenditure incurred on items which are directly related to treatment, such as doctor fees, and medical expenses. Indirect health expenditure is defined as those items such as a special diet expenses, transport expenses and loss of wages for accompanying person. (Sodani 1997)\textsuperscript{78}


\textsuperscript{80}Gumber, Anil, “Burden of Disease and Cost of Ill Health in India, Selling Priorities for Health Interventions During the Ninth Plan”, *Margin* Vol.29 (2), 1997, pp.133-172.


Health Care Services:

Health care services means an organisational arrangement to deliver health care to the people, for looking after those who are sick, including prevention of illness (Raman Kutty 1999).\(^{84}\)

Health care services are provided by the government and it is known as public health care services. It is also supplied by the private sector, non-governmental charitable agencies and indigenous home sector. Public health care services are rendered at primary level in Primary Health Centres, at secondary level in taluk hospitals and at tertiary level in district hospitals.

There are four kinds of health care services. They are (i) curative, (ii) preventive, (iii) promotive and (iv) rehabilitative health care services. The taluk hospitals focus on curative health care services. Primary Health Centres are mainly meant for preventive health care services. Bureau of family welfare insists on promotive health care service. Special hospitals cater to certain diseases like tuberculosis and leprosy, and render rehabilitative health care services for select patients, who are seriously ill.


Balasubramanian (2000) discussed the impact of liberalisation on health care services in developing countries.

Ekbal (2000) pointed out the uniqueness of Kerala State in health sector and how far people’s campaign for decentralised planning brought out desired results.

Health Insurance:

Health Insurance can be defined as a financial arrangement where consumers can avoid or reduce their health expenditure at the time of use of health care services (Subha Mani 2002).

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Ellis et al (2000)\textsuperscript{91}, Seetha Prabu and Selvaraju (2001)\textsuperscript{92} and Ramesh Bhat (2000)\textsuperscript{93} have examined the scope and relevancy of health insurance scheme in developing countries, since health insurance not only reduces the risk factor in any economy but also acts as a catalyst for economic growth. They considered health insurance as one of the important sources of financing of health expenditure.

**Primary Health Centre:**

The Primary Health Centre is an institution which covers most of the health care needs of a large section of the population. Its services should be available to all citizens at an accessible distance and at affordable prices in terms of money, time or other resources.

Joseph Bhore Committee submitted its report in 1946 on the need of primary health care in India. It recommended the coverage of 66,000 people in 100 villages by one Primary Health Centre and coverage of 20,000 people by one health sub-centre. The Constitution of India has laid down that the state shall


\textsuperscript{93} Ramesh Bhat and Dileep Mavlankar, Indian Institute of Management, Ahamedabad, November, 2000.
regard the raising of the level of nutrition and standard of living of its people and improvement of public health as among its primary duties.

Dr. A.L. Mudaliar Committee of 1962 focussed on health survey and planning of rural health care services. It recommended the strengthening of established Primary Health Centres before new ones were opened. It emphasised that a Primary Health Centre should not be made to cater to the needs of more than 40,000 patients, and that the curative, preventive and promotive services should be provided at Primary Health Centres. The Government of India has reduced the coverage of patients to 30,000 per Primary Health Centre in plain area and to 20,000 per Primary Health Centre in hilly areas. Katar Singh Committee (1978) recommended multiple health worker (female) and multiple health worker (male) to work in health sub-centres. The former had to look after maternal and child health in rural areas and the latter had to prevent the communicable diseases in the area.

The researcher tried to study the activities and functions of Primary Health Centres in Virudhunagar district. The important curative functions are classified as (i) Treatment for out-patients, (ii) treatment for in-patients, (iii) conducting delivery and (iv) identifying and treating T.B. patients. These functions are termed as curative health care services. The following other functions are termed as preventive health care services. They are (i) providing immunisation, (ii)
prenatal care and checkup, (iii) controlling of communicable diseases and (iv) referral to taluk hospital.

Kanumanthaya and Baskara Rao\textsuperscript{94} (1982), Ghai\textsuperscript{95} (1985), Joseph\textsuperscript{96} (1985), Chand\textsuperscript{97} (1987), Kataria and Srivastava\textsuperscript{98} (1989), John Hodgson\textsuperscript{99} (1991), Sri Latha and Aitken\textsuperscript{100} (1991), Rao\textsuperscript{101} (1993), Alex George et al.,\textsuperscript{102} (1994), Sundararaman,\textsuperscript{103} (1996), Padmanabhan\textsuperscript{104} (2000) and Narayana and Hari

\textsuperscript{94}Kanumanthaya and N. Baskara Rao, \textit{Multipurpose Health Scheme in Karnataka – A Study of Malur and Disbur Primary Health Centres in Kolar District}, Population Research Centre, ISEC, Bangalore, July 1982.

\textsuperscript{95}O.P. Chai, \textit{Management of Primary Health Care}, Interprint, New Delhi, 1985.


\textsuperscript{101}K.V. Rao, “Primary Health Care Services through Health Centres”, \textit{Health for the Millions}, 1(3), June 1993, pp. 14-17.

\textsuperscript{102}Alex George, Ila Shah and Sunil Nandaraj, \textit{A Study of Household Health Expenditures in Madhya Pradesh}, Foundation for Research in Community Health, Bombay, January 1994.

\textsuperscript{103}T. Sundararaman, \textit{Reaching Health to the Poor – Source Book on District Health Management}, Published by Voluntary Health Association of India, New Delhi, 1996.

Kurup\textsuperscript{105} (2000) have analysed certain problems of Primary Health Centres and suggested ways and means to solve them. The problem of location of Primary Health Centres, accessibility, proper training for health personnel was discussed by these authors in their respective research papers.