CHAPTER 1
INTRODUCTION

1.1. Introduction

“The healthy citizens are the greatest asset any country can have”¹
- Winston Churchill

The World Health Organization (WHO) defines health as “the state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity”. This definition gives the meaning of health which is considered a fundamental human right and an important human development indicator. Good health status not only increases labour productivity but also helps in the overall development of the nation. The promotion and protection of health of the people is essential for sustained economic and social development and for achieving better quality of life. The attainment of better health levels is considered as one of the important worldwide social goals whose realization requires the action of many other social and economic sectors in addition to the health sector as declared in the Alma Ata Declaration (1978). The importance of health is also reflected in the United Nations (UN) Millennium Development Goals; out of the 8 goals, 18 targets and 48 indicators, six goals, 8 targets and 18 indicators are directly related to health.

Economic development is one of the main contributors to the health status of the people. Health economics combines the economic perspective of production with the social objectives of health sciences. It is a specialisation field that focuses on the effectiveness of resource allocation into health services infrastructure to meet the increasing health services needs of individuals and communities. It is concerned with the formal comparison of costs and consequences of healthcare and also helps to inform and improve decision making, as a systematic and objective system of thought. It also deals with the issues related to scarcity in the health markets, such as health financing market, physician services market, institutional services market, input factors market and professional education market. Thus, it is a branch of Economics which covers a wide variety of concepts like health and health services, economic evaluation of health, health insurance, analysis of health care markets, healthcare financing, and hospital economics.

¹http://www.brainyquote.com/quotes/quotes/w/winstonchu382960.html
1.2. Health Care System

Health care system refers to the organization of people, institutions and resources to deliver health care services to meet the health needs of the target population. The WHO defines it as “All the activities whose primary purpose is to promote, restore, or maintain health”. **World Bank** (WB) has given a broader definition for health system by including factors interrelated to health, such as poverty, education, infrastructure and also social and political environment.

According to WHO, the goals for health systems are good health, responsiveness to the expectations of the population, and fair financial contribution. Progress towards these goals depends on how systems carry out four vital functions of: provision of health care services, resource generation, financing, and stewardship. Further, other dimensions for the evaluation of health care systems include quality, efficiency, acceptability and equity. These dimensions have also been described in the United States as "the five C's": Cost, Coverage, Consistency, Complexity, and Chronic illness.

1.3. Health Care System in India

There is a wide variety of health care systems around the world, with as many histories and organizational structures as there are nations. In some countries, health care system planning is distributed among market participants. In others, there is a concerted effort among governments, trade unions, charities, religious or other co-ordinate bodies, to deliver planned health care services targeted to the population they serve.

However, in India health care system is characterized by a pattern of mixed ownership and different systems of medicine - Allopathy, Ayurveda, Yoga, Unani, Siddha, Naturopathy and Homoeopathy (AYUSH). It comprises two major sectors; the private sector that mostly provides curative services and the government sector that provides publicly financed and managed promotive, preventive and curative health services.
1.3.1. Public Health Sector

The public health sector consists of the central government, state government, municipal and local level bodies. Health being a state responsibility, the central government contributes in a substantial manner through grants and centrally sponsored health programs/schemes. There are other ministries and departments of the government such as defence, railways, police, ports and mines which have their own health services institutions for their personnel. For the organized sector employees’ (public and private) provision for health services is through the Employees’ State Insurance Scheme (ESI).

The National Health Policy (2002) envisages a three tier structure for healthcare delivery comprising the primary, secondary and tertiary health care facilities to bring health care services within the reach of the people (Chart 1.1).

Chart 1.1: Public Health Care Delivery System in India

First tier (Primary level)

The primary tier is designed to strengthen the rural health system in India by adopting three types of health care institutions, namely, Sub-Centres (SCs), a Primary Health Centres (PHCs) and a Community Health Centres (CHCs). This level is managed by the Directorate of Health Services but Family Planning and Maternal and Child Health services are under the Directorate of Family Welfare.
1. Sub-Centres:

The SCs are the most peripheral outpost of the existing health delivery system in rural areas and first contact point between the primary health care system and the community. They are being established on the basis of one sub-centre for a population of 5,000 in plain area and one for a population of 3,000 in hilly, tribal and backward or difficult areas. SCs have assigned tasks relating to interpersonal communication in order to bring about behavioural change and provide services in relation to maternal and child health, family welfare, nutrition, immunization, diarrhoea control and control of communicable disease programmes.

The SCs are provided with basic drugs for minor ailments needed for taking care of essential health needs of men, women and children. Each SCs is required to be manned by at least one Auxiliary Nurse Midwife (ANM) / Female Health Worker (FHW) and one Male Health Worker (MHW). Under National Rural Health Mission (NRHM), there is a provision for one additional second ANM on contract basis. One Lady Health Visitor (LHV) is entrusted with the task of supervision of six SCs.

*Chart 1.2: Rural Health Care Delivery System in India*

![Diagram of Rural Health Care Delivery System in India](image)

Source: Self developed based on RHS bulletin 2012.

The Ministry of Health & Family Welfare is providing 100 percent central assistance to all the SCs in the country since April 2002 in the form of salary of ANMs and LHVs, in addition to drugs and equipment kits. The salary of the Male Health Worker is borne by the State Governments. Under the Swap Scheme, the
Government of India has taken over an additional 39,554 SCs from State Governments / Union Territories since April, 2002 in lieu of 5,434 Rural Family Welfare Centres transferred to the State Governments/Union Territories. There are 1,48,366 SCs functioning in India as on March 2012. A significant increase is noticed in the number of SCs in the southern states of Karnataka and Tamil Nadu.

2. Primary Health Centres (PHCs):

    PHC is the first contact point between village community and the Medical Officer. The PHCs were envisaged to provide an integrated curative and preventive health care to the rural population with emphasis on preventive and promotive aspects of health care. The PHCs are established and maintained by the state governments under the Minimum Needs Programme (MNP)/ Basic Minimum Services (BMS) Programme. The National Health Plan (1983) proposed the establishment of PHCs on the basis of one PHC for every 30,000 rural population in the plain area, and one PHC for every 20,000 population in hilly, tribal, backward, and difficult areas. Under NRHM, there is provision for two additional Staff Nurses at PHCs on contract basis.

    PHCs act as a referral unit for 5-6 SCs and have 4-6 beds for patients. The activities of PHCs involve curative, preventive, promotive and Family Welfare Services. As per minimum requirement, a PHC is expected to have a Medical Officer supported by 14 paramedical and other staff. There are 24,049 PHCs functioning in the country as on March 2012. A significant increase in the number of PHCs is observed in the southern states of Andhra Pradesh, Maharashtra and Karnataka.

3. Community Health Centres (CHCs):

    CHCs are being established and maintained by the State Government under MNP/BMS programme. Each CHC covers a population of 80,000 to 1.25 lakh and are referral centres for PHCs approximately at the rate of 1:4. A CHC is required to be manned by four Medical Specialists i.e. Surgeon, Physician, Gynaecologist and Paediatrician supported by 21 paramedical and other staff. It should have 30 in-door beds with one Operation Theatre (OT), X-ray, labour room and laboratory facilities, and also provide facilities for obstetric care and specialist consultations. As on March
2012, there were 4,833 CHCs functioning in the country. A significant increase in the numbers of CHCs is observed in the southern states of Karnataka, Kerala and Tamil Nadu.

**Second tier or level**

The **district hospitals** (DH) function as the secondary tier for the rural health care, and as the primary tier for the urban population. Directorate of Health Services manages this level of health care. As on March 2011, 1579 District Hospitals/Sub-divisional Hospitals were functioning in the country in addition to SCs, PHCs and CHCs.

**Third tier or tertiary level**

The tertiary health care was to be provided by health care institutions in urban areas which are well equipped with sophisticated diagnostic and investigative facilities. Usually it includes teaching hospitals along with Tuberculosis (TB) Hospitals, Mental Hospitals, Infectious Disease Hospitals and Leprosy Hospitals, and they are managed by Directorate of Medical Education.

**1.3.2. Private Health Sector**

Like all other sectors in the economy, the private players have sizeable presence in the health sector also. They comprise a wide array of institutions with varying degrees of sophistication in terms of services and qualified personnel. The private health care delivery system in India is made up of two major subsystems namely, (a) individual practitioners and (b) institutions comprising of nursing homes and hospitals. The majority of the individual practitioners in the country, in both the modern and traditional systems of medicine, are in the private sector. They are often referred to as Private Medical Practitioners (PMPs). The hospitals in private sector of India comprise: (a) For-profit hospitals and nursing homes, (b) Corporate hospitals and (c) Not-for-profit hospitals and nursing homes (Rao, 2012).

The not-for-profit health sector includes various health services provided by Non Government Organisations (NGO’s), charitable institutions, missions, trusts, etc. Health care in the for-profit health sector consists of various types of practitioners and
institutions including hospitals and nursing homes. The ‘for profit sector’ is proportionately larger than the “not-for-profit sector” (Nundy, 2005).

In recent times, while the public health sector has not been so successful in delivering the health needs of the people, private sector has grown by leaps and bounds. Today, more than 70 percent of the hospitals in India are run by the private sector and they control nearly two-fifth of beds available in the hospitals. Nearly 60 percent of dispensaries are run by the same private sector. They provide healthcare for 80 percent of outpatients and 46 percent of inpatients. The private medical sector in India accounts for 61 percent to 86 percent of the total medical expenditure and 73 percent of allopathic doctors (Phadke, 1993).

In recent days, the private sector in India has been playing a dominant role in all the submarkets—medical education and training, medical technology and diagnostics, pharmaceutical manufacture and sale, hospital construction and ancillary services and finally, the provisioning of medical care or services. Previous studies have pointed out that the private sector in India has grown independently without any major regulations, where some private practitioners are not yet registered doctors (Duggal and Nandraj, 1991; Phadke, 1993; Baru 1998).

Since the 1990s, owing to liberalization-privatisation measures, many Non-Resident Indians (NRIs) and industrial/pharmaceutical companies have set up state-of-the-art super-speciality hospitals to attract India’s rich and medical tourists (Appannaiah et al., 2013).

Such a private health care system in India operates at three levels (Chart 1.3):

- The tertiary level includes large specialist and super-specialty hospitals promoted by big business groups and managed as corporate entities. It comprises only 1 to 2 percent of the beds in private sector institutions.
- The secondary level consists of small and large nursing homes and hospitals owned by physician entrepreneurs. They usually provide outpatient and inpatient services. Majority of these are small institutions with 85 percent having less than 25 beds. The secondary and tertiary hospitals are largely skewed towards urban areas and developed states (GOI, 2006).
Finally, at the primary level private sector is operating largely with informal practitioners. This number is high in both urban and rural areas. A vast majority of PMPs in the country are unqualified and lack proper training; especially those working in rural areas (Rao, 2012).

Chart 1.3: Private Health Care Delivery System in India

Source: Self developed based on the available information on private health system.

1.4 Health Care System in Karnataka

The health subject comes under union, state and concurrent list\(^2\) of the Constitution of India where both Central and State government have a role in improving the health status of citizens. However, the responsibility for implementation of health interventions lies largely on the state governments, with the central government providing policy directions and financing national health programmes. Karnataka has developed a widespread network of health delivery system in the state based on the guidelines issued by the Government of India from time to time and on the recommendations of various committees constituted by the central government such as the Bhore Committee, Mudaliar Committee and others.

The state is a pioneer in the country in the provision of public health services. Even before the concept of Primary Health Centers was conceived by the Government

\(^2\)The legislative section of India divided into three lists: Union list, State list and Concurrent list. The Union list has 98 items, State list 61 items and Concurrent list has 52 items. All this has given in part XI of the Indian Constitution.
of India, the state had already made a beginning in establishing a number of Primary Health Units (PHUs) for providing comprehensive healthcare to its citizens, and a delivery system consisting of curative\(^3\), preventive\(^4\), promotive\(^5\) and rehabilitative\(^6\) health care to the people of the state.

The state follows the national pattern of three-tier health setup both in public and private sector. It also has large number of NGOs/voluntary organizations involved in service delivery, community health and development, provision of health infrastructure through the primary health centres, health units, community health training, research, advocacy and networking.

### 1.4.1. Administrative Setup of the Health Sector in Karnataka State

At present there are 29 states in India, with each state having its own health administration. The Medical Department in Karnataka came into existence in the erstwhile Mysore state in the year 1884 itself. The head of the department called Senior Surgeon looked after the administration of all the medical institutions of the state and was also the ex-officio Sanitary Commissioner. Later on, in 1929 in order to give greater importance to public health, the medical department was separated from the sanitary department and the sanitary department was renamed Public Health Department. This set up existed till 1965. In 1965, as per the Bhore Committee (1945) recommendations, a single line of command for both curative and preventive medicines was instituted and Department of Health and Family Welfare was formed by merging the Directorate of Public Health and the Directorate of Medical Services. Again in 1978, the department was bifurcated into two directorates Viz., the

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\(^3\)Curative care refers to treatment and therapies provided to a patient with an intent to improve symptoms and cure the patient’s medical problem. Antibiotics, chemotherapy, cost for a broken limb-these are the examples of curative care.

\(^4\)Preventive care aims at preventing the appearance of diseases, through immunization, exercise, proper eating habits and palliative care which concentrates on reducing the severity of the disease symptoms; such as pain. It includes services like- cancer screening, immunizations, B.P, HIV screening, obesity, vaccination for Hepatitis A & B so on.

\(^5\)Promotive care is the process of enabling people to increase control over and to improve their health (WHO). It includes sanitation, institution deliveries and family planning, etc.

\(^6\)Rehabilitative care is designed to assist individuals in regaining a level of useful and constructive activity. This type of care is directed toward individuals who are recovering from an acute illness or learning to adjust to a chronic condition whose goals are to progress to their highest level of independence (http://www.harthosp.org/jeffersonhouse/rehabilitativecare/default.aspx).
Directorate of Health and Family Welfare (DH & FW) and the Directorate of Medical Education.

In the year 1995, a separate department was created for Indian System of Medicine and re-named as Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) in 2003. Earlier it was under the health department. The AYUSH education, training and practices are generally regulated by the Central Council of Indian Medicine (CCIM), Government of India.

Thus, at present the state has four departments under the Department of Health and Family Welfare (DH & FW):

i. The Directorate of Health and Family Welfare Services.
ii. The Directorate of Medical Education.
iii. The Directorate of Indian System of Medicine and Homeopathy (ISM & H) or Department of AYUSH and
iv. Drugs Control Department.

The Department of Health and Family Welfare Services implements various national and state health programs of public health importance and also provides comprehensive health care services to the people of the state through different health and medical institutions. The Health Secretariat is the official organ of the DH & FW department. The Head Office of the DH&FW is located in the state Head Quarters and the Director is the head of the department. A separate state institute of Health and Family Welfare was created under Indian Population Programme (IPP) to modernize training activities of the department. At the divisional level 4 Deputy Directors are responsible to implement and monitor the health programmes. At the district level, District Health and Family Welfare Officers, and District Surgeons would take care of health and clinical requirements of districts. The District Health and Family Welfare Officer is the overall head of the district for all the health related activities of the district excluding District Hospital/Civil Hospital which is headed by the District Surgeon. There are Taluk Health Officers in each revenue taluk, who are administratively responsible to implement the health programmes at taluk level.
Medical colleges and medical institutions attached to medical colleges are monitored by the respective colleges and by the Director of Medical education. On the other hand, AYUSH institutions are separately monitored by the Director of AYUSH through Deputy Directors.

1.5. Background and Significance of the Study

There is growing realization that the health of the people significantly contributes to economic growth of a nation. Assuring a minimal level of physical and mental well-being is a critical constituent of the development process (National Commission on Macroeconomics and Health, 2005). Further, it is believed that equitable and efficient health system enables to ensure the realization of the various goals laid down in policies, particularly the Millennium Development Goals which are to be achieved by 2015 for which India stands committed.

At the time of Independence, the health sector was dominated by public sector and the private health sector accounted for only 5 to 10 percent of the total patient care. Later on, the convergence of decreasing public investment, emergence of non-communicable diseases, the poor quality of care (QoC), an effective demand and the liberalization-privatization process since the 1990s enabled the entry of private sector in health care delivery system. Further, the government policies such as National Health Policy (2002), NRHM (2005) framed in the background of global health commitments and the indirect support from the Government of India in the form of financial concessions, namely, subsidized sale of land, reduction in import duties, tax concessions for medical research, low interest loans and treatment cost reimbursement for treating state and central governments employees have also triggered the growth of private sector in the country’s health sector (Duggal, R, 2000) and made health sector a blue-chip industry, by attracting individuals as well as institutional investment.

On the other hand, the scope of profit has attracted several Non-Residence Indians (NRIs) and industrial/pharma companies to set up various super-speciality hospitals with the capacity to provide world class care at a fraction of the cost available in the West. All this has provided enormous potential for India to become a hub for medical tourism. But, the focus of the private sector is maximization of profit
and this hardly concerned with public health goals. Their growth in health sector has resulted in the following:

- The raise of overall cost of health care in the country making the poor and vulnerable section of the society non-accessible and un-affordable to high quality health care services.
- Generate pressure for increased budgetary allocations to government hospitals to stay competitive.
- The unhealthy competition between private providers leading to compromise with quality of care.
- The creation of huge disparity in health facility distribution and health service utilisation between rural and urban areas. This in turn has widened the gap in health indicators between rural and urban areas both in India and Karnataka, which is exemplified by many indicators as shown in table 1.1.

**Table 1.1: Disparities in Health Indicators in Rural and Urban Areas**

<table>
<thead>
<tr>
<th>Health Indicators</th>
<th>India</th>
<th>Karnataka</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>Crude Birth Rate (CBR)*</td>
<td>23.3</td>
<td>17.6</td>
</tr>
<tr>
<td>Crude Death Rate (CDR)*</td>
<td>7.6</td>
<td>5.7</td>
</tr>
<tr>
<td>Natural Growth Rate (NGR)</td>
<td>15.7</td>
<td>11.9</td>
</tr>
<tr>
<td>Infant Mortality Rate (IMR)</td>
<td>48</td>
<td>29</td>
</tr>
<tr>
<td>Total Fertility Rate (TFR)</td>
<td>2.8</td>
<td>1.9</td>
</tr>
</tbody>
</table>

*Rate per 1000 midyear population.
Source: National Health Profile 2012.

- All these point towards the necessity of state intervention in health sector to protect the interest of the poor and vulnerable sections of the society, reduce the gap between rural and urban areas in health attainment and to fulfill the global health commitments.
Thus, there are huge differences in the approach of public and private sector in healthcare service delivery and also in the health achievements of rural and urban areas as observed in almost all the health indicators at both India and Karnataka.

Given the disparities in availability of health services, its utilisation and quality of service in rural and urban areas and also between public and private sector, the present study makes a comparative analysis of public and private health care services both in rural and urban areas with respect to availability of health services, its utilisation and quality issues in Karnataka.

1.6. Theoretical Background for the Study

The theoretical background for the study is presented in Chapter 2.

1.7. Review of Literature

Literature reviews related to the present study are presented in Chapter 2.

1.8. Research Gap

From the study of available literature, it is clear that Health Economics is one of the major areas of research. It has attracted attention of nations in the backdrop of Alma Ata Declaration, Millennium Development Goals and increasing health demand by individuals all over the world. A huge number of studies are found in this area at the global, national and regional levels, highlighting different segments of the health care such as, importance of health and health care, interlink between health and growth, health care financing, health investment and its determinants, role of different players in health care delivery, utilisation of health care services, satisfaction from health services, evaluation of different health programmes and government policies, regional disparities in health outcomes, quality assessment of public services and quality assessment of private services, regulation of private sector and so on. However, few works were found in the field of comparison between the public and private health care services with focus of availability of facility, utilisation and quality and their role in rural and urban areas. Moreover, they are limited only to the role of each sector in rural and urban areas separately and have taken into consideration any one of services; either primary care services or secondary care and tertiary care. With
regard to Karnataka, no comparative studies were found focusing public and private health care services in terms of availability of services, utilisation and quality prospect at all levels and also between rural and urban areas. The present study is an attempt in this direction.

The present study differs from earlier studies in many aspects; it enhances and enriches the existing literature in the following ways:

- The study compares the availability of public and private health facilities both health education and service infrastructure in the state.
- It compares service utilisation of public and private health care both in rural and urban areas with macro level and micro level data.
- At micro level the service utilisation of public and private health care is compared at all levels of care like primary, secondary and tertiary care. Further, it has tried to identify the significant factors associated with utilisation and determinants of satisfaction with access to health services.
- Finally, the study employs the SERVQUAL model to ascertain the factors affecting quality of service in both public and private hospitals based on patients’ perceptions.

1.9. Objectives of the Study

The objectives of present study are as follows:

1. To study the status of health indicators, public health expenditure and health infrastructure in Karnataka.

2. To examine the role of public and private health care providers in health service delivery both in rural and urban areas in terms of service utilisation.

3. To determine the factors influencing health service utilisation from public health system at primary and higher levels of care.

4. To assess service quality of public and private health care services.

5. To identify discriminant service quality factors between public and private hospitals.

\(^7\)Higher levels of care include both secondary and tertiary care services.
1.10. Hypotheses of the Study

Following are the hypotheses considered for the present study:

$H_1$: There is significant difference in the utilisation of public and private primary health services between rural and urban areas.

$H_{1.1}$: There is significant difference in the utilisation of public primary health services between rural and urban areas.

$H_{1.2}$: There is significant difference in the utilisation of private primary health services between rural and urban areas.

$H_{1.3}$: There is significant difference in the utilisation of public and private primary health services.

$H_{1.4}$: There is significant difference in the utilisation of public and private primary health services in rural areas.

$H_{1.5}$: There is significant difference in the utilisation of public and private primary health services in urban areas.

$H_2$: Utilisation of public primary health services is significantly influenced by caste, sex, age, education, income, family type, occupation, place of residence, distance to PHCs, insurance and availing private primary health services.

$H_3$: Patients’ overall satisfaction from PHCs services is significantly influenced by Service Quality variables namely, drugs availability, doctor availability, response of medical personnel, waiting time, treatment quality, cleanliness and infrastructure.

$H_4$: There is significant difference in the utilisation of health care services between public and private hospitals.

$H_5$: Choice of hospital for health care services depends on caste, sex, age, education, income, family type, and occupation, place of residence, insurance and type of care.

$H_6$: Quality of Service significantly differs between public and private hospitals.
\( H_7: \) Patients’ overall satisfaction from hospital service is significantly influenced by six Service Quality Factors.\(^8\)

\( H_{7.1}: \) Patients’ overall satisfaction from public hospital service is significantly influenced by six Service Quality Factors.

\( H_{7.2}: \) Patients’ overall satisfaction from private hospital service is significantly influenced by six Service Quality Factors.

\( H_8: \) There is significant difference in the Service Quality Factors influencing rural and urban patients’ satisfaction from hospital services.

\( H_{8.1}: \) There is significant difference in the Service Quality Factors influencing rural and urban patients’ satisfaction from public hospital services.

\( H_{8.2}: \) There is significant difference in the Service Quality Factors influencing rural and urban patients’ satisfaction from private hospital services.

\( H_9: \) Choice of health care provider for inpatient care is significantly determined by six Service Quality Factors.

\( H_{9.1}: \) Rural patients’ choice of health care provider for inpatient care is significantly determined by six Service Quality Factors.

\( H_{9.2}: \) Urban patients’ choice of health care provider for inpatient care is significantly determined by six Service Quality Factors.

**1.11. Methodology and Data Sources for the Study**

The present study is based on both secondary and primary data.

**1.11.1. Methodology and Data Sources for the Secondary Data**

National Family Health Surveys (NFHS 2\textsuperscript{nd} and 3\textsuperscript{rd}), National Sample Survey Reports (42\textsuperscript{nd}, 52\textsuperscript{nd} and 60\textsuperscript{th} rounds), Handbook of Karnataka, reports of National Facility Household Survey and District Level Household and Facility Survey, and database of Centre for Monitoring Indian Economy (CMIE) and Centre for Enquiry into Health and Allied Themes (CEHAT). Data has also been collected from the official websites of Government of India, Government of Karnataka, Ministry of Health and Family Welfare (Central), District websites of Karnataka State, Indiastat.com, and from the offices of Directorate of Health and Family Welfare of Karnataka Government, District Health and Family Welfare Office of Mysore and Bellary. Along with tables and graphs, correlation analysis was used for data analysis.

1.11.2. Methodology and Data Sources for the Primary Data

(a) Study Area

Two districts namely Mysore and Bellary in Karnataka state are selected for field work on the basis of Nanjundappa Committee Report (2002). As per Nanjundappa Committee Report among four revenue divisions, Mysore emerged as the leading division in Karnataka in composite Health Infrastructure Index (HII)\textsuperscript{9}, with only 2.27 percent of its taluks in the most backward category and 63.64 percent of its taluk in the relatively developed category and also occupied the top position in all three parameters of HII. On the other hand, Gulgarga Division with only 6.45 percent of relatively developed taluks and 61.29 percent of most backward taluks emerged as the ‘lagging division’ in the state. Therefore, one district from each division is randomly selected for the field work. Further, for universal representation of each district, within each district one developed taluk and one backward taluk are selected based on taluk Health Infrastructure Index. Thus, Mysore taluk (2.35) and H.D taluk (1.17) from Mysore district, and Bellary taluk (1.59) and Siriguppa taluk (0.54) from Bellary district were selected as study areas for field work.

\textsuperscript{9}HII is used to get an aggregate picture of regional imbalances in health infrastructure. It consists of 3 parameters they are: Number of Doctors per 10,000 Population; Number of Government Hospital beds per 10,000 Population; and percentage of Habitations having Drinking Water facility of 40 LPCD or more.
(b) Sampling Technique and Sample Design

Selection of PHCs: Two-stage random sampling technique was adopted for the selection of PHCs in each district. A total of 12 PHCs were selected for the study, consisting of 4 urban PHCs i.e., two from each district HQ and 8 rural PHCs i.e., two PHCs from each taluk located in hobli head quarter. If in any taluk sufficient number of PHCs located in hobli HQ are not found, as a substitute one such PHC which includes hobli HQ in its coverage area has been selected. A detail sample design for the selection of PHCs is given in chart 1.4.

Selection of the Individuals (respondents): individuals aged 18 years and above are the units of analysis for the study. Stratified random sampling was used to select the individuals for the primary data (see table 1.6).

(c) Sample Size

An assumption was made that half of i.e., 50 percent of the total study population would make use of available health care services within the reference period considering both primary and higher levels of care. The sample size determination and its distribution is given below.

Sample size determination:

E= Margin error.
$Z_{\alpha/2} =$ Value of the standard variate at a given confidence level (CL).
P = Probability.
n= Sample size

For a given:
E= 0.05 or 5%
$Z_{\alpha/2} = 95\%$ CL i.e., 1.96
P= 0.5

Sample Size has been worked out as follows:

$\sqrt{n} = 1.96 \times (0.5)/0.05$
$\sqrt{n} = 0.98/0.05$
Thus, a total of 780 individuals were interviewed for the study. The detailed distribution of 780 samples with respect to districts, taluks and PHCs has been given in the table 1.2 and table 1.3. On the other side, table 1.4 and table 1.5 provide details about PHCs covered in the study.

**Table 1.2: Distribution of the Total Sample between Selected Districts**

<table>
<thead>
<tr>
<th>Districts</th>
<th>No. of individuals interviewed</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mysore</td>
<td>390</td>
<td>50.00</td>
</tr>
<tr>
<td>Bellary</td>
<td>390</td>
<td>50.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>780</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Source: Primary Survey

**Table 1.3: Distribution of Total Sample by Taluks and PHCs**

<table>
<thead>
<tr>
<th>Districts</th>
<th>Taluks</th>
<th>No. of PHCs</th>
<th>No. of individuals interviewed</th>
<th>Percentage share in their respective total</th>
<th>Percentage share in the total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mysore</td>
<td>Mysore</td>
<td>2 Urban PHCs</td>
<td>150</td>
<td>38.46</td>
<td>19.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Rural PHCs</td>
<td>120</td>
<td>30.77</td>
<td>15.38</td>
</tr>
<tr>
<td></td>
<td>H.D Kote</td>
<td>2 Rural PHCs</td>
<td>120</td>
<td>30.77</td>
<td>15.38</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>390</strong></td>
<td><strong>100.00</strong></td>
<td><strong>50.00</strong></td>
</tr>
<tr>
<td>Bellary</td>
<td>Bellary</td>
<td>2 Urban PHCs</td>
<td>150</td>
<td>38.46</td>
<td>19.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Rural PHCs</td>
<td>120</td>
<td>30.77</td>
<td>15.38</td>
</tr>
<tr>
<td></td>
<td>Siruguppa</td>
<td>2 Rural PHCs</td>
<td>120</td>
<td>30.77</td>
<td>15.38</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>390</strong></td>
<td><strong>100</strong></td>
<td><strong>50.00</strong></td>
</tr>
</tbody>
</table>

Note: Rural PHCs are the PHCs located in hobli HQ. Urban PHCs are the ones located in district HQ or City area.

Source: Primary Survey
Chart 1.4: Sample Design for the Selection of PHCs

Karnataka State

Mysore Division

- Mysore District
  - Mysore Taluk (4 PHCs)
    - Two Urban PHC
    - Two PHCs in Hobli HQ
  - H.D Kote Taluk (2 PHCs)
    - Two PHCs in Hobli HQ
- Bellary District
  - Bellary Taluk (4 PHCs)
    - Two Urban PHCs
  - Siriguppa Taluk (2 PHCs)
    - Two PHCs in Hobli HQ

Source: Self developed.
Table 1.4: PHCs Selected for the Study

<table>
<thead>
<tr>
<th>Districts</th>
<th>Taluks</th>
<th>Place of PHCs</th>
<th>Name of the PHCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mysore</td>
<td>Mysore</td>
<td>Urban</td>
<td>Jalpuri and Chammundipuram</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>Yelwala and Varuna</td>
</tr>
<tr>
<td>H.D Kote</td>
<td>Rural</td>
<td>Hampapura and N.Belthur*</td>
<td></td>
</tr>
<tr>
<td>Bellary</td>
<td>Bellary</td>
<td>Urban</td>
<td>Maruthi colony and Andral</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>Moka and Rupangudi</td>
<td></td>
</tr>
<tr>
<td>Siruguppa</td>
<td>Rural</td>
<td>Karur and Hatcholi</td>
<td></td>
</tr>
</tbody>
</table>

Note: * in H.D Kote only one PHC was found in hobli HQ i.e., Hampapura PHCs. So, N.Belthur PHCs was selected as it covered Antharsante hobli in its coverage area.
Source: Primary Survey.

Table 1.5: Wards and Villages Covered in the study

**Mysore District**

<table>
<thead>
<tr>
<th>Distance group</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearby</td>
<td>PHC 7*</td>
<td>PHC 8</td>
</tr>
<tr>
<td>Ward 62</td>
<td>Ward 4</td>
<td>PHC 9</td>
</tr>
<tr>
<td>Ward 4</td>
<td>Ward 8</td>
<td>PHC 10</td>
</tr>
<tr>
<td>Ward 62</td>
<td>Ward 4</td>
<td>PHC 11</td>
</tr>
<tr>
<td>Ward 13, 14</td>
<td>Basarkod</td>
<td>PHC 12</td>
</tr>
<tr>
<td>Ward 17</td>
<td>Ward 9</td>
<td></td>
</tr>
</tbody>
</table>

**Bellary District**

<table>
<thead>
<tr>
<th>Distance group</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearby</td>
<td>Ward 7*</td>
<td>PHC 8</td>
</tr>
<tr>
<td>Ward 19</td>
<td>Ward 8</td>
<td>PHC 9</td>
</tr>
<tr>
<td>Ward 13, 14</td>
<td>Basarkod</td>
<td>SH</td>
</tr>
<tr>
<td>Ward 17</td>
<td>Ward 9</td>
<td></td>
</tr>
</tbody>
</table>

Note: (1) Numbers for PHCs are assigned as per table 1.3 (column 4) Jalpuri as PHCs 1 to Hatcholli as PHCs 12.
(2) * Due to conflict in building sharing Maruthi Colony PHCs has physically shifted from Maruthi colony to Bandimotu in 2004.
(3) Coverage area for PHCs 1 and PHCs 2 is only limited to single ward, therefore on the basis of distance different areas have been covered within same ward.
Source: Primary Survey.
(d) Sample Selection

In order to capture the influence of distance on health service utilisation at primary level care different distance scales are adopted for urban and rural PHCs as the coverage area (radius) of rural and urban PHCs differ (table 1.6). Therefore, after the selection of PHCs in each taluk individuals from each distance group were interviewed. From each distance group 20 individuals in rural and 25 in urban were randomly selected for the study. Thus, a total of 480 individuals in case of rural PHCs i.e., 60 from each rural PHC and 300 in case of urban PHCs i.e., 75 from each urban PHC were interviewed.

Table 1.6: Distance Scale for Rural and Urban PHCs

<table>
<thead>
<tr>
<th>Distance Group</th>
<th>Rural (in km)</th>
<th>Urban (in km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near</td>
<td>Below 4</td>
<td>Below 1</td>
</tr>
<tr>
<td>Little far</td>
<td>4-8</td>
<td>1-3</td>
</tr>
<tr>
<td>Far</td>
<td>8 and above</td>
<td>3 and above</td>
</tr>
</tbody>
</table>

Source: Self developed based on specified coverage areas of urban and rural PHCs.

(e) Data Collection Method

The primary data was collected during the month of May, June and October 2013 using two methods: interviewing and observation. The interview method was adopted to collect data from health personnel and individuals. On the other hand, observation method was used along with the interview method to check the status of infrastructure facilities available in the PHCs such as building condition, cleanliness inside the PHCs and its premises, bathroom facility, so on and the health conditions of the individuals.

(f) Instruments of Data Collection

Interview schedule and check list were used for data collection. Two interview schedules self administered with open-ended and close-ended questions were used for data collection. One schedule was used to collect information from individuals and another to gather information from health personnel on respective PHCs. On the other
hand, check list was used to collect information on staffing pattern and infrastructure facilities available in PHCs.

(g) Variables Used for the Study

(1) Background Characteristics: Information on place of residence, sex, age, caste, family type, education, employment status, monthly income of the family and health insurance have been collected from the respondents.

(2) Existing Health Status: It includes present health status of the respondent and whether he/she is suffering from any chronic disease.

(3) Utilisation of Health Service:

   (a) PHCs services: Whether the respondent has accessed PHCs service earlier and in the last one year, number of visits in last one year, reason for access, distance, mode of transport, satisfaction from PHCs services and facilities at PHCs, and reasons for non-utilisation of PHCs services.

   (b) Other centres services: Utilisation of other health centres or health care services, type of centre, type of treatment (inpatient or outpatient), and reason for not accessing any care.

(4) Quality assessment of health care services: This part includes 32 independent variables (statements on quality of service) and 3 dependent variables, detailed description of each variable is provided in chapter 6.

(h) Measurement Scale of Variables:

   The study variables are measured in both ordinal (Likert scale) and nominal scale.

(i) Techniques of Data analysis:

   The data is analyzed using SPSS 16.0, STATA 10.0 and EViews 6.0 software. Along with simple tables and charts, following statistical and econometric techniques have been used to test the hypotheses.
• Chi-Square test was used to identify the difference in primary health service utilisation between areas and distance.

• Logit Model was used to determine the factors that influence the utilisation of public health services for primary care and the choice of health care provider at higher level care.

• Ordered Logit was run to identify the factors influencing patients’ satisfaction from public primary health care services.

• Factor Analysis employed to extract Service Quality Factors (SQFs) in Hospital Service.

• One way ANOVA was helped in identifying the differences in SQFs of public and private hospitals.

• Multiple regression model was employed to determine the predictors of patients’ overall satisfaction in hospital service.

• Discriminant analysis was used to identify the significant discriminant SQFs between public and private hospitals.

1.12. Scope of the Study

At the macro level, the study takes into account all the districts of Karnataka for analysis. But, at micro level information collected from two districts (Mysore and Bellary) were analyzed. Initially, for a better understanding of health condition in Karnataka a brief health profile of the state is discussed including health expenditure and health infrastructure. Here public and private health sector are compared in terms of selected health facilities and its distribution. Later, the role of public and private sector in health service delivery is analyzed with help of NFHS and NSSO data at macro level. But, for proper understanding of public and private health sector role in health service delivery in study area, utilisation pattern of services is subdivided into two parts:

1. At Primary care level.
2. At Higher care level.

At the primary care level, PHCs are considered as proxy for public health sector and private clinics/doctors and drug shops as proxy for private health sector. At
higher care level, public hospitals comprises of district hospitals, teaching hospitals, taluk hospitals and CHCs are considered as public health sector provider; on the other hand, private hospitals including nursing homes, trust hospitals and super specialty hospitals as private sector provider.

Finally, for service quality comparison between public hospitals and private hospitals, in-depth information was collected on service providers (public and private hospitals) from those individuals who have availed of inpatient care (stayed two days in hospital) within the reference period i.e., 12 months preceding the survey.

Further, the analysis is extended to rural and urban areas to examine the extent of disparities that exist between them in service availability, service utilisation and quality perceptions on service quality factors.

As public and private sector coexist in health sector and have significant influence on health status of people, present study helps in understanding their role in providing health care services and their changing role with respect to area (Rural and Urban).

1.13. Limitations of the Study

The limitations of the present study are
1. The response of the individuals may vary according to time and place.
2. The risk of recall bias given that respondents were asked to remember the number of times they visited to the PHCs to get service in the last 12 months.
3. Rural and urban wise data for public and private health infrastructure is limited.
4. At macro level (NFHS and NSSO) district wise service utilisation data was not available.
5. The data used for analysis at macro level is based on information provided by NFHS II and IIIrd (1998-99, 2005-06) and NSSO 42nd, 52nd, and 60th rounds (1986-87, 1995-96 and 2004)
6. Patients’ perceptions on hospital service quality are collected only from inpatient users stayed at least 2 days in the respected hospitals.
1.14. Organization of the Study

The present study is organized into seven chapters:

1. The first chapter deals with introductory aspects like- Introduction, background and significance of the study, objectives, hypotheses, methodology and data sources, scope and limitations.
2. The second chapter presents the theoretical background and literature review.
3. The third chapter provides a detailed health profile of Karnataka consist of information on health indicators, public health expenditure and health infrastructure.
4. The fourth chapter examines the role of public and private health care providers in health service delivery in India and Karnataka based on NFHS and NSSO data.
5. The fifth chapter compares public and private health service utilisation at all levels of care with respect to place of residence based on primary data. Determinants of utilisation of health care services and their degree of influence on service utilisation are also examined in this chapter.
6. The sixth chapter deals with service quality assessment of public and private health services i.e., Public and Private Hospitals.
7. The last chapter provides the summary findings, suggestions and policy implications.
THEORETICAL BACKGROUND, LITERATURE REVIEW

Health is a key driver for development and it is also an outcome variable. There is nothing without good health. A notable number of theoretical works and empirical works have been identified in this sector which greatly emphasize the role of health in development and growth, investment on human capital and growth, development of health services in India, different health service providers, government role in providing health services, state role in health system delivery, role of private players in health service delivery, need for regulations in health sector, utilisation of health services and its major barriers, disparities in the outcomes, differences in the service distribution and health infrastructure between rural and urban areas, quality aspects and so on. The present chapter provides the theoretical framework and review of literature relevant to the present study.

THEORETICAL BACKGROUND

2.1 Introduction

Health development is a continuous and dynamic process. The development of health service delivery system in India has been reviewed in this part, starting from Bhore Committee to National Commission on Macroeconomics and Health (2005), Health Policies (1983-2002) and Physical Quality of Live Index (PQLI) to Multidimensional Poverty Index (MPI) along with various theories relating to important aspects of health, health care service delivery and quality issues in health care sector.

2.1.1. Development of Health Service Delivery System in India – Major Committees

Bhore Committee (1946)

A committee on “Health Planning and Development” under the stewardship of Sir Joseph William Bhore was appointed in 1943 to survey the existing position regarding the health condition and health organisations and to make future recommendations, popularly known as Bhore Committee (BC), submitted report in 1946 and is considered as an important landmark for public health system in India.
“The committee has observed that if the nation’s health is to be built, the health programme should be developed on a foundation of preventive health work and that such activities should proceed side by side with those concerned with the treatment of patients”.

Guiding principles of BC:

- No individual should be denied to secure adequate medical care because of inability to pay.
- Facilities for proper diagnosis and treatment.
- Health programme must lay special emphasis on preventive work.
- Medical relief and preventive health care should be provided in greater sense to the vast rural population.
- Health services should be located close to the people to ensure maximum benefit to the community.
- Doctor should be a social physician protecting the people.
- Medical services should be free to all, without distinction (the nonexcludable principle of public good).

Recommendations of BC:

- Integrated preventive and curative services at all administrative levels.
- Minimum ratio of 567 hospital beds, 62 doctors, 151 nurses per 1,00,000 Population.
- The committee visualized the development of PHCs in 2 stages:
  1. A Short term measure:
     - A PHCs for every 40000 population
     - PHCs to be manned by 2 doctors, 4 Primary Health Nurse (PHN), 2 Midwife, 1 Nurse, 4 trained dais, 2 sanitary inspectors, 2 health assistants, 1 pharmacist and 15 other class IV employees.
2. A Long term programme (3 million plan):
   It consists of health care system in 3 tiers
   • A primary health unit for every 10-20 thousand population with 75 beds.
   • Secondary unit with 650 bedded hospital.
   • District unit with 2500 bedded hospital.

   The Bhore Committee not only identified the problems that existed in Indian health system but also recognized vast rural-urban disparities in the health service distribution for the first time and hence designed its plan keeping in mind rural areas and population. The recommendations of BC and the availability of preventive and curative medical technology resulted in the evolution of hospital-based public health system in India (David. A, 2012; Anjurtupi L. K, 2013).

   Sokhey Committee (1948)

   The National Planning Committee, appointed by Jawaharlal Nehru in 1938 began its work early in 1939, under which twenty-nine subcommittees were formed into eight groups with special terms of reference to deal with all parts and aspects of national life and work in accordance with a predetermined plan. One of its subcommittee was National Health under the chairmanship of S.S. Sokhey. Its report was published in 1948 with the following resolutions:

   • India should adopt a form of health organization, in which both curative and preventive functions are suitably integrated and administered through one agency.
   • The preservation and maintenance of the health of the people would be state responsibility.

   Health Survey and Planning Committee (1961)

   “The Health Survey and Planning Committee” was formed by Government of India under Dr. A Lakshmanswamy Mudaliar in 1959. Mudaliar Committee (MC) was set up to evaluate the progress made in the first two five-year plan and to make recommendation for development of health services.
The report of the committee recorded some of the achievements in health indicators such as reduction in death rates, increase in the longevity, control of communicable diseases (epidemic diseases) and so on. It admitted that basic health facilities in India had not reached at least half the nation.

It also emphasized that rural areas especially had very little or low access to primary care centres and the condition of the secondary and district hospitals was the same as that of PHCSs. Further, it identified a vast rural and urban disparity in health infrastructure facilities and also in health human resources. Hence, the MC made the following recommendations:

- Strengthen existing PHCs before establishing new ones (PHCs consolidation instead of expansion).
- PHCs should provide preventive, promotive and curative services.
- Strengthen sub-divisional and district hospitals.
- Improve the service condition of doctors and other personnel in order to attract them to rural areas.
- Creation of All India Health Services.

The GOI without according serious attention to the MC recommendation increased the number of the PHCs as noticed in the third five year plan rather than consolidating the existing ones.

**Chadha Committee (1963)**

In the late 50’s and early 60’s, GOI seized with the problem of integrating the maintenance phase of the Malaria eradication programme with general health services in the country consisting of SCs, PHCs, and district level organizations and set-up a committee headed by Dr. M.S. Chadha known as “Special Committee on the Preparation of Entry of the National Malaria Entry Programme into Maintenance Phase” which had recommended the integration of health and family planning services and its delivery through one male and female multipurpose worker per 10,000 population. Further, it recommended that the services of the extension educator should be utilized for all the national health programmes.
Mukherjee Committee (1965 and 1966)

In order to review the “Staffing Pattern and Financial Provision under Family Planning (FP)” a committee headed by Shri. Mukherjee was formed twice, in 1965 and again in 1966. The recommendations of the committee were as follows:

- The camp approach had failed to give the family planning program a mass character and hence Intra Uterine Contraceptive Device (IUCD) was a great opportunity.
- Introduction of target fixation, payment for motivation and incentives to acceptors.
- Reorganization of the FP program into a vertical program like Malaria.
- Addition of one more health visitors per PHCs who would specifically supervise the ANMs for the targets of FP program.
- Need to improve the quality of care provided by the primary health center.
- Retaining of private practitioners for a fee of Rs. 100 per-month for 6 hours work per week plus payment of Rs.10 per sterilization and Rs.2 per IUCD insertion.
- The state governments could themselves work out better the strength and pattern and method of functioning of the health organization at the zonal and state levels.

Jain Committee (1966)

Jain committee was set-up in 1966 to review the working of different hospitals and central health services. The report named as “Medical Care Services” had made an attempt to devolve medical care recommending strengthening district hospital facilities. It also suggested integration of medical and health services at the district level with both responsibilities being vested in the Civil Surgeon/ Chief Medical officer. But unfortunately recommendations of this committee, which is the only committee since Independence to look at medical care and also for the first time talked about strengthening curative services in rural areas, were not considered seriously (Duggal, 2002).
**Jungalwalla Committee (1967)**

“Committee on Integration of Health Services” was formed under Dr. N. Jungalwalla in 1964 and submitted its report on 1967. This committee was formed on the following grounds:

- To study the problems of the health services
- Integrate the health services
- Service conditions and
- Elimination of Private practice

The major recommendations of the committee were as follows:

- Integration from highest to lower level in services.
- Integration of preventive and curative services.
- Integration of medical services and public health (rotation of personnel).
- Integration of health services with 3 main components
  - Health services of functions and methods of delivery
  - Their organisation
  - The personnel providing these services and their administration

**Kartar Singh Committee (1973)**

The committee on “Multipurpose Workers under Health and Family Welfare Programme” was formed in 1972 due to the tremendous variations in the categories of manpower requirements which posed problems in terms of providing integrated services under various national health programmes. It recommended the followings:

- Conversion of uni-purpose workers, including ANMs, into multi-purpose male and female workers.
- The population served by each pair of multi-purpose worker should be 10,000 to 12,000.

---

10 Integrated Health Services is unified approach for all problems instead of segmented approach for different problems (Darshini. C.P. 2011).
Shrivastav Committee (1975)

To devise a suitable curricular for training a cadre of health assistants and suggest steps for improving the medical educational processes a committee named as “Group on Medical Education and Support Manpower, Health Services & Medical Education” was formed under Shrivastav in 1974. The committee proposed to rectify the dearth of trained manpower in rural areas. Four major recommendations of this committee are:

- Creating a cadre of village based health auxiliaries called the Community Health workers.
- Organization of an economic and efficient programme of health services to bridge the community with the first level referral Centre, viz., the PHCs.
- The creation of a National Referral Services Complex by the development of proper linkages between the PHCS and higher level referral and service centres.
- Establishment of ‘The Medical and Health Education Commission’ for planning and implementing the reforms needed in health and medical education on the lines of University Grants Commission (UGC).

The acceptance of the recommendations of the Shrivastav Committee in 1977 led to the launching of the Rural Health Service.

Working Group on Health for All by the Year 2000A.D (1981)

As India was committed to attaining the goal of Health for All (HFA) by the year 2000 AD, Planning Commission had appointed a working group to review the health status, and implement the programmes and measures towards achieving HFA goals under Kripa Marain in 1980, which submitted its report in 1981. It has revised the Minimum Needs Programme\(^{11}\) keeping the HFA goals in mind.

\(^{11}\) The Minimum Needs Program (MNP) was introduced in India in the first year of the Fifth Five year plan (1974-78) to provide certain basic minimum needs and there by improve the living standards of the people. This has included the eight components where greater importance has been given to rural health.
Krishnan Committee (1982)

A crucial milestone in urban health service was the appointment of the Krishnan committee in 1982. It worked out an implementation programme for provision of primary health care in urban areas and the following recommendations were made:

- The establishment of a health post run by a doctor, a Public Health Nurse, 4 Auxiliary Nurse Midwives, 4 Multipurpose workers and 25 Community Health workers for a population of 50,000.
- The health post staff should reach out to the community and involve the community in the implementation of the primary health care programme (Pardeshi. G and Kakrani. V, 2006).

Mehta Committee (1983)

The “Medical Education Review Committee” was headed by Dr. Shantilal J.Mehta, known as Mehta Committee. Part I of the report deals with medical education in all its aspects and Part II of the report specifically deals with the lack of availability of health manpower data in India. It has made the following recommendations:

- Training and development of auxiliary personnel and paraprofessional personnel.
- Basic and induction training in public health management.
- Establishment of Universities of Medical Sciences and Medical and health Education Commission.
Bajaj Committee (1987)

The Ministry of Health and Family Welfare (MoHFW), GOI has set-up a committee on “Health Manpower Planning, Production and Management” in 1986 under Prof. J. S Bajaj. The recommendations of the committee were:

- To formulate a national policy on education in Health services.
- Prepare curriculum for school teachers.
- Utilize the services of Indian System of Medicine.
- Continuing education programme for the health personnel.

Expert Committee on Public Health System (8th Plan Period-1996)

GOI constituted a committee headed by Prof. J. S. Bajaj in 1995 named as “Expert Committee on Public Health System”. This committee made a thorough appraisal of public health programme and found that India was facing a resurgence of most communicable diseases and needed to drastically improve diseases surveillance in the country.

National Commission on Macroeconomics and Health (2005)

National Commission on Macroeconomics and Health was formed in 2005 under the chairmanship of P. Chidambaram in 2005. It has addressed many critical issues confronting the health sector such as inequitable access to basic services resulting in welfare loss for the poor, the inefficiencies in the system resulting in waste and suboptimal utilization of existing resources, the poor quality and declining values, ethical norms etc.

Recommendations:

- Public spending should increase from 1.2% to 3 % of Gross Domestic Product (GDP).
- Undertake community-based research to arrive at more credible estimates of disease burden.
- Strengthen the mechanism for enforcement of laws related to quality assurance, disease surveillance and public health measures, quality of education, and drug and food safety.
• Constitute an independent regulation to assess and monitor quality aspects of AYUSH practice.
• Medical Council Act and Nursing Council Act should be amended to allow for civil society representation in the council and make them work effectively.
• Constitution of Expert Group to work out the modalities of how to mobilize the additional resources generated through taxation to health sector and within what time period.
• In order to meet the growing demand for physicians; the number of medical colleges and nursing schools has to be increased.
• Task force consisting of knowledgeable and eminent people and representing all stakeholder groups be constituted to detail out the issues, the operational plans and financial implications.

Thus, a number of committees were set-up from time to time in pre-independence and post-independence regime by the Government of India. Each committee starting from Bhore Committee to National Commission on Macroeconomics and Health has looked into the issues of the health care administration and has given recommendations on different health problems in India. The recommendations made by the above committees contributed in developing the public health system in our country. Unfortunately many of the recommendations made by these committees could not be implemented largely due to non-availability of resources and also to a certain extent due to varying perceptions by the implementing agencies.

2.1.2. Health Policies, Health Mission and Health System Development in India

Apart from the above committees National Health Policies (1983, 2002), National Health Mission has also provided strong policy directives for the development of health care delivery system in India. The brief information on these as follows.

Health policy\(^{12}\) of a Nation is its strategy for controlling and optimising the social uses of its health knowledge and health resources. The National Health Policy was endorsed by the Parliament of India. Initial effort was made through A National Health Policy (NHP) of 1983.

This policy was a response to the commitment to the “Alma Ata Declaration” to achieve “Health for all”. It accepted that health was central to development and had a focus on access to health services, reiterated the resolution of taking health services to the community and ensuring cooperation of the community.

The NHP of 1983 gave a general exposition of the policies which required recommendation in the circumstances then prevailing in the health sector. Further, stressed the need for providing primary health care with special emphasis on prevention, promotion and rehabilitation.

Planned time bound attention to the following is suggested

i) Maintenance of the quality of drugs
ii) Water supply and sanitation
iii) Environmental protection
iv) Immunisation programme
v) Maternal and child health services and so on.

For better programme planning NHP 1983 recommended an effective Health Information System.

Government initiatives through NHP 1983 in the public health sector have recorded some noteworthy successes over time to some extent such as - Smallpox and Guinea Worm Disease have been eradicated and Total Fertility Rate and Infant Mortality Rate substantial dropped. Inspite of its better results, after the

\(^{12}\) A health policy generally describes fundamental principles regarding which health provides are expected to make value decisions. And it also provides a broad framework of decisions for guiding health actions that are useful to its community in improving their health, reducing the gap between the health status of haves and have-nots and ultimately contributes to the quality of life (Mehta and Yonatanmadam, 2012)
announcement of NHP 1983 an increase in mortality through ‘life-style’ diseases—
diabetes, cancer and cardiovascular diseases is noticed, higher incidence of macro
and micro nutrient deficiencies, especially among women and children is observed.

Thus, the changed circumstances relating to the health sector of the country
since 1983 have generated a situation to review the field, and to formulate a new
policy framework as the National Health Policy-2002. The recommendations of NHP-
2002 will, therefore, attempt to maximize the broad-based availability of health
services to the citizen of the country on the basis of realistic considerations of
capacity.

It set up a new policy framework for the accelerated achievement of the public
health goals in socio-economic circumstances prevailing in the country.

• Achieving an acceptable standard of good health of Indian Population.
• Decentralizing public health system by upgrading infrastructure in existing
  institutions.
• Ensuring a more equitable access to health service across the social and
  geographical expanse of India.
• Enhancing the contribution of private sector in providing health service for people
  who can afford to pay.
• Giving primacy for prevention and first line curative initiative.
• Emphasizing rational use of drugs.
• Increasing access to tried systems of Traditional Medicine.

Further, it suggested changes in the financial resource

• Increase in health sector expenditure to 6% of GDP, with 2% by public health
  investment by 2010.
• Existing 15% of central government contribution is to be raised to 25% by 2010.

As NHP 2002 observed uneven attainment of health indices across rural-
urban, to overcome the social inequality it has set an increased allocation of 55% total
public health investment for the primary health sector, 35% for secondary sector and
10% for tertiary Sector.
Although NHP 2002 has given a continuum to NHP 1983, where primary health care is adopted as the main strategy through

- Decentralization
- Equity
- Private sector/indigenous system participation
- Rise in public investment

**National Health Mission**

The National Health Mission is an initiative undertaken by the government of India to address the health needs of rural and urban areas. Under the umbrella of National Health Mission, the flagship programmes like National Rural Health Mission (NRHM-2005) and National Urban Health Mission (NURM-2013) are strengthened.

Major initiatives taken under the National Health Mission are:

- Accredited Social Health Activists
- Rogi Kalyan Samiti (Patient Welfare Committee) / Hospital Management Society
- Untied Grants to Sub-Centres
- Health care contractors
- Janani Suraksha Yojana (JSY)
- National Mobile Medical Units (NMMUs)
- National Ambulance Services
- Janani Shishu Suraksha Karyakarm (JSSK)
- Rashtriya Bal Swasthya Karyakram (RBSK)
- Mother and Child Health Wings (MCH Wings)
- District Hospital and Knowledge Center (DHKC)
- Free Drugs and Free Diagnostic Service
2.1.3. Development Indices and International Initiatives

Physical Quality of Life Index\textsuperscript{13} (1970s)

Physical Quality of Life Index (PQLI) was developed for the Overseas Development Council in the mid-1970s by Morris David Morris as one of the measures that were created due to dissatisfaction with the use of Gross National Product (GNP) as an indicator of development. PQLI might be regarded as an improvement but shares the general problems of measuring quality of life in a quantitative way.

Life expectancy, infant mortality, and literacy are used as indicators of development, describing progress in health, sanitation, education, and women's status. PQLI is a summation of complex social interrelationships on which no theoretical explanation imposes any given weights/biases. Equal weight is assigned to each component. The value is the average of three statistics: basic literacy rate, infant mortality, and life expectancy at age one, all equally weighted on a 0 to 100 scale.

Amartya Sen’s Contribution: Choice/Capabilities approach

The UNDP incorporated Amartya Sen’s view in its first Human Development Report (HDR) in 1990. According to it, human development is more than just income and growth. It should cover human capabilities, the needs, aspiration and choice of the people. It defined human development as “a process of enlarging people’s choice” that is created by expanding human capabilities.

Human Development Index (HDI) is a composite index measuring average achievement in three basic dimensions of human development namely, Longevity (a long and healthy life), Educational attainment and Real Gross Domestic Product (RGDP) per capita (standard of living).

Multidimensional Poverty Index (2010)

Multidimensional Poverty Index (MPI) is a new approach in the measurement of poverty which is a multidimensional phenomenon. It was launched by the Oxford poverty and Human Development Initiative (OPHI) of Oxford University and the

HDR office of the UNDP in July 2010. As MPI is developed by using the methodology of Sabina Alkire and James Foster (2007) it is popularly called as Alkire-Foster (AF) methodology. MPI gives a multidimensional picture of people living in poverty and enables country to target development resources more effectively. It identifies overlapping deprivations at the household level across the three dimensions such as

(1) Education- Years of schooling and Child enrolment weighted at 1/6.
(2) Health- Nutrition and Child Mortality weighted at 1/6 and
(3) Standard of Living- Electricity, Sanitation, Water, Floor, Cooking Fuel and Assets with 1/18 weightage.

Thus, MPI is measured using ten indicators which are equally weighted within a dimension.

**Alma Ata Declaration (1978)**

The International conference on Primary Health Care, at Alma Ata in September 1978 expressed the need for urgent action by all governments, all health and development workers, and the world community to protect and promote the health of all the people of the world. It strongly reaffirmed that health is the most important world-wide social goal, whose realization requires the action of many other social and economic sectors in addition to the health sector. Further, it urges governments, WHO and United Nation International Children’s Emergency Fund (UNICEF), and other international organizations, as well as multilateral and bilateral agencies, nongovernmental organizations, funding agencies, all health workers and the whole world community to support national and international commitment to “Health for All” by primary health care\(^{14}\) by the year 2000 and to channel increased technical and financial support to it.

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\(^{14}\)Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.
Millennium Development Goals (1990)

The Millennium Development Goals (MDGs) are eight international development goals that all 192 United Nations member states and 23 international organizations have agreed to achieve by the year 2015. The major aim of MDGs is to encourage development by improving social and economic conditions in the world’s poorest countries.

The MDGs originated from the Millennium Declaration by the United Nations (UN). The Declaration asserts that every individual has the right to dignity, freedom, equality, a basic standard of living that includes freedom from hunger and violence, and encourages tolerance and solidarity.

The MDGs focus on three major areas of Human development (humanity):

1. Bolstering human capital- the objectives chosen within the human capital focus include improving nutrition, healthcare which includes reducing levels of under-five child mortality, HIV/AIDS, Tuberculosis and Malaria, and increasing reproductive health, and education.
2. Improving infrastructure- the objectives include improving infrastructure through increasing access to safe drinking water, energy and modern information/communication technology and environment.
3. Lastly, social, economic and political rights – it includes empowering women, reducing violence, increasing political voice, ensuring equal access to public services, and increasing security of property rights.

Thus the goals chosen were intended to increase an individual’s human capabilities and advance the means to a productive life. As India is signatory of MDGs it also committed to achieve the goals by the year 2015.

Thus, it is clear that various indices developed to measure the economic development such as PQLI, HDI and MPI have included healthy life (longevity) as one of the major component and the commitments made towards HFA and MDGs goals have forced to redefine the development and restructure health care system of the country. Further, other international initiatives such as Calcutta Declaration on Public Health in South-East Asia (1999), Global Commission on Macroeconomics
and Health (2001), revised International Health Regulations (2005), and Asia Pacific Strategy for Emerging Diseases (2005) have also provided policy directives for the development of health care delivery system in India (Chauhan L.S, 2011)

2.1.4. Theories Related to Important Aspects of Health and Health Care

Human Capital Theory

The term human capital was first used by Theodore Schultz in the 1960s to reflect the value of human capacities. Modern growth theory sees human capital as an important growth factor. Empirical evidence has proved that increase in human capital causes economic growth.

The concept of human capital is relatively more important in labour-surplus countries like India. Because these countries are naturally endowed with more labour due to high birth rate under the given climate conditions. The surplus labour in these countries is the human resource which is in more abundance than the tangible capital resource. This human resource can be transformed into human capital with effective inputs of education, health and moral values. The transformation of raw human resource into highly productive human resource with these inputs is called as human capital formation.

Though human capital formation includes investment on education, health, migration, information etc, investment on education and health are considered as a major source of human capital. Investment or expenditure on health is usually on: preventive medicine (vaccination), curative medicine (medical intervention during illness), social medicine (spread of health literacy) and provision of clean drinking water and good sanitation.

Two independent reports on the Indian economy, in recent times namely Deutsche Bank report on “Global Growth Centres” and World Bank report on “India and the Knowledge Economy- Leveraging Strengths and Opportunities” have identified that India would grow faster due to its strength in human capital formation. Further, they point out the fact that human capital formation in India will move its economy to a higher growth trajectory.
Thus, health expenditure directly increases the supply of healthy labour force and is, thus a major source of human capital formation.

**Wagner’s Expenditure Theory**

Adolph Wagner (1835-1917), the German social scientist, who is well-known for the statement “as the income per capita increases, the share of public expenditure of total expenditure, also increases”. “The law of increasing State Activity” was introduced in the late 19th century (1893) is now popularly known as, “Wagner’s Law” or Wagner’s hypothesis.

Wagner’s law states that “as the economy develops over time, the activities and functions of the government increases”. He underlines that the government activities are planned to satisfy the economic needs of its citizens. Although his study was for German economy but Wagner’s Law can be used for both developing and developed countries. He asserted that there is a long run propensity for the government expenditure to increase with higher levels of economic development.

Wagner’s hypothesis emphasizes that, in the process of economic development, government economic activity increases relative to private economic activity. He offered three reasons for this trend.

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1. With economic growth industrialization and modernization would take place which will diminish the role of public sector for private one. This continuous diminishing share of the public sector in economic activity leads to more government expenditure for regulating the private sector.

2. The rise in real income would lead to more demand for basic infrastructure particularly education and health facilities. He asserts that it is the government which provides these facilities more efficiently than the private sector.

3. To remove monopolistic tendencies in a country and to enhance economic efficiency in that sector where large amount of investment is required, government should come forward and invest in that particular area which will again increase public expenditure.

**Game Theory**

Game theory has been used to model a number of subjects important to public health, including organ donation, ethics, and the patient-provider relationship. Game theory provides a strong modelling device for public health professionals and illustrates the need for public intervention when the incentives of individuals impede progress for the group.

The implication for public health is that the best strategies for individuals or groups are sometimes not the best strategies for everyone taken as a whole. Public health professionals need to be vigilant to these special circumstances and use interventions to create better incentive system.

**Grossman’s theory of the Demand for Health Care**

Grossman (1881-1950) was concerned with how individuals allocate their resources to produce health. The model goes beyond traditional demand analysis and has been extremely influential in health economics.

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The theory utilizes the idea of the individual as a producer of health by removing the artificial separation of consumption and production. It stresses on investing in human capital such as health and education to improve outcomes both in the market (work) and non-market sectors (household). The theory has been developed based on several assumptions that:

- Health care is a constant lifetime investment
- Individuals value health but do not value it above all else.
- People have limited incomes with which they have to finance health and other activities, and neither is costless.
- A relatively high degree of control over health by virtue of the fact that it can influence health-affecting consumption patterns, health care utilisation and environment.

The theory emphasizes that the demand for healthcare is derived from demand for health, which is itself derived from the demand for utility. It calls health a capital good as it depreciates over time period. Further, it elaborates the relationship between demand for health care with age, income and education.

**Rational Choice Theory**

Rational choice is about choice based on reason. Hechter et al, 2009, believe that the given actors’ pursuit of the goals leads to systematic trends and tendencies in observed human behaviour is regarded as rational choice.

In rational choice theories, individuals are seen as motive by the needs, wants or goals that express their preferences. Rational choice is defined to mean the process of determining why options are available and then choosing the most preferred one according to some consistent criterion. The basic idea behind rational choice theory is that people do their best under prevailing circumstances.

Such rational choice method or model can be used in understanding the health seeking behaviour and alternative care practices people engage in. The analysis usually begins with following question; what determines the choice of health care system of the people? Does the culture of the people affect their health seeking?

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behavioral pattern? Why would people prefer alternative medical care to the western or modern medical care? etc. The subject matter here has to do with how people make medical choices, an important part of human behaviour. How do people choose which health care system to use, whether modern or traditional and if modern-public or private and even within these sets, what subsets they decide to go for? Is life-style and behavioral risk factors influenced by societal factors, or randomly distributed throughout the population without regard to social class?

**Public Interest Theory**

Public interest theory is an economic theory first developed by Arthur Cecil Pigou that holds that regulation is supplied in response to the demand of the public for the correction of inefficient or inequitable market practices. The theory assumes that economic markets are extremely fragile and operate very inefficiently if left alone. The government is assumed to be a neutral arbiter.

According to this theory, government promotes the general interests of society as a whole and chooses policies that enhance efficiency and equity. Thus the theory describes why government intervenes in a market-based health care system. And further the theory maintains that government should correct the failures in the system through regulation, for example, through taxes or subsidies. Public interest theory is usually contrasted with public choice theory that is more cynical about government behaviour and motives, and sees regulation as being socially inefficient. Critics believe that this theory has no verified predictions or outcomes; therefore it is not viewed as a valid theory.

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The health care industry is unique compared to other industries, where healthcare services are managed by multiple stakeholders like government, private providers and employers. Consumers are the ultimate users of these healthcare services.

The health care industry is changing rapidly with new technologies, making access to health care information via internet and other sources. The disconnect between what consumers can learn and how they can use what they learn, results in the inability for them to be truly the drivers in their own healthcare decisions. It is believed that existence of such asymmetry in the availability of information to the consumers and other stakeholders, known as information asymmetry, is one of the major factor that make healthcare delivery inefficient.

Information asymmetry is defined as unequal information and the consequent role of physicians as agents for patients. It is a situation in which a few have relevant information, and the rest have little. Information asymmetry causes markets to become inefficient since not all the participants have access to the information they need for their decision-making process. Information asymmetry is defined as a gap in knowledge between consumers and professionals regarding service availability, price and quality.

Information asymmetry can occur in three major ways in the health sector between

1. Patient (public) and health care professional;
2. Patient and health care system or administrator; and
3. Health care professional and administrator or health care system.

System theory

System theory offers a framework for quality improvement in healthcare systems because system theory supports system thinking which allows healthcare

professionals to see the entire system and recognize the importance of the relationships among its components parts.

Chart 2.2.: A System-Theory Framework for Quality Improvement (QI) in Healthcare

When all interdisciplinary components are considered, system thinking is applied. Quality is better supported within healthcare systems.

Systems thinking supports QI by
- Improving communication among disciplines
- Building effective teams
- Establishing trust
- Supporting collaboration
- Enhancing conflict management
- Focusing on process
- Reducing power differentials
- Improving morale
- Encouraging creativity and innovative problem solving
- Strengthening the hierarchy supporting quality outcomes
- Supporting magnet hospital philosophy and culture
- Promoting health


The deliberate application of system theory, within an interdisciplinary framework (Interdisciplinary relationships, such as those among disciplines like
nursing, medicine, social work, and administration) supports healthcare system behaviors, that reduce error, improve quality care, and promote health. Some of effective system theory applications include information technology applied to key clinical systems. These systems include medication administration, electronic documentation, patient order entry, and physiological monitoring.

Thus, there are various theories relate to health and health care, which supports the need of government intervention in health service delivery, importance of health investment to trigger the development, choice problem in selecting service providers, role of information in accessing health care service, and quality improvement options in health system.