HEALTH PROBLEMS AMONG URBAN HOUSEHOLDS IN KERALA

BY

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CERTIFICATE

Certified that this written account on **"HEALTH PROBLEMS AMONG URBAN HOUSEHOLDS IN KERALA"** Submitted for the award of the degree of Doctor of Philosophy of the University of Calicut is a bonafide record of research work done by Mrs. Maya O.V under my supervision. No part of this has been submitted earlier for any other purposes.

Thrissur
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DECLARATION

I **MAYA O.V.**, do hereby declare that this written account titled **"HEALTH PROBLEMS AMONG URBAN HOUSEHOLDS IN KERALA",** is a bonafide record of research work done by me under the guidance of Proffessor **Dr.D RETNARAJ,** Department of Economics, University of Calicut, Dr. John Matthai Centre, Aranattukara, Thrissur.

I also declare that this has not been submitted by me earlier for the award of any degree, Diploma, title or recognition.

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To

SWAMY AYYAPPA

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CHAPTER I

DESIGN OF THE STUDY

1.1 INTRODUCTION

Kerala is known for its social development especially in human development such as high level of literacy and health in their population. Among the social development Kerala has better health indicators such as low death rate, birth rate, infant mortality rate, high life expectancy, etc. But now health condition of Kerala is different from the past. Outsiders of Kerala think that Kerala always keeping better health status, actually the condition is too different. Mortality rate is very low in Kerala but morbidity rate is increasing day by day .Morbidity means number of persons suffering from diseases. There are different opinions related to why morbidity is higher in Kerala? First ,High perception of illness and good health in Kerala society (Gumber & Berman 1997).Second, availability of advanced health care services has induced health consciousness, it leads to perceived morbidity. Third, reported data revealed that acute ailments is higher among younger age groups and chronic ailments is too among older ones (Dileep 2002).

By considering traditional health indicators health status of the urban area is better than rural but they face certain health problems. Standard of living of people in urban area is different among different cities. Cities offer both positive and negative environment for health. Positive environment means it provides advanced health care facilities, better education and transportation facilities, professional opportunities, etc. Lack of safe drinking water, poor living conditions, sanitation, air pollution, water pollution, noise pollution, high growth rate of urbanisation, high density of population, overcrowding etc creates the

negative environment for health. Poorly planned urbanisation has adversely affecting health of the people in cities. People in the urban area always follow particular type of characteristics that is, high tobacco and alcoholic consumption, physical inactivity, unhealthy diets, careless driving, mental disorders, etc. This will leads to various health issues or health problems. Urban people face triple burden diseases like 1) communicable diseases or / infectious diseases such as diarrhoea, tuberculosis, hepatitis, malaria, etc. because of their poor living conditions, lack of sanitation and safe drinking water, 2) non communicable diseases or life style diseases like, heart diseases, diabetes, high blood pressure, cancer, lung diseases etc. and 3) Mental health disorder is the other health challenges in the city. These problems create reducing the gap of taking treatment or increasing the number of times taken to treatment for health problems. So household in the urban area spend too much money for health.

Public sector has an important role for health care system in Kerala. But insufficiency of public health care facilities in urban areas/inefficiency of public health care system such as lack of lab facilities, bed facilities, number of medical staff, poor working condition, etc will raises the fruitful development of private health care system. Government mental hospitals also face the shortage of medical staff and infrastructure facilities. Many reports shows that within the half kilometer surroundings of Government hospitals are infected by poor sanitation, highly polluted water, air, etc. It shows poor working condition of public health care system. Majority of health care system in urban areas are provided by private sector. All types of healthcare facilities are available in our cities but it is not accessible to all sections of the society.

Age, gender and disability status of city dwellers affect health both at the individual and population levels. Deaths of children in cities are often the direct result of contamination of water, inadequate sanitation and lack of solid waste disposal, pneumonia and diarrhoeal diseases are the leading causes of childhood death. Road traffic injuries among children are other important one in urban area. Lack of better urban transport planning creates more problems among children. In urban area children have higher psychological and behavioral problems at the same time they are facing exploitation and crime from adults. Older people also facing severe threat from air pollution, it will adversely affecting respiratory system of the older people. Women also face some health challenges, it include risk of physical, sexual and psychological violence. As compared to rural area number of harassment or exploitation against women are increasing day by day.

Migrants are other determining factor for urban health. Here migrants mean movement of people from rural area to urban area. Urban area offers well facilities so that rural people are searching for better employment and economic opportunities in urban area. This will lead to increasing population and overcrowding in urban area. Social and Economic Environment is one of the important determining factor for urban health. It includes economic and educational opportunities, social support, safety and security etc. Access to economic opportunities such as employment or other income generating activities has a major impact on health status. Access to economic opportunities provides access to good quality housing, foundation for future access to economic opportunities. Educational opportunities helps people to acquire knowledge and, skills for daily living, increase income and job security.

Overcrowding is an additional health hazard; it is widespread in cities of low and middle income countries. The concentration of people living in small poorly living areas increases the risk of disease transmission and other health problems. Infectious or communicable diseases are high in overcrowded areas due to lack of ventilation, lack of hygiene and unhealthy environmental living conditions. Overcrowding also contributes to stress and family violence including child maltreatment, intimate partner violence and sexual violence. Lack of proper urban planning can produce heavy traffic through residential area.

Transport system also influence health through air quality. Ultimately traffic congestion, traffic generated air pollution and traffic injuries touch the lives of all city residents. All city dwellers are affected by indoor and outdoor air quality. Air pollution compromises lung function and increases heart attacks. High levels of air pollution directly affect people with asthma and other types of lung or heart disease.

Through urbanisation people have changed their food habits, this is negatively affecting urban health. Ready to eat meals and snacks purchased from street vendors, restaurants and fast food outlets have increased in most cities. This leads to increasing obesity among the people. Health standards in Kerala as compared to India are satisfactory and the position of Kerala among the states in India is very high at the same time we are facing severe morbidity than other states. People in Kerala face epidemiological transition situation (that is number of non communicable diseases are greater than communicable diseases) especially

people in urban area face some health challenges, so here we discuss about health problems among urban households in Kerala.

1.2 IMPORTANCE OF THE STUDY

The study about health problems among urban households in Kerala not only highlight health problems but also provide disparities among the people in the case of utilisation of health care services. Generally most urbanised countries have higher income, stronger institutions and to benefit from education as well as health services. It (urbanisation) is not only a positive force for economic development but it brings overcrowding, air pollution and road traffic, etc. Urbanisation has so many impacts but here we discussed only on its impacts on urban health. Health is defined as a state of complete physical, mental and social well being not merely absence of disease or infirmity (WHO 1981). Good health is an important factor for the provision of regular supply of labour. It (good health) not only promotes high labour productivity but also produces a positive environment for economic growth (Sagaya Doss). Health is a fundamental human right ie. States have the responsibility to provide better health services to its people. People in urban area are surrounded by health services with large hospitals, innumerable dispensaries, nursing homes, specialty hospitals, etc. A study of urban health problems and their health services utilisation will not only highlight the health and medical problems of a community but it will also helps to understanding socio economic disparities in society. Health is a major determinant

of human development and it has socio economic relation with quality of life. Health development is an integral part of the national development.

In the process of urbanisation cities are swelling due to population growth. This has resulted deterioration of physical environment in these cities. The worst happens in urban areas especially people belonging to the economically weaker section of the societies. Health problems in urban area are increasing day by day at the same time urban area provide better health care facilities, but all sections of the society cannot afford all these healthcare facilities. This will lead financial burden to low class people.

1.3 REVIEW OF LITERATURE

Health problems among the urban households are a worldwide phenomenon. It has attracted the attention of administrators, planners, economists, & experts. Specific literature works related to the study are not available. So here we discuss some studies related to the research topic. Literature work is divided into two, first section includes methodological review that comprises a detailed explanation of the earlier studies that is type of sample selection, techniques used for analysis, major findings, conclusions etc. Second section literature works include major findings and conclusions of the related studies. The details of some related aspects are discussed below.

1.3.1 Methodological Review

Duggal R and Sucheta.A (1989) critically analysed health expenditure pattern in India at micro and macro level. Household survey was conducted at Jalgaon District in Maharashtra and data were collected on the basis of 3 rounds. Each round covered a recall period of one month and total sample size was 590. For the analysis a household level variable called 'class' was created each class was determined on the basis of the land holding of the man earner, the per capita consumption and the education level of its member. Study found out the morbidity rate for male and female was 145 per 1000 and 153 per 1000. As compared to urban areas morbidity rate was higher in rural area; among this the youngest and old age group has come under highest morbidity group. Rich class people have the highest morbidity than the poor class people and rich class repeated high proportion of acute and minor illness.

International Institute of Population Science (IIPS) (1995) study report examined pattern of health care utilisation and health care delivery among socio economic class. Survey conducted in 24 states with representative sample of 89777. For data collection separate questionnaire were used for household women and village. Analysis shows that infant mortality rate was higher in rural areas (52 percent) than in urban areas and this rate was declined with increasing literacy rate. In India child bearing was concentrated between the age group of 15-29. Study revealed that there is used to improve nutritional programmes for infants and very young children. There was a high variation among the state and communities in all socio economic, demographic and health matters.

Ashlesha Datar, et.al (2005) examined the role of health infrastructure and community health workers in expanding immunization coverage in rural India. The sample consisted of 43,416 children aged 2-35 months residing in rural India from the National Family Health Surveys (NFHS) conducted in 1993 and 1998 and estimated separate multinomial logit regression models for polio and non polio vaccines that estimated the probability that a child would receive "no cover," "some cover" or "full age-appropriate cover." The key measure of health infrastructure was a hierarchical variable that assigned each child to categories (no facility, dispensary or clinic, sub-centre, primary health care centre, and hospital) based on the best health facility available in the child's village. We also included variables capturing the availability of various types of community health workers in the village and other health infrastructure. Analysis showed that the availability of health infrastructure had only a modest effect on immunization coverage. Larger and better-equipped facilities had bigger effects on immunization coverage. The presence of community health workers in the village was not associated with increased immunization coverage. Study suggested that reforming community outreach Programmes might be better strategy for increasing immunization coverage.

SAPRU,et.al(2005) Analysed excess morbidity and expenditure on healthcare in families with smokers. Study hypothesized that families with smokers were likely to have higher health expenditure than non-smoker families and increased probability of health problems associated with smoking. Sample comprised 1000 urban and rural families divided into two groups. Group I consisted of 500 families with one or more smoker(s) while group II comprised

500 families without a smoker. Both groups had an equal representation from the urban and rural populations (250 each). The study team used a structured, generally close-ended questionnaire, pre-tested for its validity and reliability, to interview the families. Different components of health-related expenditure and other morbidity indices were studied. Each family was studied in two phases: (i) initially, for the retrospective assessment of expenditure and other losses during the preceding one year, and (ii) prospectively, for the following 10 months on repeated visits and estimations made every two months. Results revealed that the number of family members reporting sick was significantly higher in group I than in group II among both urban and rural families. Univariate analysis showed that the odds ratio for having any health-related expenditure for a group I family was 3.346 (95% confidence interval 2.533–4.420), which was highly significant ($p<0.0001$). The number of lost school days among children of group I families, loss of efficiency of its members and change of jobs due to loss of efficiency were highly significant. The direct healthcare costs as well as the indirect fiscal losses are higher in families with one or more smoker(s).

Amlan Majumder (2006) study investigated that utilization pattern of health care is affected by different socio-economic, demographic, and other relevant factors in the rural and urban areas of Cooch Behar and Jalpaiguri districts of North Bengal. Primary data collected through interview technique for a 5-month reference period and is based on self-perceived morbidity method. Twenty households have been selected from each village to the total size of sample as 440 households or 2342 persons. There are 325, 158, and 483 illness episodes, which have been included in the analyses in the rural and urban, and

combined categories also. Analysis was conducted with the help of econometric tools like logistic regression method and result shows that children in the 5-14 age groups are by and large neglected. Special care must be taken to raise the rate of utilization of care for morbid children in the 5-14 age groups. The demand for public health facilities is high as compared to that of private health facilities in rural areas of the districts. Availability of health facilities is seen to have negative impact towards utilization of health care. Because Cost of treatment seems to affect utilization of care positively, it indicates that people are compelled to pay more when they seek care from modern sources.

Alessandro Tarozzi (2007) evaluated the growth performance of Indian children of age 0 to 3 using data from the 1998-99 National Family and Health Survey, making use of the new child growth standards developed within the World Health Organization by the Multicentre Growth Reference. Study results shows that the new charts lead to an increase of 4.2 million in the estimated number of stunted children, and an increase of 2.3 million in the estimated number of wasted children. We also use data on ethnic Indians living in the United Kingdom to provide evidence on the height genetic potential of Indians. We found that children of Indian ethnicity who live in the UK have anthropometric outcomes comparable to those in commonly used growth standards and that, even after controlling for income per head, the height of ethnic South Asian in the sample is negatively related with the amount of time spent abroad.

Francis Nathan Okurut (2008) Proposed the determinants of health care demand in Uganda using – Uganda National Household Survey (UNHS) data for

1992/93 collected by Uganda Bureau of statistics. A multistage sampling method was followed, each district was considered as a separate stratum. Samples were ensured the representation of National regional and rural/urban. The survey included a detailed health module (such as knowledge of diseases, illness, health facilities visited, medical charges and transport costs) & individual socio-economic characteristics. Dow model was used for analysis which states that, the own price elasticity demand for choice of a facility depends only on probability of choosing the facility and the price level of the facility. Health care depends on various features which can be specified as a utility maximisation function. It is a preferred utility function that is linear in consumption. The study found out that access to public healthcare facilities are negatively influenced by household expenditure, user fees and regional location but positively influenced by household size. Private health facility choice is positively influenced by household expenditure and regional location. But negatively influenced by household size, transport cost, user fees and being poor.

Capt. R Vaidya,et.al (2009) study was primarily conducted to derive reference weights of healthy Armed Forces personnel and to compare with the existing reference weights. Anthropometric measurements were recorded for 902 healthy Armed Forces personnel in the age range of 28 to 52 years selected by stratified random sampling. These measurements were used to obtain mean values, standard deviations, medians and percentiles for various anthropometric parameters. Analysis revealed that BMI for the study subjects ranged from 14.67 to 27.90 kg/m2 with a mean of 20.52 Kg/m2. No individual was categorized as obese using the current international cut-off of BMI >30 kg/m2. With the

exception of height, all other anthropometric parameters like weight, BMI, waist circumference, and waist-hip ratio were found to increase with increasing age. Correlation of BMI with waist circumference and BMI with Waist Hip Ratio in the study subjects was found to be statistically significant. The weight for height and age chart of the study shows an increase in weight in all age and height categories as compared to the weight for height chart currently in vogue in the Indian Army. Study also shows considerable variation when compared to weight for height and age chart currently being used in Indian Army.

Joko Maryone (2009) Study examined gender discrimination which is measured by using demand for health services. It is based on survey which uses snow ball sampling method with the 1'st sample selected randomly. Next sample is determined by 1'st sample, 3'rd sample is determined by 2'nd sample so on. The study is considered as explanatory research which will determine the relationship between dependent & independent variables. Demand for health services which is estimated by using multiple regression method. Demand function for health services is modeled as constant elasticity functional forms. Any differences in demand elasticity & structural demand function represent the influence of gender on the consumption of health services. Chowtest & Hausmen Test was used for testing this different elasticity. Test results shows that women & men are equal in accessing health services & there is different structural demand also. Women have more access to health services than men because of specific characteristics in terms of health problems.

Simone vidale et.al(2010) examined hypothesis of correlation between air pollution level and ischemic stroke admission and in hospital mortality in an urban population. Data on a total of 759 stroke admissions and 180 deaths have been obtained over a four year period (2000-2003).A general additive model estimating Poisson distribution has been used, adding meteorological variables as covariates NO_2 and PM_{10} were significantly associated with admission and mortality (p value <0.05) and with estimated RR of 1.039 and 1.078 for hospital admission at 2 and 4 day lags respectively. The Study suggested that an association between short term outdoor air pollution exposure and ischemic stroke admission and mortality.

1.3.2 Literature Review (section 2)

Ranigopal (1961-1974) studied health status of people in Andhra Pradesh during the period of 1962-1974 found out that, there was no improvement in the health status of the people in that period. For measuring health status she has taken some statistical tools like nutritional status, morbidity rate &health facilities. Study also noted that health status of the people is negatively related to morbidity rate &nutritional status.

Panikar (1979) found that Kerala's achievement in health field become more relevant and significant to low income countries when viewed against the facts that the level of per capita income, per capita expenditure on health and medical infrastructure measures in terms of bed population ratio, doctor

population ratio, etc. were actually lower in Kerala than in some of the other states. The reason for the better health status of Kerala lies in the state having given equal importance to preventive and primitive measures like sanitation, hygiene, immunization programmes infant and ante natal care, health education, etc. as to curative medicine. More over the spread of education, especially among women in rural parts of Kerala was a crucial factor contributing to the high degree of awareness of health problems and fuller utilization of available healthcare facilities.

Bhattacharjee P. J (1981) argued that in developed countries the female have the chances of surviving right from childhood to old age. But in India the female are suffering from relatively bad mortality consideration as compared to males and the major possible reason for this is the poor nutrition, housing, sanitary condition and inadequate medical facilities.

Nag (1983) attributed the decline in death rates to increased availability of healthcare and its utilisation which is made possible by greater female literacy. He also suggested that the greater decline of fertility in Kerala when compared with rest of India is associated with greater equity in education and health rather than the income assets.

Fernandes (1991) study on 10 slums in Delhi explained low urbanisation affects women adversely and low women have internalised in themselves the ideology of subordination. Lack of unity and organisation is one of the main causes of exploitation and underdevelopment among the urban women.

Individually they are unable to fight against the multidimensional oppressions prevailing in the slums.

Kannan K.P, et.al (1991) Conducted a study on rural Kerala regarding the linkage between socio economic status and health status based on the data surveyed in 1987. Their study was based on two status group, one is socio economic status and other is environmental status. In their judgment the high rate of morbidity in Kerala is a manifestation of its continued economic backwardness and the poverty of the masses.

George et.al (1993) tried to estimate the expenditure of households on health as a proportion of total consumption expenditure in the study related to the household health expenditure in Madhya Pradesh and found that the acute prevalence rate was 162.16/1000 and chronic prevalence rate was 128.35/1000. Acute morbidity was found to be high in the urban areas where as chronic and handicapped morbidity was high in rural areas. It indicates that the definition of morbidity was influenced by the seriousness of illness and the accessibility to health facilities.

Gopalakrishna Kumar G (1993) argued that higher literacy rate is the main reason for higher morbidity in Kerala. People are well bothered about their health so they would take better treatment for minor illness. Availability of medical services especially provision of advanced treatment in private sector is another reason for high morbidity.

Ainswarth M. S and M W Abu (1993) argued that quality of medical care is a key factor in determining the success of health care financing reforms in

Africa. A given improvement in service quality might increase demand for medical care by attracting new users or by increasing the intensity of service use by existing users.

George & Nandaraj (1994) the study aimed to collect information on the components of household expenditure and to analyse the relationship between household health expenditure and socio economic variables. The study showed that nearly three fourth of the expenditure per episode was on doctor's fees and medicines .The cost per episode was slightly higher in rural areas than in urban areas. Among infants, the expenditure per episode was higher for females than males. In the age group 25-44, the expenditure per episode was higher for females than males. In all other age groups, it was higher for males.

Ramachandran (1996) said that literacy political awareness and political action through political parties and organisations were played an important role for better health conditions because they helped people to know the rights and duties of the state to its citizen. People demanded more health facilities in Kerala than in the rest of India and they utilised them better.

Ravindran (1996) attempted to draw attention to the consequences of social and material deprivation on the health of scheduled caste population through an examination of the health status of the most vulnerable population subgroup, namely children under the age of five years. Environmental factors both physical and social are playing greater role in child health after the period of infancy, when a baby has been weaned, and was more exposed to sources of infection due to change in food take and greater physical mobility. His study

confirmed the fact that scheduled caste population; both infant mortality rates and probability of dying before the age of five are higher than for the general rural population, as indicated by comparable rates of rural Tamilnadu.

Rajeswari(1996) study focused variations in gender in the use of public health care facilities and in relation to economic development of an area. Study revealed that availability of public health care facilities at the place of residence had a positive impact on women health status when the comparison was made between the Primary Health Centre & Non Primary Health Centre villages. The data revealed that infant and child mortality was highest when there was no medical facility. The educational status of the head of the household emerged as an important factor, which had a positive effect on women's health care in Primary Health Centre & Non Primary Health Centre villages.

Pravin Visaria &Anil Gumber (1996) analysed utilisation of health services by using survey data of 13600 households from Gujarath. They found out the problem of physical access to various services in rural areas of the country. According to their opinion, the better educated mother and adult female relatives would be able to ensure greater care in this respect than their less educated or illiterate sisters

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sisters. Study also revealed that level of immunisation is higher among scheduled caste and tribe households and the immunisation level is positively associated with the education level of the adult female in the household.

Dr. Rethnaraj D (1997) stated that urbanisation in Kerala has been essentially a process of city word concentration. Heavy population density in class one cities in Kerala leading to urban poverty, which is manifested in many terms such as urban slums lack of social services such as water and sanitation, group violence, crimes, etc. The living condition of urban slum dwellers in Kerala is miserable and crime rates among them are increased.

Shenoy K. T (1997) Studied utilisation pattern of healthcare services in Thiruvananthapuram District. Study was based on the primary data collected from the 1001 household revealed that 2237 participants had morbidity problem. Out of the total patients 67 percent utilised private and 33 utilised public health care services. The study was also suggested that need for developing particular strategies to improve utilisation of public healthcare services.

Singh and Rahman (1998) conducted a study on the basis socio economic and health status of the poor households in Aligarh city. They found out there was acute shortage of housing, sanitation, drinking water, etc. and quantity and quality of existing facilities are very low. These poor environmental conditions are responsible for the occurrence of major communicable diseases.

Alock Gupta (1999) has explained that urbanisation has been associated with the process of economic development. The city with its concentration of industry, commerce, administration and capital, Labour and technology has

traditionally been a powerful generator of national economic growth. It is one of the key motive forces behind industrial development. It has been termed as an inevitable consequence of development and essential condition for social and economic development

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. Field study based on 500 women selected from five slums indicated low utilisation of the maternal and child health services provided by the public health care system. An important reason for the non utilisation of these services may be the lack of knowledge about these services offered by the government. Other striking feature was very large number of deliveries were being conducted at home and continued to be attended by the traditional dais under the most unhygienic condition.

Bhat Ramesh (1999) has examined that the absence of empowerment of the public sector created a dominant health care system in the private sector. About 57% of hospitals and 32% of beds are in the private sector and one third of inpatients and three quarter of outpatients utilise private healthcare facilities. In facts private health care expenditure is estimated to have grown at the rate 12.5% per annum during the period 1960-1995, while the growth in per capita income has been only 8.5% during the corresponding period.

Mckeown (1999) stated that the major factor in improving health in Brittan as well as elsewhere the 19th and 20th centuries was not advanced medical care technology but social environmental and economic changes, the limitation of

family size and increase in food supplies, a healthier physical environment, specific preventive and therapeutic measures. They all originate in healthy cities and influence them too .

Panikar P.G.K and C. R. Soman (1999) pointed out that Kerala's health status has emerged as a low mortality and high morbidity syndrome. The improvements of health status seem to be attributable more to the expansion of medical care facilities rather than to the effects of development policies. They used the criteria like trends in the number of visits to hospitals and duration of hospitalisation as a proxy for measuring changes in health status.

Aravindan K .P & T.P Kunhikannan T.P (2000) tried to link the socio economic and health status of the state and found out that an inverse relationship between the rate of mortality and socio economic status. The study was a comparison with the Kerala Sastra Sahitya Parishath survey done in 1987. The figures for total morbidity in their study and the proportion of acute and chronic diseases highlighted a significant change of the emergence of non communicable diseases as the important public health problem. The reasons for this phenomenon where the changing life style, increasing life expectancy, better access to healthcare and socio economic changes.

Dharmalingam (2000) examined utilisation pattern of maternal health care among the states in south India and it carried out by using National Family Health Survey data during 1992-93 in various states and it indicates that determinants of maternal health care services are not same across various states and for different health care indicators. It is argued that differences in accessibility of health care

facilities between rural and urban areas are an important factor for lower utilisation of maternal health care services.

Dhulasi Birundha et.al (2000) noted that govt. is responsible for developing modern health information and network at all centres. Awareness about health care should be created among the people and health care system itself need to be refined and revitalized for achieving the goal of perfect health for all.

Gumber (2001) studied issues related to out of pocket expenditure on health. He used primary survey for finding the effect of micro health insurance provided by SEWA (Women union). Through purposive sampling techniques 1200 sample s were collected from Allahabad and neighbouring areas. Analysis found out that social insurance, care provider and demographic characteristics of households are important determinants of out of pocket health expenditure.

Nicholas Lorenz (2001) investigated that experience in East Africa &West Africa highlights the need to look at the problems of urban health in a broader sense &to contribute to the solution of these problems by strengthening primarily the managerial capacities of the of the urban health system. Decentralisation and health sector reform have become key issues in strengthening urban health systems. Access to good quality health services is one of the prime goals of urban health is also a pre requisite to effective poverty reduction.

World Bank (2001) reported that the whole issue of equity in health care concerned with providing access to quality health care at affordable prices to every member of society. Health care expenses are often catastrophic and have the potential to bankrupt a family There is evidence to suggest that many households

in India are falling below the poverty line every year due to burden of health care expenditures.

Dilip T.R (2002) Using 52nd NSSO round data examined the prevalence of alignments and hospitalisation in Kerala using multivariate analysis of logistic regression he found that age and seasonality had considerable effects on the morbidity of individuals the burden of ill health was higher in rural areas than in urban areas. He opened that people who were more likely to have a better lifestyle had a higher level of morbidity and hospitalisation and factors like physical accessibility of healthcare services and capacity to seek healthcare services could create artificial differences in morbidity and hospitalisation among different subgroups of the population in Kerala.

Koji Nabae (2003) Koji analysed health care system and world famous model of development in Kerala. He found out that Kerala is facing new challenges in health care system; public sector is unable to meet the needs for health care of the people. So people must depend on private health care system. He give some solutions to overcome these challenges such as, Kerala must increase ratio of investments in health care system, introduce health care policies through decentralisation, make public private partnership among the health care system. By these ways we can reduce inequalities in the health care system in Kerala.

Sudhesh Nangia et.al (2003) urbanisation tendencies are being considered more desirable to facilitate decentralisation of functions from the large metropolitan centres to the small and medium sized towns. These effects of

diverting the growth from the large metropolis would help in bringing out comparatively balanced urban growth and distribution.

Tapas Kumar Sanyal and Nilanjana Roy(2003): the survey (NSSO-58th round) revealed that the "conditions of urban slums" had improved over the years in respect of safe drinking water, latrine facility, sewerage system, garbage disposal, electricity connection, etc mainly with the intervention of the government. But the survey also stated that the slums in certain states did lack certain basic facilities. Urgent intervention of government and other agencies are required to bring about improvement in the condition of slum in those areas.

Guagliardo (2004) explained basic concepts and measurements of access provides some historical background, outlines the major questions concerning geographical accessibility of primary care and described recent developments in GIS and spatial analysis He presented different measurements of geographical accessibility like provider to population ratio, travel impedance to nearest provider, average travel impedance to provider.

Varathrajan D et.al (2004) brought out the importance of decentralisation of health care sector and said that Kerala's government health care system functioned relatively well compared with other Indian states, but utilisation level are decreasing due to lack of essential facilities. The opportunity cost of seeking medical care from the government sector was high, even for the poor. They concluded that decentralisation brought no significant change to the health sector, but wherever the active panchayath support was given, the result was positive.

Dhanwir(2005) demonstrated that the evidence exists for associations between aspects of the urban environment and behaviours contributing to obesity .The urban built environment was associated with both physical activity and healthy body weights. Adoption of a more "western" lifestyle had predominantly negative effects on food, nutrition and dietary habits. This suggests that a supportive urban physical setting may be advantages, but perhaps insufficient by itself to have a significant impact on obesity.

Human development Report (2005) stated that charging the best health care increases inequality. Payments for health care can represent a large share of the income of poor people, leading to reduced demand or increases debt. In Viet Nam, a single hospital visit cost is 40%of the monthly income of the people in the poorest 20% of the population. High levels of household health spending not only deter use of services but one estimate has pushed 3 million people in Viet Nam in to poverty.

Jindal s k et.al(2005) study estimated health related expenditure of families with smokers and families without smokers. It was hypothesised that families with smokers have high health expenditure than non smoker's family. Study was conducted with the help of 1000 families comprised with rural and urban families and divided it in to 500 families with smokers (group-1) 500 families with non smokers (group-2).By using univariate analysis study results showed that the number of sick cases reported was higher in group 1 than in group 2.The number of lost school days among children of group 1 families, loss of efficiency of its members and change of their jobs are important consequences. So

the direct and indirect health care costs are higher in families with one or more smokers.

Sankaranarayanan K.C(2005) stated that hospital charges have become the beyond the reach of common man. Patients are charged on several counts such as nursing charges, treatment charges, service charges and professional charges apart from medicines. The next result has been the exclusion of the marginalised and vulnerable sections of the community from enjoying medical care facilities. This is expected to produce irreparable damages in health care system of the state. [Stated that contaminated water supply polluted environment, water logging, lack of cleanliness, in public places and other related issues are not properly addressed and effective remedial action is lacking in all these areas in Kerala).

Bijan jyothi Borah (2006) used 1996 NSSO data and he found that price and distance to a health facility play a significant role in health care provider choice decision. Price elasticity of demand for outpatient care is higher. In their judgement, the high rate of morbidity in Kerala is a manifestation of its continued economic backwardness and the poverty of masses.

Lavesque et.al (2006) studied that high utilisation of private outpatient care in Kerala and suggested problems of access for the poorest. Using multilevel analysis of individual and urban characteristics from the NSSO 1995-96 survey data, they found that there was a high level of utilisation (83.6%) of allopathic medical services. This study also pointed out that the used for improvement and development of public health system in urban areas of developing countries to promote equity.

Naum, Hurria et.al (2006) evaluated the treatment pattern of women aged 55 years or older with newly diagnosed breast cancer. Analysis was conducted with the help of regression method in association between (a) age and treatment selection (b) raced & treatment selection. Result shows that 64.1% of women have urban breast cancer. Although there are racial and age disparities in breast treatment.

Navaneetham K, M. Kabir & Santhakumari (2006) based on the primary data collected from 3320 households revealed socio economic inequality in health. A wealth index has been constructed by using various asset indicators. Which constructing wealth index different weight has been applied to each of the indicators. Study found out that there exists gender inequality in morbidity. Females are greater risk of morbidity than males. Age pattern of morbidity shows that after the age of 35 ailments increases at a faster rate and females are more vulnerable to morbidity in the old age

Ruchirawat m et.al (2006) had analysed that urban air pollution resulting from traffic is a major problem in many cities. This pollution originates mainly from incomplete fossil fuel combustion. Polycyclic Aromatic Hydrocarbons (PAHS) and Benzene are among the major carcinogenic compounds found in urban air pollution from motor vehicle emissions. The study results indicate that the children living in a mega city may have an increased heath risk of the development of certain diseases due to exposure to geotaxis substances in air pollution compared to children living in suburban or rural areas.

Barreto M L et.al (2007) investigated that epidemiological effect of the city wide sanitation programme on diarrhoea morbidity in children less than 3 years of age. Environmental survey was done in each area before and after introduction of the sanitation programme to asses' basic neighbourhood and household sanitation conditions. Study results show that urban sanitation is a highly effective health measure that can no longer be ignored and they provide a timely support for the launch of 2008 as the International year of sanitation.

Capon A G (2007) identified that urban environment is an important determinant of health. Health impact assessment is a tool for systematic analysis of the health consequences of urban development in new areas such as transport, education, health infrastructure also has health implications. Health impacts should be considered a primary outcome of urban development and management.

Langevin et.al (2007) evaluated diet quality and weight status of low income urban children 7 to 13 years. Food frequency questionnaires were used to determine i take of total calories and food groups. Study found that more than 75 % of participants failed to meet recommended servings for grains, vegetables, diary and fruit groups.25% did not meet recommended dietary allowances for iron and flat. Study also suggested that these urban children may be "at risk" based on the high percentage that has insufficient food group consumption and micronutrient intake.

Sekhar Rout (2007) said that average person spend around nine and eight percent of his income on health expenditure his own pocket. Income has greater positive effect on health expenditure than education. Income of the household has

significant influence on its health expenditure where as the effect of education is significant.

Van De PE O Donnell O Van DE (2007) explained that there are considerable rural urban differences in child health outcomes in entire developing world. The most striking differences between the two are the gap in growth stunting. In a considerable number of countries the urban poor actually have higher rate of stunting and mortality than their rural counter parts. The findings implies that target the urban poor and that, this is becoming more necessary as the size of the urban population grows.

Rama Joglekar(2008) studied the impact of health insurance on out of pocket health expenditure. Through stratified sampling method 10750 samples were collected from the six states of (Assam, Karnataka, Maharashtra, Rajasthan, U.P and West Bengal) India. Analysis shows that insurance reduces total budget allocated towards out of pocket expenditure in urban area and if the household has medical insurance the probability of out of pocket expenditure reduces by 10%.

Suryanarayana M H (2008) Study was carried out on the basis of estimates of morbidity with respect to economic status & it illustrates by using household level data from the 60'th round of National sample survey. Study estimate Pseudo Lorenz ratio for distribution of morbidity with respect to the household economic status & Engel elasticity of morbidity with respect to the household economic status by disease. The study found out that rich have higher morbidity than the poor & it varies by diseases.

William Joe &Navaneetham (2008) study found that income related health inequality in India by using NFHS-3 survey data. For the analysis it uses concentration cures and concentration indices. Analysis reveals that health inequalities are raising with rising income inequalities. The income poor sections have different needs and therefore planning and intervention necessitates an understanding of the sources of inequality and recognition of the vulnerable groups to arrive at efficient resource allocation and policy decisions.

Dhandapani C (2009) Analysed expenditure & utilisation of healthcare services of tribes in Jawadhu hills. Multistage random sampling was used for primary data collection & F test were used for testing the hypothesis. Test results revealed that lack of public health services 87 % of tribes depends on private health services & total medical expenditure is greater than non medical expenditure.

Manasi Bawdekar and L. Ladusingh (2009) this paper attempts to study the health care expenditure of elderly (gender wise) in Kerala for this purpose they used data from the report of Indian Human Deut Survey (2004-05). Study found out that there is wide gap between health expenditure and income of the old aged people. Working age population is the most responsible group for providing health expenditure of aged population and it's also suggested that the government must improve the funds for health expenditure of people especially aged population.

Manasi Bawdekar and L. Laudusingh (2009) studied intra household transfers for health care expenditure of elderly in Kerala by using the data from the Indian Human Development Survey (2004-05) of the national council of

Applied Economic Research. Study findings show that there is considerable gap between income and health care consumption of old aged people. Major share of health expenditure old aged people comes from walking members of the household. This indicates that the working age group in the household is responsible for supporting health expenditure of elderly. About 28% out transfers for health care comes from the age group 60-80. It reveals that some case old aged people are in a position to take care of this own as well as their spouse's

Oyekale A S And C. G Eluwa. (2009) study was focussed on utilisation of health care and health insurance among rural households in Nigeria. Primary data were collected stratified random sampling technique. Analysis was conducted through public regression method and its shows that awareness about national health insurance scheme among the rural households is very low and health facilities in the rural areas were very poor. Willingness to participate in the NHIS is determined by amount able to pay, frequency of illness, workability and coverage of the scheme etc. Study also found out that NHIS will improve access of rural households to quality health services.

Pierre fournir (2009) study was based on utilisation of inpatient care from private hospitals in Kerala. Household survey data are examined to understand the users of the private health system. Analysis revealed that annual hospitalisation rate increased from 69 per 1000 population in 1986-87 to126 per 1000 population by 2004.The proportion of person seeking care from private rather than government hospitals increased from 55% in 1986-87 to 65%by 2004.

Ennapadam S. Krishnamoorthy. (2010) noted that health behaviour change is the major factor of disease prevention and health promotion changing health behaviour through civil society have significant role in the control of life style diseases. “Health for all” may be achieved if the process is democratised by the people, for the people and of the people.

Gangadharan K and Rajula Helen K. P (2010) conducted a comparative study on national and child health services and its utilisation of Kerala and Tamil Nadu. National family health survey -3 (2005-06) data was used for the analysis of the study and it reveals that. Both states faces some problems like lack of health care facilities or health infrastructure this will lead to increasing out of pocket expenditure. In the case of utilisation of health services Tamil Nadu is better than Kerala. Study conducted in that if the present trend continues in health status in the near future Tamil Nadu over come Kerala.

Yadawendra Singh (2010) examined the burden of aging in terms of health expenditure in Kerala. The study found that the proportion of elderly having at least one ailment is much higher in Kerala as compared to other Indian states and per capita hospitalisation cost per year for the elderly is four times higher than that of non elderly in Kerala. Due to increasing the number of elderly in Kerala the burden of managing the cost of diseases will increase significantly in coming future.

Subrata Mukherjee and Delamapday Narayana et. al (2011) presented caste based inequalities in out of pocket health expenditure in Kerala and it also provides economic burden households. Primary data collected from 543

households in 2003-04 and multivariate linear regression model were used for analysing per capita health expenditure. Households with high healthcare needs spent too much money for health expenditure. Lack of monetary resources and health insurance low caste households face higher risk in the case of health expenditure.

Subba Rao Pappala (2011) conducted study in the slums of Vizinagarari municipal town and data collected from 300 households reflects that the poor sanitation water pollution, low income environment in the urban slums. To improve this condition the govt. to take appropriate steps to improve the services of income of the households and to take the package of health education programmes with the involvement of the community.

Walter. H. Shorenstein (0000) studied out of pocket household health expenditure in Pakistan by using National Health Accounts (in Pakistan). Analysis revealed that 98% of health expenditure in Pakistan comes from private. As compared with International level share of private health expenditure in total health expenditure is very high.

Christian Lorenz (2012) studied out of pocket household health expenditure is Pakistan by using National Health Accounts (in Pakistan). Analysis revealed that 98% of health expenditure in Pakistan comes from private. As compared with international level share of private health expenditure in total health expenditure is very high.

Jean Frederic Lavesque et al (2005) analysed outpatient care utilisation in urban Kerala. The objective of the study was assessing factors associated with

utilisation and source of outpatient care in urban Kerala. By using data from the NSSO 1995-96 revealed that there is high level of utilisation (83.6percent) of allopathic medical services. Among this, 77% belongs to private medical source. There is high inequality in utilisation of outpatient care was found between cities. Study suggested that improvement and development of public health system in urban areas promote equality especially people in medium sized towns.

From the literature works we can conclude that there are so many studies done related to health problems, morbidity and healthcare utilisation, but there were no specific studies related to urban health problems in Kerala. Most of the studies are based on urban rural comparison, present study is based only on health problems among urban households in Kerala. Literature revealed that urban health problems in Kerala is a less research area, through urbanisation there are so many health problems affected to people in urban area. Inefficiency of public health care system people were compelled to depends on private health care system. It will not affordable to all sections in the society and create additional burden to people in the urban area.

1.4 STATEMENT OF THE PROBLEM

Health is an important determinant of economic and social development. Ill health leading to low productivity, low earning capacity, deteriorating quantity and quality of consumption and standard of living. The major health problems identified in the urban areas include life style diseases or non communicable

diseases than communicable diseases. Among the life style diseases cardiovascular diseases and diabetes emerged at the top. As far as the proportion of morbidity is concerned, urban Kerala is subjected to more of non-communicable than communicable diseases. The Kerala is well developed in health sector but we look in to health care services it is not sufficient (panikar1999). In the case of health expenditure out of pockets from the household is too high. Kunhikannan and Aravindan (1996) found that increase in per capita total expenditure on medical care was twice that of the increase in general consumption expenditure. Their study revealed that drug items like doctor's fee, laboratory, investigations etc have greater increase. They were introduced the term mediflation i.e. large increase in medical expenditure. NSSO 55thround report revealed that when compared with other states in India monthly percapita expenditure on inpatient and outpatient care was the highest in both rural and urban Kerala.

Majority of the people utilized private health care services for minor ailment. Lack of health care services in the Government hospitals people were compelled to depend on the private hospitals. It leads to increasing the role of private sector in inpatient and outpatient care treatment. But the hospitalisation cost is very high in private hospital, people spend huge amount for meeting all these expenses. It is a serious threat to financial capacity of the households, increasing the role of private health care sector has changed during the last two decades. Decline in utilisation of public health care services is mainly a function of decline in public health investment (Duggal 1997). Privatisation of health care result in decline in access to health care among poor people. For meeting all these

expenses people were compelled to take loans sometimes it will leads to urban poverty. Major research questions are discussed below.

1. Whether the urban people are utilized public health care facilities; if yes how far they extent utilisation of health care facilities; if no what are the reason for non utilizing public health care facilities .
2. Whether the demand for public health care services has decreased or demand for private health care has increased.

1.5 OBJECTIVES

1. To evaluate health care facilities in urban areas.
2. To identify the determinants of health status of urban households in Kerala.
3. To assess the utilisation of health care services.
4. To evaluate health expenditure among urban households in Kerala.

1.6 HYPOTHESIS

1. Utilisation pattern of public and private hospitals have no significant variation.
2. There is no significant relationship between income and health expenditure of the household in the study area.
3. Age and health expenditure have no significant relationship.
4. Inefficiency of public health care system will lead to unregulated expansion of private health care facilities.

1.7 METHODOLOGY

The study is based on both primary and secondary data. Secondary data are collected from NFHS, Economic Reviews, World Development Reports, Human Development Reports, etc. Stratified sampling method is used for sample selection with well structured questionnaire. Ernakulum, Kozhikode and Thrissur districts were selected as sample areas (on the basis of most urbanised districts in Kerala) with the adequate representation of households in the urban areas. Total sample size is 300(100 samples from each district). After data collection suitable statistical techniques such as simple growth rate, histogram, pie diagram, line graph, etc., are used for analysis.

In the analysis section multiple regression model is used for determining factors for morbidity in Kerala.

Morbidity= f (Health Expenditure, Infant Mortality Rate, Literacy, Old Age, population, Health care facilities)

1.8 CONCEPTS AND DEFINITIONS

- **ANC (ante natal care):** It is the care of the woman during pregnancy, aim of which is to achieve at the end of a pregnancy a healthy mother & a healthy baby. Minimum ante-natal cares include at least three antenatal checkups, TT immunisation and IFA supplement.

- **Birth Rate:** The number of live births per 1000 estimated midyear population, in a given year.
- **Calorie:** A calorie is a unit of measurement for energy. In most fields, it has been replaced by the joule, the SI unit of energy. However, it is used for the amount of energy obtained from food.
- **Communicable diseases:** An illness due to a specific infectious agent or its toxic products capable of being directly or indirectly transmitted from man to man, animal to animal or from the environment(through air, dust, soil, water, food etc.) to man or animal.
- **Death Rate:** The number of deaths per 1000 estimated mid-year population in one year, in a given place.
- **Crude Death Rate:** The crude death rate (CDR) is defined as the number of deaths in a year per 1,000 of the midyear population.
- **Density of Population:** Number of persons, living per square kilo meter.
- **Dependency Ratio:** The average number of economically dependent population per 100 economically productive population, for a given country, territory, or geographic area, at a specific point in time. In demographic terms, economically dependent population is defined as the sum of the population under 15 years of age plus the population 65 years of age and over, for a given country, territory, or geographic area, at a specific point in time, usually mid- year; economically productive population is defined as the population between 15 and 64 years of age, for the same country, territory, or geographic area, atthe same specific point in time.

- **Family Planning:** Family planning refers to practices that help individuals or couples to attain certain objectives: a) to avoid unwanted births b) to bring about wanted births c) to regulate the intervals between pregnancies d) to control the time at which births occur in relation to the ages of the parent e) To determine the number of children in the family.
- **Fertility:** Fertility means the actual bearing of children during a woman's reproductive period i.e. roughly from 15 to 45, a period of 30 years.
- **Fertility Rate:** The number of live births during a year per 1000 female population aged 15-49 years at the midpoint of the same year.
- **Growth Rate:** The exponential average annual rate of population growth, expressed as a percentage.
- **Health expenditures:** Health expenditure covers the provision of preventive and curative health services, public health affairs and services, health applied research, and medical supply and delivery systems, but it does not include provision of water and sanitation.
- **Infant Mortality Rate (lMR):** Infant mortality rate - (or IMR) is defined as the number of infant deaths in a year per 1,000 live births during the year Maternal Mortality
- **Ratio (MMR):** Annual number of maternal deaths per 100,000 live births. A maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

- **Low Birth Weight:** Birth weight less than 2500 grams (up to and including 2499 grams)
- **Malnutrition:** Malnutrition is a general term for the medical condition in a person caused by an unbalanced diet-either too little or too much food, or a diet missing one or more important nutrients. Most commonly, malnourished people either do not have enough calories in their diet, or are eating a diet that lacks protein, vitamins, or trace minerals.
- **Maternal & Child Health**: The term maternal & child health refers to the promotive, preventive, curative & rehabilitative health care for mother & children which includes the sub areas of maternal health, child health, family planning and health aspects of care of children.
- **Neo-natal Mortality Rate:** Number of neonatal deaths in a given year per 1000 live births in that year. Neonatal deaths are deaths occurring during the neonatal period, commencing at birth and ending 28 completed days after birth.
- **Non-communicable Diseases:** Diseases that cannot be directly transmitted from man to man, animal to animal or from the environment (through air, dust, soil, water, food etc.) to man or animal are deemed as non communicable diseases.
- **Old Age Dependency Ratio:** The proportion of persons above 65 years of age are considered to be dependent on the economically productive age group (15-64 years) life expectancy at Birth: The average number of years that a newborn could expect to live, if he or she were to pass through life exposed to the age and sex-specific death rates prevailing at the time of his

or her birth, for a specific year, in a given country, territory, or geographic area.

- **Public Sector Expenditures:** Annual public health expenditure as a proportion of the national health expenditure. The size of the public expenditure on health care goods and services for a given national economy, at a given period in time, usually a year, expressed as a percentage of the corresponding national health expenditure. It represents the governmental share, not limited to the ministry of health, of the total annual expenditure for covering the provision of preventive and curative health services, public health affairs and services, health applied research, and medical supply and delivery systems, excluding the provision of water and sanitation.
- **Prevalence:** The number of events, e.g., instances of a given disease or other condition, in a given population at a designated time; sometimes used to mean “prevalence rate': When used without qualification, the term usually refers to the situation at a specified point in time (point prevalence).Prevalence rate (ratio) is the total number of all individuals who have an attribute or disease at a particular time (or during a particular period) divided by the population at risk of having the attribute or disease at this point in time or midway through the period.
- **Primary Health Care:** Essential health care that is technically valid, economically feasible and socially acceptable. Primary health care includes eight essential elements: education concerning prevailing health problems and the methods of preventing and controlling them; promotion

of food supply and proper nutrition; an adequate supply of safe water and basic sanitation; maternal and child health care, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; and provision of essential drugs.

- **Total Fertility Rate:** Number of children that would be born per woman, assuming no female mortality at childbearing age and the age-specific fertility rates of a specified country and reference period.
- **Urban:** The term urban refers to towns (places with municipal corporation, municipal area committee, notified area committee or cantonment board); also, all places having 1000 or more inhabitants, a density of not less than 1000 persons per sq mile or 390 per sq km, pronounced urban characteristics and at least three fourths of the adult male population employed in pursuits other than agriculture. Proportion of Rural Population: The percentage of total population of a country, territory, or geographic area living in places defined as rural, at a specific point of time, usually mid-year. The term rural refers essentially to villages and other rarely populated areas.

1.9 CHAPTER SCHEME

First chapter includes introduction, importance of the study, review of literature statement of the problem, objectives, hypothesis, methodology and chapter scheme. Second chapter describes Health Status in Kerala. Third chapter discuss health care facilities in Kerala. Fourth chapter include determinants of

health in an urban context, it contains socio economic profile of the study area. Fifth chapter analyse health care utilisation and health expenditure in the study area. Sixth chapter includes findings and conclusions.

1.10 CONCLUSION

There are so many general studies conducted in the area of health status and health service utilisation. Our existing literature works reveals that none of the work touches reality of health problems of the urban area and utilisation of health care services. Majority of the studies are related to rural health, comparing rural and urban health, health service utilisation, etc. None of the specific studies related to urban health problems and cost of health care services. So our study mainly focused on health problems among urban households in urban Kerala.

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CHAPTER II

HEALTH STATUS IN KERALA

INTRODUCTION

In this chapter we are presenting Health Status in Kerala in three sections. Section one focuses on theoretical aspects of Urban Health, section two analyses health status in India, section three discusses on Health Status in Kerala and section four purports to deals with Urbanisation trend in India and Kerala.

Theoretical aspects of Urban Health include some of the major theories or models related to the study. Health status in Kerala and India is measured by using different traditional health indicators such as Birth Rate, Death Rate, Life Expectancy, Infant Mortality, Maternal Mortality Rate, etc. In the health status we consider Morbidity because, it is an important indicator of illness. Morbidity is analysed through communicable and non communicable diseases. As urbanisation is considered to be an important determinant of health status, we include the discussion of urbanisation trend in India and Kerala.

2.1 THEORETICAL ASPECTS OF URBAN HEALTH

This section deals with theoretical aspects of Urban Health. There are different types of theoretical models related to health care utilisation. Here we discuss some of the models related to urban health.

2.1.1Theory of externality

An externality shows when an action of a person not only affect on that person but it affect on others also. It is an impact, if a good or service purchased

by one person, it is positively or negatively affecting not only in to that person but others also. Externalities may be positive or negative, externalities in health care includes positive externality and negative externality

In Health Care, Negative Externalities include:

- Environmental Degradation: Health care produces a great deal of chemical waste, requires a great deal of emissions (ambulances, etc.) and alters the natural ecological environment of bacteria.

- Infectious Disease: One of the largest reasons why health care is so critical is the fact that diseases are infectious. Untreated diseases will adversely or negatively affecting the society.

Positive externalities include:

- Technology and Information: The study of health care, and the research involved in generating new solutions, has increased the knowledge and technological capacity of society in general. This has affected other industries, as research and development in health care affects the technological efficacy in other markets.

- Vaccinations: An interesting new development in health care is the advent of vaccines. It reduces the emergence of diseases.

2.1.2 Anderson – Health Care Utilisation Model

Anderson (1968) developed a model of health care utilisation which looks at three categories of determinants.

1. Predisposing Characteristics: this category represents the proclivity to utilise health care services. According to Anderson an individual is more or less likely to use health services based on the demographic position

within the social structure and beliefs of health services benefits. An individual who believes health services are useful for treatment will likely utilise those services.

2. Enabling Characteristics: This category includes resources found within the family and community. Family resources comprise economic status and location of the residence. Community resources incorporate access to health care facilities and the availability of person for assistance.
3. Need based characteristics: The third category include perception of need for health services, whether individual, social or clinically evaluated perception of need (Wolinsky).

In the 1970's Anderson model was later expanded and refined to include the health care system. The health care system includes health policy, resources, and organisation as well as changes in these over time. Resources comprise the volume and distribution of both labour and capital, including education of health care personnel and available equipment. Organization refers to how a health care system manages its resources, which ultimately influences access to and structure of health services. According to this level of the revised model, how an organization distributes its resource and whether or not the organization has adequate labour volumes will determine if an individual uses health services.

In addition the updated model includes recognition that consumer satisfaction reflects health care use. There are several health services available and both the type of service available (hospital, dentist or pharmacy) and the purpose

of health care service (primary or secondary care) will determine the type of service utilized. According to the revised model, whether or not a specific health care service utilized and the frequency a service is utilized will have different determinants based on characteristics of the population and the health services.

2.1.3 Grossman Health investment model (1972)

Grossman developed a comprehensive approach to study health investment and demand for health services. He treats health as a capital stock that is as a human capital. He develops a model to analyze the demand for the commodity called good health. Under this model health is a durable commodity and every individual inherits an initial stock of health that depreciates over time. According to him making investments in health can augment health. Death is said to occur when health stock falls below a certain level. As the health depreciates over time, people try to slow down the rate of depreciation by increasing their expenditure on health services. He proposes to say that individuals choose their length of life. The Grossman model explains how a consumer selects the optimal quantity of health in any period of his/her life. Health stock is the basic decision variable in the model.

According to Grossman, the stock of health capital cannot be sold in the capital market, just as the stock of knowledge cannot be sold. He says that the monetary returns to an investment in health differ from the returns to an investment in education, on the job training, etc. Other things remaining the same, investment in health stock does not change the rate of rewards for jobs but to

improve the period of work and long term aggregate earnings from work, in view of extended work period.

2.1.4 Rosenstock Health Belief Model

Health behaviour is determined by personal beliefs or perceptions about a diseases or strategies available to decreases its occurrence. This model discusses the individual action to treat and prevent disease by consideration of four variables.

1. Perceived seriousness : An individual will seek preventive health services if he or she believes they are susceptible to disease.
2. Perceived susceptibility : If a person does not perceive the illness as serious, they will not seek treatment or prevention.
3. Perceived benefits : An individual will not take action unless the treatment or prevention is perceived as having greater benefits than cost.
4. Perceived barriers : An individual's own evaluation of the obstacles in the way of him or her adapting new behaviour.

Each of the above perceptions individually or combination can be used to explain health behaviour.

2.1.5 Young choice Making Model

Model incorporates four components that are most essential to the individual health service choice.

1) Perception of Gravity: this category includes both the individual perception and their social network's consideration of illness severity. Gravity is based on the assumption that the culture classifies illness by level of severity.
2) The Knowledge of a Home Treatment: if a person knows of a home remedy that is efficacious, they will be likely to utilise that treatment before utilising a professional health care system. Home remedy knowledge is based on lay referral.
3) The Faith In Remedy**:** this component incorporates the individual belief of efficacy of treatment for the present illness. An individual will not utilize the treatment if they do not believe the treatment is effective.
4) The Accessibility Of Treatment**:** Accessibility incorporates the individual's evaluation of the cost of health services and the availability of those services. According to Young, access may the most important influence on health care utilization.

These are the important models which are related to our study. On the basis of discussed models we can conclude one thing that is Rosenstok Health Belief Model is suited to our study because perception of disease is an important factor for determining utilisation of health care services.

2.2 HEALTH STATUS IN INDIA

India is a developing country with a population of more than 100 crores. Studies have shown that general health standard in India is quite low and most of the people in India have poor health standard. The main reasons for poor health of

the population in this country are lack of nutritious diet, inadequate medical care and living under unhygienic conditions. As medical system is costly, majority cannot afford it. Since independence there has been significant change in the health status of the Nation. One of the major limitations of India's achievements in health status is the existence of wide inter regional inequality across the states. In this section we analyse health status achievements of India by using various health indicators.

Table.2.1 Health Status in India Using Different Health Indicators

Sl.No.	Indicators	1951	1981	1991	2001	Current level
1	Crude Birth Rate (per1000 population)	40.8	33.9	29.5	25.4	21.8(2011)
2	Crude Death Rate (per 1000 population)	25.1	12.5	9.8	8.4	7.1(2011)
3	Total Fertility Rate	6.0	4.5	3.6	3.1	2.5(2010)
4	Maternal Mortality Rate (per 100000 live births)	NA	NA	398 (1997 - 1998)	301 2001-2003)	212 SRS (2007-09)
5	Infant Mortality Rat0e (per 1000 live births)	146 (1951-1961)	110	80	66	44(2011)
6	Child Mortality (0-4 years)Rate per 1000 children	57.3 (1972)	41.2	26.5	19.3	14.1(2009)
7	Couple protection rate	10.4 (1971)	22.8	44.1	45.6	40.4(2011)
8	Life Expectancy Male-female	37.1 36.1(1951)	54.1 54.7	60.6 61.7(1991-1996)	61.8 63.5(1999-03)	66.68 69.06(2013-14)

Source:
1. Registrar General of India, Ministry of Health and Family Welfare,
2. National Health Profile of India- Central bureau of Health Intelligence, 2005, 2009, 2013

From Table 2.1it is revealed that Crude Birth Rate was very high in 1951 that is, 40.8 per 1000 population but it declined from 33.9 in 1981 to 25.4 in 2001 and currently it is 21.8 (2011). The Crude Death Rate, which was 25.1 per 1000 population in 1951, came down to 9.8 in 1991 and further declined to 7.1 in 2011. During 2008 it remained at 7.4 but came down to 7.3 in 2009.Total fertility rate is a more direct measure of the level of fertility than the crude birth rate. It refers to births per woman. India's total fertility rate is declined from 6 percent in 1951 to 2.5 percent in 2010. Similar trend can be seen in Infant and Child Mortality Rate. Couple protection rate increased from 10.4 in 1971 to 40.4 in 2011.

2.2.1 MORBIDITY IN INDIA

Morbidity is an indicator of illness which can be defined as any deviation from the state of normal, physical and mental wellbeing. It shows number of person reporting ailment or commencement of ailment. It is different among the states in India. Kerala, Punjab and Assam are the major top reported morbidity states and Rajasthan, Madhya Pradesh, Bihar are the bottom reporting morbidity rates in India. Tamilnadu and Uttar Pradesh report high urban morbidity, Kerala and Gujarat report high rural morbidity.

2.2.1.1COMMUNICABLE AND NON COMMUNICABLE DISEASES IN INDIA

COMMUNICABLE DISEASES

Communicable diseases are those diseases which are transmitted from an infected person to another person. Tuberculosis, Leprosy, water born diseases (cholera, diarrhoeal diseases, viral hepatitis A and E, Typhoid ,etc), vector borne diseases (Malaria, kala Azar, Chikungunia, Diphtheria, Filarial, etc), Zoonotic diseases(Plague, Leptospirosis, Anthrax, etc) etc are the major communicable diseases in India.

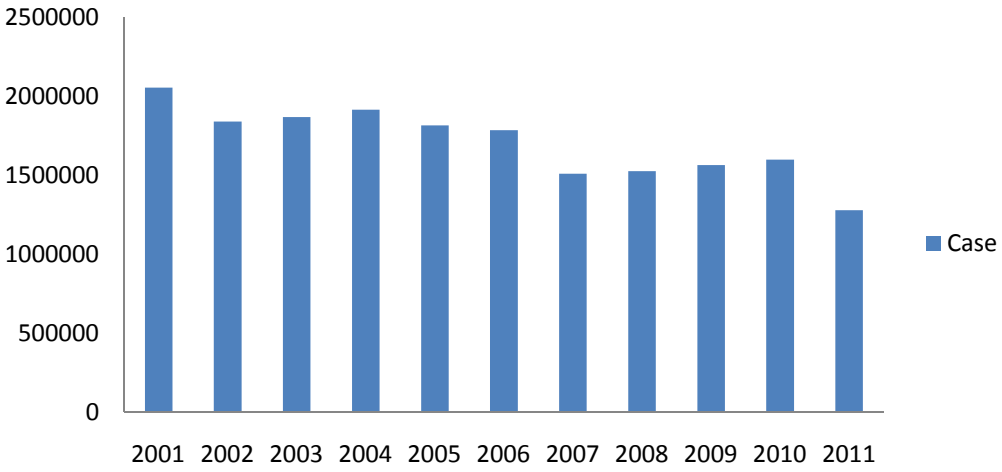
In 90's Communicable diseases are the major causes of pre mature deaths in India (National Health Profile 2010). It includes diarrhoeal diseases (12.4 percent of total pre mature deaths), lower respiratory infections (10.3 percent), tuberculosis (4.4 percent) and neonatal sepsis (4.6 percent) but the situation has been changed in 2010. Currently India faces new emerging diseases like H_1N_1 Influenza, SARS, Avian Influenza, etc. Here we discusses about the condition of some major communicable diseases in India.

MALARIA

Highest incidence of malaria occurred in 1950's with 75 million cases and .8 million deaths per year (WHO).National Malaria Control Programme in 1953' resulted a significant decline in malaria cases to less than 50000.There are so many vector born diseases control programmes existed in India including Malaria

Recently (2010) reported 1.5 million cases in India. About 80 percentage of malaria cases were reported from Chhattisgarh, Madhyapradesh, Andrapradesh, Orissa, Gujarat, Rajasthan, West Bengal, etc. Consider the last 10 year malaria cases in India there was ups and down, after 2007 onwards the number of cases were decreased and now it is 1278760 cases and 463 deaths in India (2012).

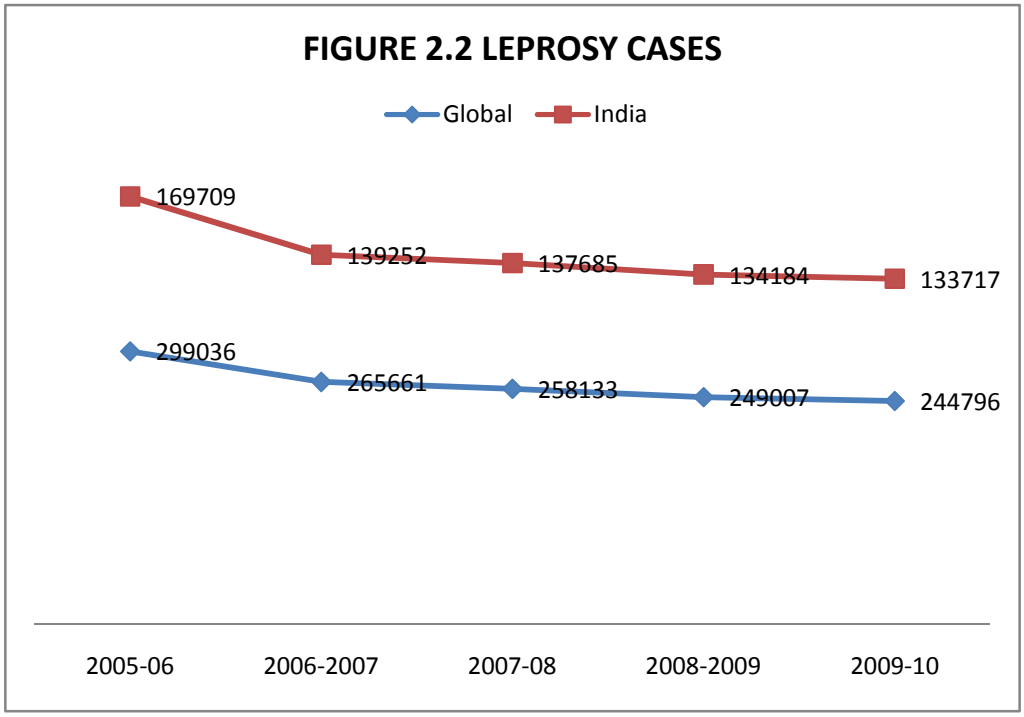
FIGURE 2.1 MALARIA CASES IN INDIA



Source: National Health Profile of India- Central bureau of Health Intelligence, 2005, 2013

LEPROSY

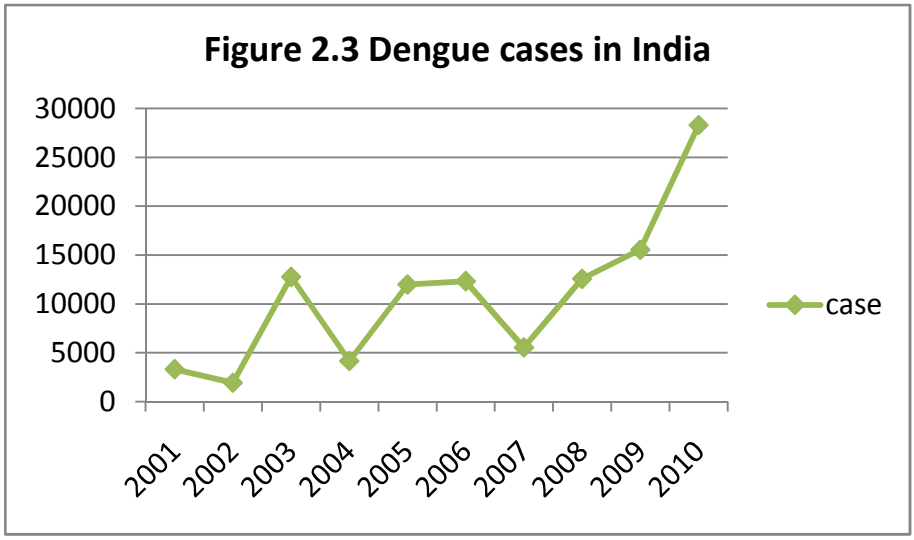
Leprosy cases are increasing in India, it has been officially eradicated in India but 130000 new cases are reported every year and 55 percent leprosy cases in the world are in India (NLEP 2011). Leprosy is mainly affected the poorest and marginalized communities due to their lack of access to poor health care, sanitation, etc. 14.31 percent of new cases were among scheduled tribes and 18.69percent among scheduled caste in 2010-11.In globally 244000 cases were reported in 2009, most of them belonged to Asia and Africa.



Source: National Health Profile of India- Central bureau of Health Intelligence, 2005, 2009, 2013

DENGU FEVER

In 1996, 16517 cases were reported in India. It is one of the major public health problems; it can be controlled with active participation of the community. Dengue diseases continue to increasing its magnitude, in 2010 total of 28 292 cases and 110 deaths were reported from 27 states, it was highest in the last two decades



Source: National Health Profile of India- Central bureau of Health Intelligence, 2005, 2010

NON COMMUNICABLE DISEASES

Urbanisation and changing life style leads to increasing the number of non communicable diseases. It includes cardiovascular diseases, diabetes, cancers, etc. India is also going through the epidemiological transition stage that is, shift from communicable diseases to non communicable diseases. Non communicable diseases are equally affecting all sections of the population; there is no discrimination among the rich and poor or young and old. Premature deaths are increasing day by day. Non communicable diseases are the major factor for 53 percent of total mortality and 44 percent of disability adjusted life years lost in India (World Bank in 2005) and it projected that, increase to 67 percent by year 2030. Cardio Vascular Disease is the most important contributor to the non communicable diseases. Here we discussed major non communicable diseases.

CARDIOVASCULAR DISEASES AND STROKE

Cardiovascular diseases have been increased four times in rural areas and six times in urban areas over the last four decades (Reddy 2005).During the past few decades' number of stroke cases has been increased and it reported between 334 and 424 Per 100000 population in urban India and 244 and 262 per 100000 population in rural India (Gupta 2008). Presently India facing premature deaths from cardiovascular diseases, it leads to 52 percent of deaths under the age of 65 years and it was only 23 percent in western countries (Ghaffer 2004).

HYPERTENSION

High blood pressure is the main reason for 16 percent of heart disease, 21 percent of peripheral vascular disease and 29 percent of strokes in India (Indian Council of Medical Research 2011).Hypertension among adults was between 20 and 40 percent in urban areas and 12 and 17 percent in rural areas.

DIABETES

Indian is known as diabetes capital of the world, the total number of diabetes patients in India is increasing day by day. Currently 51 million Indians are diabetic patients (Diabetes atlas 2009).Total number of cases in urban areas shifted from 5 to 15 percent and in rural area increased to 2 to 5 percent. Diabetes is one of the important contributor of increasing morbidity and mortality in India. Possibility of Cardio Vascular Diseases is higher among diabetic patients than non

diabetic patients. The prevalence of diabetes in India was 8.3 percent in 1989 and it increased to 18 percent in 2009.

Table. No.2.2 Number of Diabetes cases in India

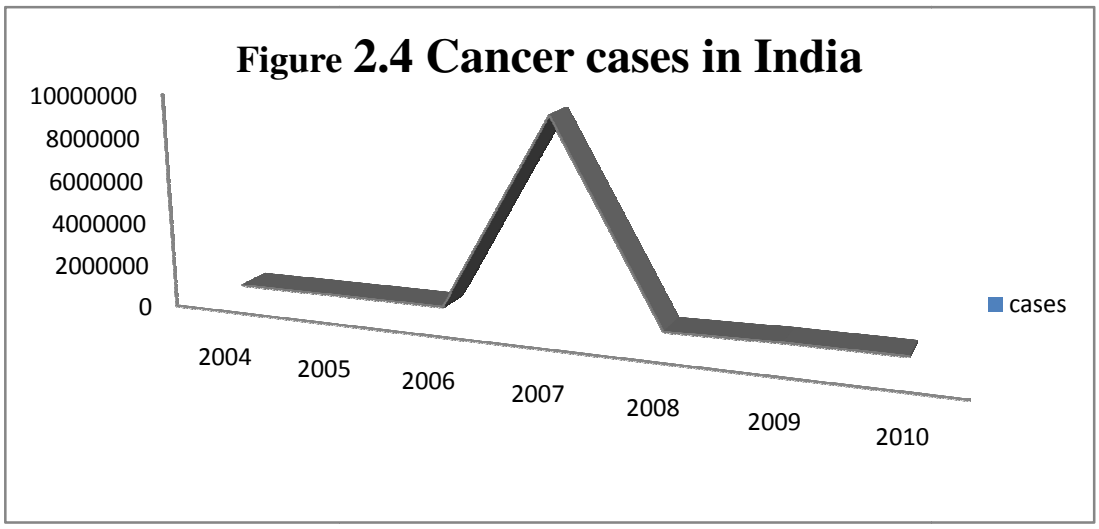
Age	2000			2005			2010		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
20-29	549102	1003310	1552412	609128	1209725	1818853	692391	1505267	2197658
30-39	1425108	2567970	3993077	1518041	3126311	4644352	1558528	3744045	5302573
40-49	2232090	3882005	6114095	2488845	4968478	7457323	2707848	6358087	9065935
50-59	2628455	4188171	6816626	2966586	5394860	8361446	3310679	7010131	10320810
60-69	2053095	2783100	4836195	2237319	3445602	5682920	2537127	4522903	7060030
70& Above	1100412	1401300	2501712	1267086	1807951	3075038	1420910	2304049	3724959

Source : National Health Profile of India- Central bureau of Health Intelligence, 2010

CANCER

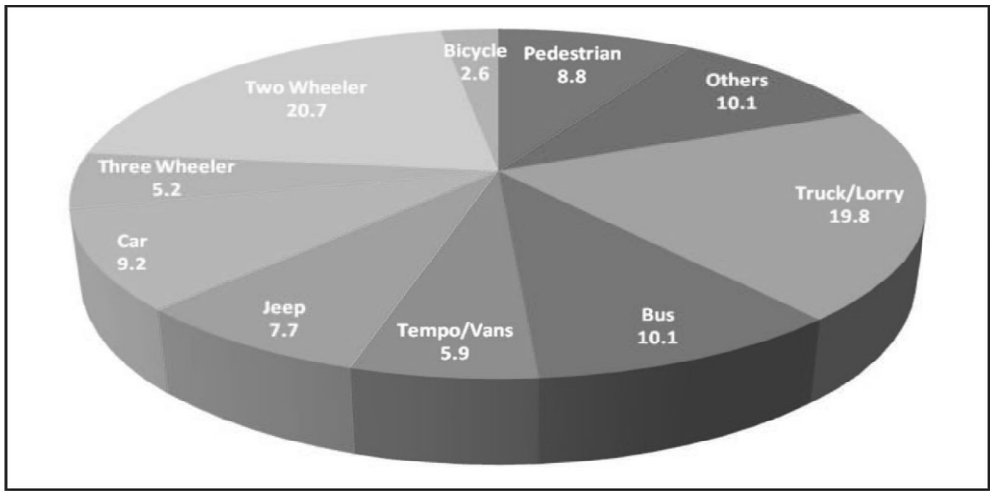
Cancer is common in both males and females, tobacco related cancers and cervical cancers are the most important reason for cancer deaths in India. Cancer killed 5,56,400 persons in India by the year 2010 (Sathyanarayana 2008). Oral cancer(23 percent), stomach cancer (12.6) and Lung cancer(11.4 percent) are the leading causes of cancer deaths among males and cervical cancer(17 percent) and breast cancer are the major causes of cancer deaths among

females in India(Lancet, March 2008). Tobacco related cancer leads to nearly 1, 20,000 deaths in urban and rural areas in India. Kerala and West Bengal was the higher cancer states in India. About 8, 00,000 new cases of cancer occur in each year. Numbers of Breast cancers are increasing year by year and it is common in rural and urban areas but early detection can be reduced number of deaths.



Source: National Health Profile of India- Central bureau of Health Intelligence, 2010

FIGURE 2.5 ROAD TRAFFIC ACCIDENTS



Source: National Crime Records Bureau, India

India has the largest number of road traffic accident cases, World Health Organisation (2011) reported that in every hour 13 people die through road traffic accidents. Lack of better transportation facilities, urbanisation, population explosion, growth of number of vehicles, etc leads to increasing accidents in India. Automobile industry is increasing very vastly and India was the sixth largest motor manufacturer in the world during the year 2010. It reveals that increasing the possibility of road traffic accidents in India because our transportation system will not increase with increasing the number of vehicles.

2.1.1.2 MENTAL HEALTH

Social and Behavioural characteristics are the major determining factors for mental health. Social factors include income, occupation, unemployment, etc and behavioural factors include smoking, higher level of alcohol consumption, drug addiction, etc influenced mental health. India spend less than 1 percent of its health budget to mental health as compared to 10 or 12 percent in other countries (WHO).About 22 percentage of individuals have one or more mental disorders in their life time in India. More than 90 percent of mental disorder people in India did not take better treatment. NCMH (National Commission on Macro Economics and Health) Reported that nearly 7 percent of adult population suffer from mental disorders; age group of 25-44 is the mostly affected group (Gururaj - 2005). It will adversely affecting the productivity of present generation and quality of life of future generation.

2.2 HEALTH CARE STATUS IN KERALA

Any society or organisation can benefit only when it's constituent people remain healthy and fit. Health status of a nation or a society can be depends on so many factors such as income, standard of living, housing, sanitation, water supply, education, etc. There are so many indicators for measuring health status of a nation. It includes birth rate, death rate, life expectancy rate, infant mortality rate, morbidity rate, etc. Kerala model of development is world famous and it shows achievement of the state in social sector especially (S. Harikumar) in health sector. Better education and development of health infrastructure are the major factors for the development of social sector. There are some paradoxes are existed in Kerala related to its health that is, Kerala has achieved outstanding progress in decreasing infant mortality rate, maternal mortality rate, increasing life expectancy at the same time there is high morbidity. Epidemiological transition also happens in this period that is, transfer of acute infectious diseases or communicable diseases (small pox, cholera, malaria, etc,) to life style diseases or non communicable diseases. Health Status in Kerala can be analysed through traditional health indicators such as sex ratio, life expectancy, birth rate, death rate, maternal mortality rate, etc, these indicators are discussed below.

2.2.1SEX RATIO

In the health status number of males and females has major impact on health behaviour of the population. From table No.2.4 shows sex ratio in Kerala, Kerala had 1058 females and 1000 males in 2001, and it is increased to

1084females and 1000 males in 2011. There are so many factors influencing this phenomenon (number of males are less than number of females). Firstly number of male migration is higher than female.(MOHFW 2008-09) Secondly survival rate of females is higher than males but the condition in India is opposite to Kerala, number of males is greater than females (932females and 1000 females in census 2011in India).

Table No. 2.3 Sex Ratio

Year	Kerala	India
1951	1028	946
1961	1022	941
1971	1016	930
1981	1032	934
1991	1036	927
2001	1058	933
2011	1084	932

Source:1. Kerala State planning Board -Economic Review-1991, 2011

Government of Kerala

2.2.2 BIRTH RATE IN KERALA AND INDIA

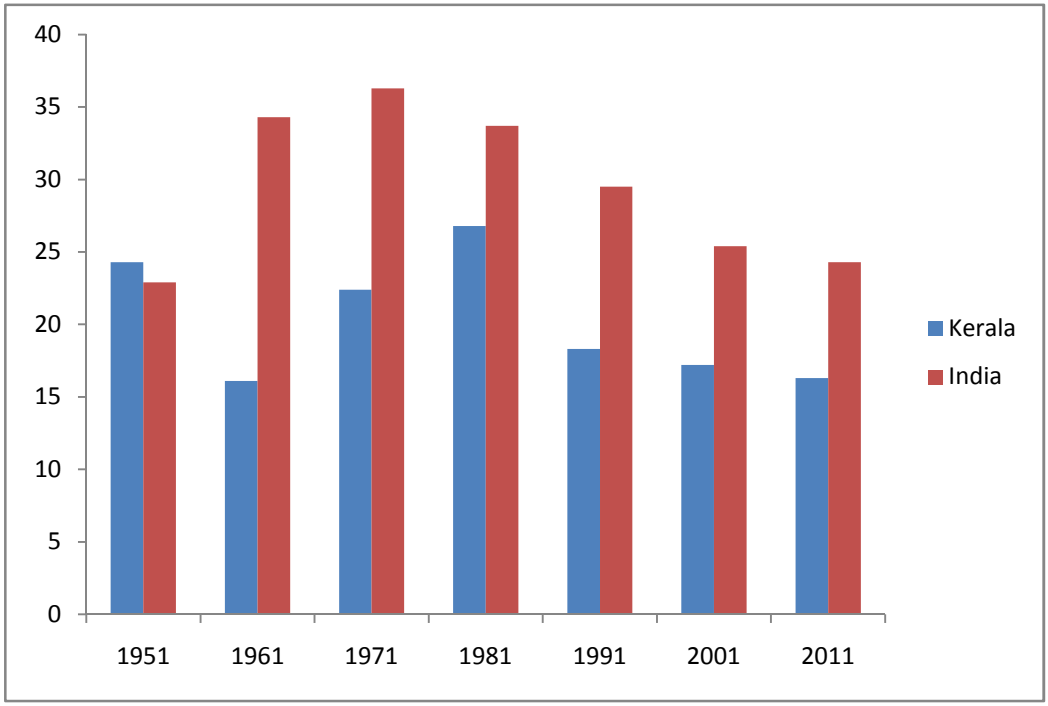
Birth rate is the number of live births per 1000 population in a given year. From table No.2.4 it is understood that, Kerala has reported lowest growth in birth rate. As compared to all India level or other states in India birth rate in Kerala is very low. In 1951 birth rate in Kerala and India was 38.9 and 41.7 per thousand. After 1970's there was a declining trend in birth rate. Birth rate in India is three decades behind Kerala. Current birth rate is 16.3 and 24.3 in Kerala and India. Advanced child health care and education of parents especially mother's education, are the most influencing factors for the decreasing birth rate in Kerala.

Table No.2.4 Birth Rate

Year	Kerala	India
1951	24.3	22.9
1961	16.1	34.3
1971	22.4	36.3
1981	26.8	33.7
1991	18.3	29.5
2001	17.2	25.4
2011	16.3	24.3

Source: Kerala State planning Board, Economic Review-1991, 2011
Government of Kerala

Figure 2.6 Birth rate in India & Kerala



Source: Kerala State planning Board, Economic Review-1991, 2011

Government of Kerala

2.2.3 CRUDE DEATH RATE

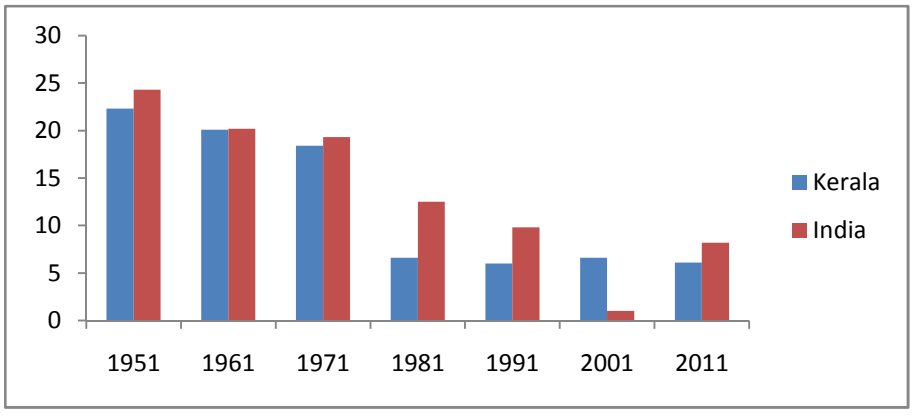
Table No.2.5 Crude Death rate in Kerala and India

Year	Kerala	India
1951	22.3	24.3
1961	20.1	20.2
1971	18.4	19.3
1981	6.6	12.5
1991	6.0	9.8
2001	6.6	`1
2011	6.1	8.2

Source:1. Kerala State planning Board -Economic Review-1991, 2011 Government of Kerala

Source:2. Government of India Ministry of Home Affairs-Office of the Registrar General and Census Commissioner of India

Figure 2.7 Death Rate in Kerala &India



Source:1. Kerala State planning Board -Economic Review-1991, 2011

Government of Kerala

From table No.2.5 it is identified that Crude death rate that is, frequency of death among the population. Last ten years data shows that death rate is high among the males than females. This is also proving that women health is better than men. As compared to India Kerala has low mortality rate. According to Sen and Dreze Kerala consistently had low mortality than India. During 1970's death rate in Kerala and India was 11and18, after1995 there was declined in death rate. In 2011death rate in Kerala and India is 6.1and8.2

2.2.4 LIFE EXPECTANCY

Life expectancy rate is based on age specific mortality data. Life expectancy for males in Kerala has been consistently higher than that for males in developed countries. As compared to other states in India life expectancy for males and females is higher in Kerala. Improvement of health status or development of health care system is one of the main reasons for higher life expectancy in Kerala. In 1951life expectancy in Kerala was 54 as against 43 in India. This was increased to 69 by 1981.At presently (2011 census report) life expectancy in Kerala and India is 74.4 and 65.5.Generally life expectancy for females is greater than males; it is true in Kerala also.

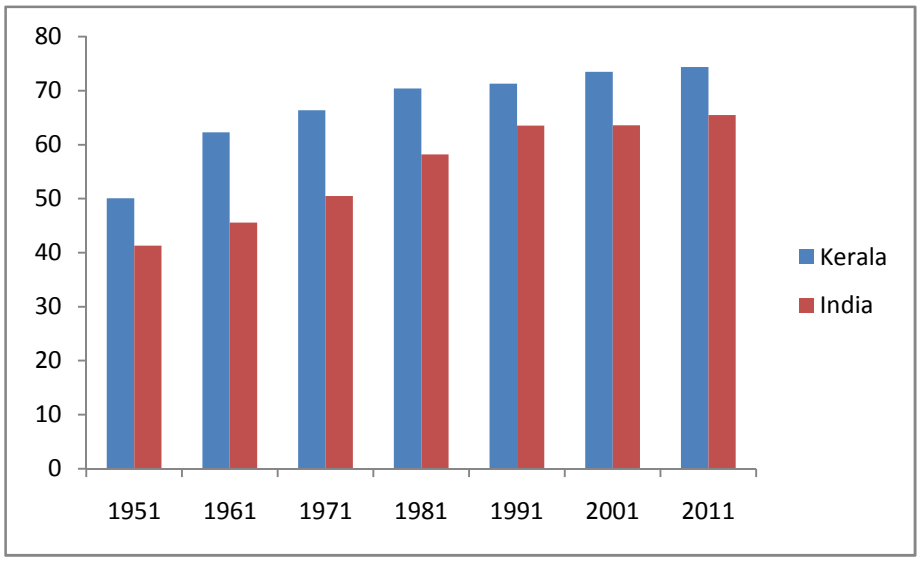
Table No.2.6 Life Expectancy Rate in Kerala and India

Year	Kerala	India
1951	50.1	41.3
1961	62.3	45.6
1971	66.4	50.5
1981	70.4	58.2
1991	71.3	63.5
2001	73.5	63.6
2011	74.4	65.5

Source:1. Kerala State planning Board -Economic Review-1991, 2011 Government of Kerala

2. Directorate of Health Services, Kerala- Ministry of Health and Family Welfare

Figure 2.8 Life Expectancy Rate in Kerala and India



Source:1. Kerala State planning Board -Economic Review-1991, 2011 Government of Kerala

2. Directorate of Health Services, Kerala- Ministry of Health and Family Welfare

2.2.5 Fertility Rate in Kerala

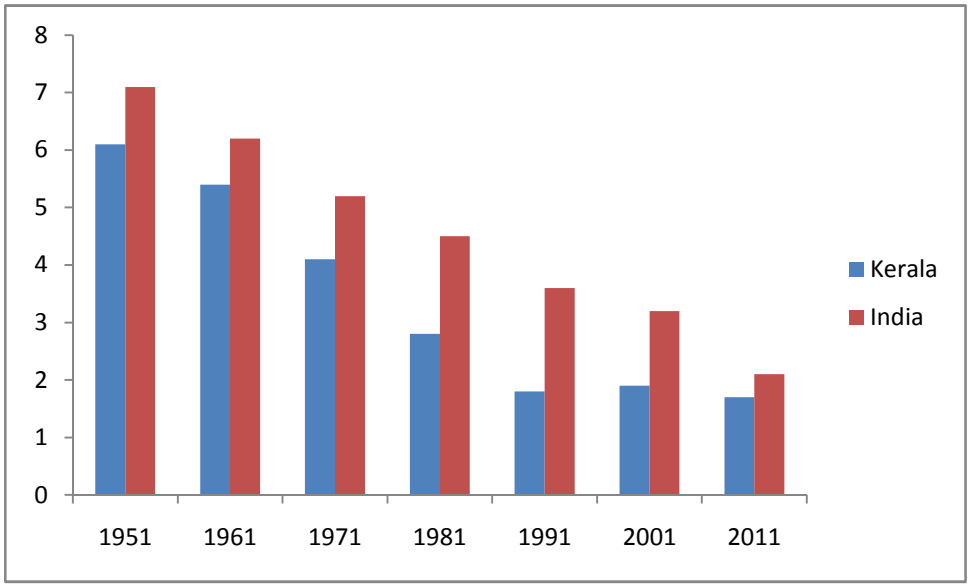
Table No.2.7 **Fertility Rate in Kerala and India**

Year	Kerala	India
1951	6.1	7.1
1961	5.4	6.2
1971	4.1	5.2
1981	2.8	4.5
1991	1.8	3.6
2001	1.9	3.2
2011	1.7	2.1

Source: Source: 1. Kerala State planning Board -Economic Review-1991, 2011 Government of Kerala

2. Government of India Ministry of Home Affairs-Office of the Registrar General and Census Commissioner of India

Figure 2.9



Source:1. Kerala State planning Board -Economic Review-1991, 2011

Government of Kerala

2. Government of India Ministry of Home Affairs-Office of the Registrar General and Census Commissioner of India

From table No.2.7 it is found that, Kerala reached below replacement fertility level in the 1990's, but India follows high or mid level of fertility. According to Zachariah, development in public health and universal education over a period, successful family planning methods, high literacy and education level of women, etc are the major factors influencing the low level of fertility in kerala.

2.2.6. INFANT MORTALITY RATE IN KERALA AND INDIA

Infant Mortality Rate (IMR) is the rate at which number of deaths to children under one year of age per thousand live births. From table No.2.8 it is found that deaths during infancy are due to a particular mix of diseases and the condition to which adult population is less exposed and less vulnerable. Changes in specific health intervention affect IMR more rapidly and directly and hence it may change more dramatically than the crude death rate in a population. " According to UNICEF, there has been consistent decline in infant mortality in India. Decline in infant mortality rate in urban areas is much less than in rural areas .Better infant and child health care system in Kerala is the main reason for low infant mortality. It (Infant mortality rate) was 16 in 1991 and it declined decade by decade and now it is 44 and 12 per 1000 live births in India and Kerala in 2011.

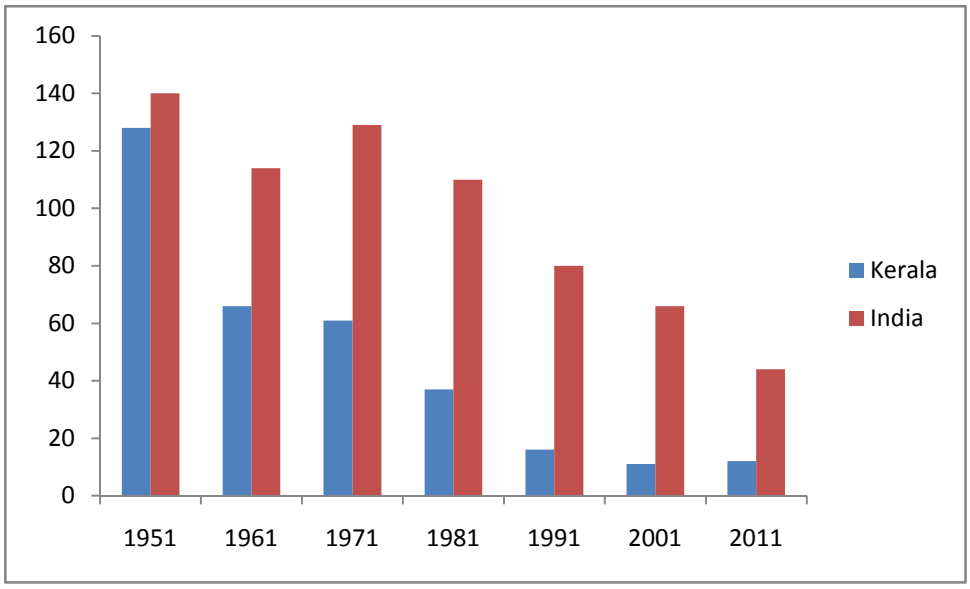
Table No.2.8 INFANT MORTALITY RATE IN KERALA AND INDIA

Year	Kerala	India
1951	128	140
1961	66	114
1971	61	129
1981	37	110
1991	16	80
2001	11	66
2011	12	44

Source: 1. Kerala State planning Board -Economic Review-1991,2011
Government of Kerala

2. Government of India Ministry of Home Affairs-Office of the Registrar General and Census Commissioner of India

Figure 2.10 INFANT MORTALITY RATE IN KERALA AND INDIA



Source:1. Kerala State planning Board -Economic Review-1991,2011 Government of Kerala

2. Government of India Ministry of Home Affairs-Office of the Registrar General and Census Commissioner of India

MATERNAL MORTALITY RATE

Maternal mortality rate is the rate at which number of deaths to women due to pregnancy and child birth complications per 100000 live births in a given year. It is an important indicator for reproductive health status of women. Kerala state reported lowest maternal mortality rate in India. State Government introduced various programmes such as 'Ammayum Kunjum', Janani Suraksha Programme, etc helpful for women and children. According to Sample Registration Survey report (201-2012) maternal mortality rate in kerala is 66 per

one lakh like birth, it was 81 per one lakh live birth in 2007-09.Many government hospitals in kerala especially women and child hospitals have modern facilities. During the period of 12^{th} five year plan government tried to reduce maternal mortality rate to 44 per one lakh live births

CHILD NUTRITIONAL STATUS

Nutritional status is an important indicator of health status of children. It (nutritional status) can be reflected by using three indices.

1. Wasting: - abnormally low weight for child height.

2. Stunting:- children are too short for their age (indicator of chronic malnutrition)

3. Underweight: - low weight for their age due to inadequate diet and nutrition..

Table No.2.9 UNDERNOURISHED CHILDREN IN KERALA (Below 5 years)

Category	Kerala		India	
	Male	Female	Male	Female
Underweight	24.0	21.8	41.9	43.1
Severely underweight	5.0	4.3	15.3	16.4
Stunted(low height for age)	25.8	23.1	48.1	48.0
Severely stunted	6.9	6.1	23.9	23.4
Wasted(low weight for height)	16.3	15.5	20.5	19.1
Severely wasted	4.6	3.6	6.8	6.1
Anemic	44.6	44.5	69.6	69.9

Source: National Family Health Survey (III), India-International Institute for Population Sciences, Mumbai.

OBESITY AMONG THE CHILDREN IN KERALA

Obesity among the children is a global issue. In United States 10.4 percent children in the age group 2-5 years and 15.3 percent in the age group of 6-11 years are either overweight or obese. A study conducted by Yamini Thankachi shows that there was a differences in obesity among the children in private and

government schools in Kerala and it was 7.2 percent in private unaided school and 4.9 percent in government schools. Only 12 percent adolescents engaged in regular physical activity and 74 percent girls have no exercise or game. Obesity is related to family income because higher income group have higher chances for increasing obesity among children. Consuming food and fried snacks from outside (without nutrition), lack of physical activity, leisure time spend on computer games and watching T.V,etc are the major factors influenced for increasing obesity.

2.2.10. WOMEN HEALTH

Women in Kerala have higher life expectancy and sex ratio than men. There are several problems faced by women, most of the women's health problems are due to the hormonal imbalance faced by women belonging to all age groups. The common problems faced by women are irregular periods, miscarriage, pregnancy, fibroids, infertility, breast problems, ovarian cysts, weight control, vaginal infections, breast cancer etc. These are only some of the common problems faced by women all over the world. Number cases of Breast cancer in Kerala has been increased rapidly. Ten years ago, cervical cancer was on the top of the chart of cancers among women. Now breast cancer has overtaken. Among cancers in women, about 30-35 per cent is accounted by breast cancer.

Though the incidence of breast cancer is going up, the mortality rates are not high. Breast cancer is striking women in their thirties now. There is no specific reason can be pointed for the increase in breast cancer but use of oral

contraceptives, hormones being used to postpone menstrual periods, high fat diet and lack of exercise can be taken as reasons.

2.2.11 MORBIDITY IN KERALA

Morbidity is an incidence of ill health, "It is a state of affair in which an individual is feeling physical, mental or social sufferings". Kerala has achieved outstanding progress in health but the studies revealed that Kerala always reported high morbidity among the states in India. There are number of discussions existed in related to high morbidity and low mortality situation in Kerala, and whether this morbidity is real or perceived? Soman and Panikar (1984) study concluded that higher morbidity in Kerala is real, not due to perception factors. Kerala entered fourth stage of epidemiological transition at the same time communicable diseases, non communicable diseases or life style diseases are increasing in Kerala. Morbidity includes communicable and non communicable diseases. It can be measured by the following formula.

$$\text{Morbidity} = \frac{\text{Number of ailing persons in the state}}{\text{Total number of population in the state}} * 1000$$

Reported ailments can be classified as acute and chronic on the basis of their expected duration. Ailments of short duration not longer than 30days it is acute, ailments of long duration longer than 30 days as chronic. Sometimes most acute ailments were communicable and most chronic ailments were non communicable. Acute ailments include diarrhoea, malaria, whooping cough,

diphtheria, fever of unknown origin, tetanus, tuberculosis etc. Chronic ailments include heart diseases, hypertension, diabetes mellitus, bronchial asthma, etc.

Table No.2.10 Factors Determining Morbidity in Kerala

Year	Morbidity	Literacy	IMR	Old age	Health care Facilities	Life expectancy
1991	422	89.81	17	8.8	976	71.4
1992	450	89.92	17	9.1	985	71.8
1993	207	90.03	13	9.6	990	73.25
1994	176	90.14	16	9.8	1007	71.20
1995	163	90.25	15	10.1	1036	71.25
1996	146	90.36	14	10.3	1051	71.65
1997	210	90.47	12	10.6	1057	72.05
1998	228	90.58	16	10.8	1064	72.20
1999	442	90.69	14	11.1	1064	72.55
2000	965	90.80	21	10.8	1048	73.15
2001	616	90.90	11	10.9	1048	73.35
2002	321	91.21	10	11.1	1048	73.45
2003	452	91.52	13	11.9	1043	73.55
2004	329	91.83	12	11.3	1039	73.80
2005	278	92.14	14	11.4	1017	73.85
2006	359	92.45	15	11.5	1016	73.75
2007	253	92.77	13	11.6	1123	73.45
2008	293	93.08	12	11.7	1173	73.80
2009	233	93.39	12	11.8	1169	73.40
2010	271	93.70	11	11.9	1174	73.75

Source:1. Government of India Ministry of Home Affairs-Office of the Registrar General and Census Commissioner of India

2. Annual Report of Reserve Bank of India- India's Central Bank, 2001, 2011.

Multiple Regression Analysis to Check the Factors Influencing Morbidity

	Unstandardized Coefficients		Standardized Beta	t – value	p - value
	B	SE			
Constant	-3464	4634		-0.748	0.467
Literacy	-154.654	66.484	-1.006	-2.326	0.036
IMR	54.225	14.333	0.748	3.783	0.002
Old-age	14.429	74.658	0.070	0.193	0.850
Health Care Facilities	1.512	1.054	0.475	1.434	0.173
Life Expectancy	211.696	65.510	1.073	3.232	0.006

Here the p-values corresponding to literacy, infant mortality rate and life expectancy are less than the significance level 0.05; morbidity is influenced by the factors literacy, infant mortality rate and life expectancy. As the highest standardized beta were found in life expectancy, so life expectancy is the most influencing factor to morbidity.

The coefficient representing Literacy as expected is negative and significant. This implies there is negative relationship between literacy and morbidity ie, higher the literacy lesser the morbidity. Higher literacy leads, more bothered about their health and high conscious about causes and consequences of disease.

The coefficient representing Infant mortality is positive ie, direct or positive relationship between infant mortality rate and morbidity. Higher the infant mortality causes high morbidity.

The coefficient old age is positive, which implies that when a person become enters in to an old age situation, he/she faces more diseases. It creates high morbidity.

The coefficient health care facilities are also positive ie, higher the health care facilities higher the morbidity. There are number of super specialty hospitals in kerala. So people always have the tendency to take specialised treatment. For example when a person sneezing today, tomorrow they suddenly go to hospital for better treatment. This is the common trend in Kerala and it leads to increasing morbidity rate in Kerala.

The coefficient life expectancy is positive; it implies that there is direct/positive relationship between life expectancy and morbidity. When an increasing life expectancy creates increasing the number of old age persons, it leads to increasing the number of morbidity rate in Kerala.

2.2.11.1 Communicable Diseases in Kerala

Water born diseases like Diarrhoea, Hepatitis, Typhoid Fever and Vector Bone diseases like Dengue Fever, malaria, etc are the major communicable diseases .Leptospirosis was a problem for southern districts and it causes high morbidity and mortality. Water born diseases are more common in monsoon season and it follows a seasonal pattern so these diseases are known as “Season of Epidemics”.

Table No.2.11District wise Cases and Deaths of Malaria

Year	2006		2007		2008		2009		2010		Total	
District	Case	Death	Case	Death	Case	Death	Case	Death	Case	Death	Case	Death
Trivandrum	99	1	145	0	81	0	188	0	138	1	651	2
Kollam	150	0	134	1	89	0	72	0	118	1	563	2
Patanamthita	156	0	155	0	140	0	130	0	154	0	735	0
Alappuzha	220	0	152	0	136	0	118	0	115	0	741	0
Kottayam	65	0	52	0	51	0	47	1	52	0	267	1
Idukki	72	0	91	0	66	0	62	0	54	0	345	0
Eranakulam	148	3	113	0	171	1	172	2	157	2	761	8
Thrissur	222	0	177	0	214	0	162	0	219	1	994	0
Palakkad	87	0	68	0	95	0	87	0	110	0	447	0
Malappuram	191	0	184	1	246	1	161	0	347	0	1129	2
Kozhikode	182	2	161	1	143	0	121	1	228	2	839	6
Wayanad	21	0	27	0	24	0	38	0	44	0	154	0
Kannur	237	0	225	3	211	1	222	0	235	0	1130	4
Kasargode	280	0	243	0	137	0	462	2	328	0	1450	2
Total	2130	6	1927	6	1804	3	2046	6	2299	7	10206	28

Source: Directorate of health services reports in Kerala - 2008, 2009, 2010 – Ministry of Health and Family welfare

From the table No.2.11 it is shows that district wise cases and deaths of malaria in Kerala. Malaria is one of the important public health problems in the world. In 1965 Kerala was known as malaria eradicated state in India. But the new cases were reporting since 1969 as a result of imported agricultural and construction workers from other states. Total number of malaria cases were increased in Kerala, it was increased from 2130 in 2005 to 10206 in 2010(Kerala Economic Review). Death due to Malaria was very low; it was Only 6 or 7 in

Kerala. Among the districts Malappuram and Kasargode shows higher number of malaria cases in Kerala.

Table No.2.12 District wise cases and Deaths of Dengue Fever

Year	2006		2007		2008		2009		2010		Total	
District	Case	Deaths	Case	Death	Case	Death	Case	Death	Case	Death	Case	Death
Trivandrum	656	0	290	0	53	2	805	2	1145	1	3399	5
Kollam	81	1	70	5	12	0	21	0	66	3	250	9
Pathanamthitta	1	0	28	0	4	0	34	1	144	0	229	1
Alappuzha	28	0	13	1	10	0	18	0	68	1	137	2
Kottayam	8	0	7	1	20	0	160	2	330	3	525	6
Idukki	17	1	22	1	5	0	20	0	169	1	233	3
Eranakulam	59	0	24	1	100	1	85	0	114	2	382	4
Thrissur	72	0	89	0	10	0	152	0	74	0	397	0
Palakkad	26	2	6	0	7	0	19	0	14	0	72	2
Malappuram	5	0	8	0	7	0	13	1	18	0	51	1
Kozhikode	13	1	44	2	25	0	11	0	47	2	140	5
Wayanad	2	0	29	0	8	0	25	0	29	0	93	0
Kannur	20	0	19	0	16	0	14	0	37	0	106	0
Kasargode	13	0	8	0	6	0	48	0	342	4	417	4
Total	1019	5	657	11	733	3	1425	6	2597	17	6431	42

Source: Directorate of health services reports in Kerala - 2008,2009, 2010 – Ministry of Health and Family welfare

From the table No.2.12 identifies, dengue fever is known as silent killer among the districts in kerala. As per the Integrated Diseases Surveillance project

2.47 lakh Outpatients and 12825 in patients suffering from fever in various hospitals across the state. But available data about dengue fever shows that fever cases was only 1019 and 5 deaths in 2006,it was increased to 2597 and 17 in 2010.

Table No.2.13 Number of Cases of Chicken guinea

Year	2006		2007		2008		2009		2010		Total	
District	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Trivandrum	8311	0	1208	133	9	20	1453	93	330	55	11371	301
Kollam	164	0	918	90	1	1	0	0	0	0	1083	91
Pathanamthitta	697	0	3456	85	0	0	2	1	0	0	4155	86
Alappuzha	58308	16	1848	110	2	2	0	0	11	3	60169	131
Kottayam	1449	0	10662	111	1	0	8	7	179	12	10999	130
Idukki	43	0	538	28	0	0	0	0	0	0	581	28
Eranakulam	1840	0	1882	65	4	0	0	3	7	4	3733	72
Thrissur	93	0	333	48	36	11	74	29	45	23	581	111
Palakkad	765	0	269	271	109	50	93	36	9	3	1245	360
Malappuram	12	11	1886	16	421	23	3930	142	1	1	6250	193
Kozhikode	307	24	840	54	562	69	3339	64	15	10	5063	221
Wayanad	3	0	60	13	37	11	245	66	378	55	723	139
Kannur	21	0	77	37	90	23	3246	79	541	19	3975	158
Kasargode	18	3	75	31	23413	260	959	83	192	25	24657	402
Total	70731	54	24052	1092	24685	470	13349	597	1708	210	134525	24253

Source: Directorate of health services reports in Kerala in 2008,2009, 2010

Given table No.2.13 it is reflected that, Chicken guinea cases were firstly reported during 2006 and fever, head ache, eye congestion, eye pain, arthralgia, distaste, etc are the major symptoms. It is one of the important vector borne diseases in Kerala .Alappuzha, Kottayam, Thiruvananthapuram, Kasargode,

etc are the adversely affected Districts. Reports show that Chikenguinea cases were higher among higher age groups (above 35) than lower age groups.

Table No.2.14 District Wise H1N1- Cases and Deaths

Year	2009		2010		Total	
District	Case	Death	Case	Death	Case	Death
Trivandrum	336	3	303	22	639	25
Kollam	54	3	89	15	143	18
Pathanamthitta	48	3	12	1	60	4
Alappuzha	83	3	37	3	120	6
Kottayam	59	0	41	3	100	3
Idukki	55	2	6	3	61	5
Eranakulam	160	3	255	5	415	8
Thrissur	128	3	237	10	365	13
Palakkad	56	2	29	7	85	9
Malappuram	283	7	158	9	441	16
Kozhikode	150	1	181	8	331	9
Wayanad	53	1	47	1	100	2
Kannur	103	0	64	1	167	1
Kasargode	10	0	75	2	85	2
Total	1578	31	1534	90	3112	121

Source: Directorate of health services reports in Kerala in 2008,2009, 2010

From the above table No.2.14 it is shows that Trivandram, Ernakulam ,Malappuram are the major H_1 N_1 affected districts in Kerala. H_1 N_1 can be

managed well ,if detected and treated at an earlier time. In 2009 there were 1578 H1 N_1 cases and in 2010number of cases were decreased to 1534 . Death due to H_1 $N_1$was increased from 31 in 2009 to 90 in 2010.

2.3.2 Non Communicable Diseases in Kerala

Non communicable diseases are also known as Life Style Diseases. It includes heart diseases, stroke, high blood pressure, cancer, diabetes, etc. There are 1.5 million diabetic patients in Kerala; survey reports revealed that one out every three adults in Kerala is hypertensive. Hypertension leads to heart attack, stroke and kidney failure, it is a lifelong disease and careful attention throughout life. Alcohol consumption is increasing day by day; World Health Organisation estimated there are about 2 billion people who consume alcoholic beverages and 76.3 million with diagnosable alcohol-use disorders. Excessive drinking causes different types health problems. Overweight and obesity leads to heart attack, hypertension, diabetes, breast cancer, etc.

CANCER

Cancer is the most common non communicable diseases in Kerala. Cancer is a major disease that affects all sections of human population. Statistics show that every year, 35000 new cases of cancer are getting detected in Kerala .Nearly 1 lakh people are under treatment for this disease annually. Apart from Medical Colleges, RCC, and Malabar Cancer Centre are the hospitals in Government

sector which offer treatment for cancer patients. Delay in early detection, huge treatment cost, minimal treatment centre's and lack of awareness contribute to high mortality of the disease. Among men majority of reported cases are found in mouth, throat, lung, stomach, etc. and among women cases are found in cervix, breast, mouth and throat. In every year, there were 35000 new cases were reported in Kerala. Through the early detection some of the cancer cases can be prevented/ treated. Regional Cancer Centre, Malabar Cancer Centre, Medical Colleges provide facilities for cancer treatment.

Table.No.2.15 Non Communicable Diseases in Kerala(2012)

Diseases	Case	Death
Cancer	18357	412
Cardiovascular -Hypertension	697571	420
Cardiovascular Ischemic Heart	56782	539
Diabetes Mellitus Type I	128029	19
Diabetes Mellitus Type II	579623	107
Lung Diseases-Asthma	517692	218
Obesity	8049	0
Mental Disorder	43429	8

Source: Directorate of health services reports in Kerala - 2008,2009, 2010 – Ministry of Health and Family welfare.

2.3 URBANISATION IN INDIA

Urbanisation is one of the important determinants of health status. India is witnessing rapid urbanisation, nearly one-third of India's urban population or nearly 100 million live in slums which are characterized by overcrowding, poor hygiene and sanitation. According to UN's prognosis, India will more than double its urban population from 367 million in 2010 to 915 million in 2050 (UN 2011).Characteristics of each city is different from others but the common urban health challenges are overcrowding, air pollution, rising levels of risk factors like tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol, road traffic injuries, inadequate infrastructure, transport facilities, poor solid waste management systems, and insufficient access to health facilities in slum areas. Most of these cities also face various health challenges of communicable diseases, non communicable diseases, maternal and child health problems, and threat of reemerging and emerging diseases. India's dream of "World Class" health care delivery system is difficult to achieve, 1991 economic reforms has brought some changes in the social sector especially in the health and education, financial reforms are unfavorable to those sectors. The share of public expenditure as a percentage to GDP on health and education at higher level has been gradually declining (Panchamukhi 2000). The health sector, therefore, faces "dual" challenges: while control of communicable and non-communicable diseases on the one hand, the budget allocation by the government is gradually declining on the other.

2.3.1 URBANISATION TREND IN KERALA

Urbanisation is the rate of urban population to the total population. Growth of urbanisation in Kerala was very slow during the years of 1901(7.11) to 1971's but after 80's there was sudden growth, It can be seen through the below table.

Table No. 2.16 Urban Population in Kerala and India

Census Year	Urban population in Kerala	Urban Population in India
1901	7.11	11
1911	7.34	10.4
1921	8.73	11.3
1931	9.64	12.2
1941	10.84	14.1
1951	13.48	17.6
1961	15.11	18.3
1971	16.24	19.93
1981	18.74	23.7
1991	26.39	25.75
2001	25.97	27.78
2011	47.72	31.16

Source: Government of India Ministry of Home Affairs-Office of the Registrar General and Census Commissioner of India,(1991,2001,2011)

From the Table No. 2.16 it is understood that Urbanisation has been increased from 26.39 in 1991 to 47.72 in 2011. In generally urbanisation is accompanied by economic and social development but the characteristics of urbanisation in Kerala are entirely different that is urbanisation without economic development. Increases in census towns are the one of important reasons for increase in urban population, due to re classification number of villages were changed as towns these are known as census towns. In 2001, 60 statutory towns and 99 census towns were existed, in 2011 number of statutory towns reduced to

59 and census towns are increased to 461.Here new 362 census towns were emerged as the part of urban agglomerations.

FINDINGS

- Through the various health improvement programmes implemented, India and Kerala achieved the following.
  - Crude Birth decreased from 40.8 percent in 1951 to 21.8 percent in 2011
  - Crude Death rate decreased from 25.1 percent in 1951 to 7.1 percent in 2011
  - Total Fertility rate decreased from 6 percent in 1951 to 2.5 percent in 2010
  - Maternal Mortality rate decreased from 398 in 1997 to 212 in 2007-09
  - Infant Mortality rate decreased from 146 in 1961 to 44 in 2011
  - Child Mortality rate decreased from 57.3in 1972 to 14.1 in 2009
  - Couple protection Ratio in India was increased from 10.4 in 1971 to 40.4 in 2011
  - Life expectancy of male and female has increased from 37.1.8
- Health status of kerala Consider the morbidity, kerala is the highest morbidity state among the states in India.
- In the morbidity status, life style diseases or non communicable diseases are greater than communicable diseases in India and Kerala.

- Morbidity is influenced by the factors literacy, infant mortality rate and life expectancy. As the highest standardized beta were found in life expectancy, so life expectancy is the most influencing factor to morbidity.
- There is negative relationship between literacy and morbidity that is higher the literacy lesser the morbidity. Higher literacy leads, more bothered about their health and high conscious about causes and consequences of disease.
- Life expectancy and morbidity shows positive relation that is, when an increasing life expectancy creates increasing the number of old age persons, it leads to increasing the number of morbidity rate in Kerala.
- Urbanisation is one of the important factor influencing urban health ,now the rate of Urbanisation in Kerala has been increased from 26.39 in 1991 to 47.72 in 2011.

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CHAPTER III

HEALTH CARE FACILITIES IN KERALA

INTRODUCTION

The chapter III discusses available health care facilities in kerala and this chapter is classified in to two sections. First section includes health infrastructure in India, it deals with available health care facilities in India. Second section focuses on presently available healthcare facilities in Kerala.

Health Infrastructure in India explains growth trend of available health care facilities in India such as state wise number of sub centres, primary health centres , community health centres, etc. In the infrastructure, this chapter attempts only facilities under three health care system that is Allopathy, Ayurveda and Homoeopathy.

3.1 HEALTH INFRASTRUCTURE IN INDIA

Health infrastructure is an important indicator of health facilities of a Nation. It includes medical colleges, dental colleges, paramedical institutions, Government Hospitals, hospital beds, subcentres, primary health centres, community health centres, mental hospitals, etc. since the last decade India has made some progress in service and educational infrastructures. In this section we discuss health infrastructure in India based on three health care systems such as Allopathy, Ayurveda, and Homoeopathy.

3.1.1 ALLOPATHY IN INDIA

More than 90 percent of both urban and rural people in India prefer allopathic treatment than other treatments. Infrastructure under allopathic health Care system in India is based on facilities in sub centres, primary health centres, community health centres, district hospitals and medical colleges.

3.1.1.1 Sub Centres in India

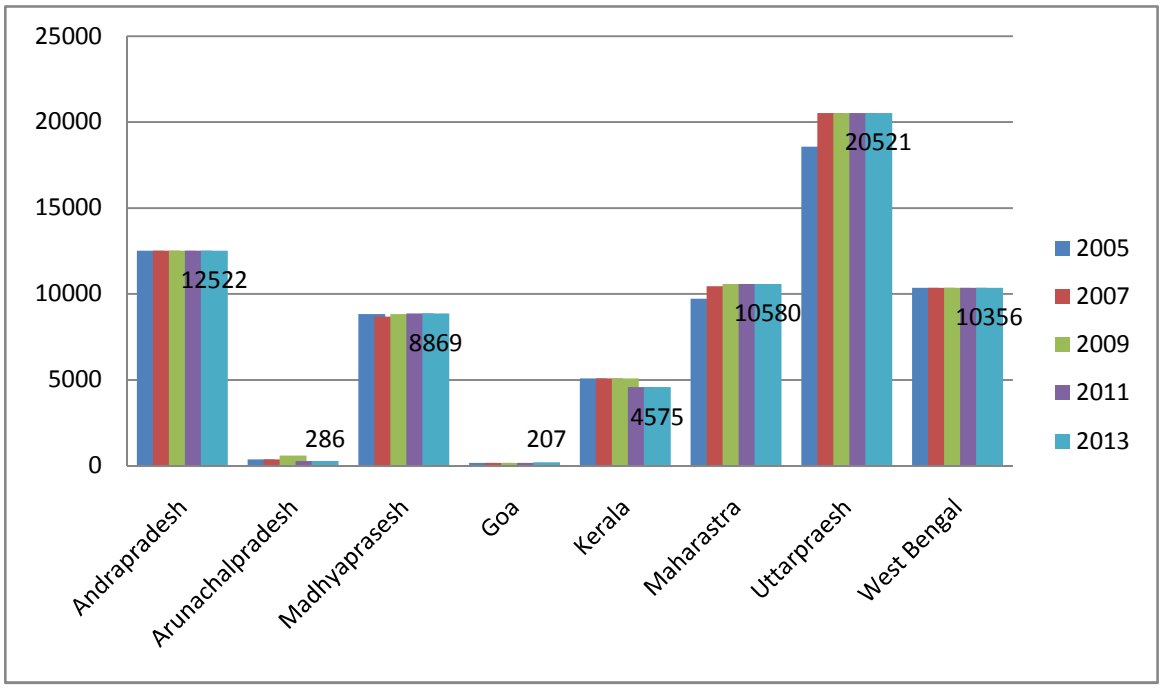
Sub centre is the primary contact centre between Primary health care system and society. There are 5000 population coming under one sub centre, it is 3000 in rural backward areas. It provides the services like ante natal, natal, family planning, treatment for common illness and implements various health programs. Each sub centre has one female worker and one male worker. Sub centres are run through Centre and State Government funds. State wise number of subcentres, is given in table No.2.1. it is understood that utharpradesh(20521) have the highest number of sub centres in India and followed by Andrapradesh (12522), Maharashtra(10580), West Bengal(10356), etc. Compared to these states health status in Kerala is very high but this state occupied only4575 sub centres. Arunachal pradesh (286) , Goa(207),etc have only less number of sub centres.

Table No .3.1 State wise number of Sub Centres in India

State	2005	2007	2009	2011	2013
Andrapradesh	12522	12522	12522	12522	12522
Arunachal Pradesh	376	379	592	286	286
Assam	5109	5109	4592	4604	4609
Bihar	10337	8858	8858	9696	9729
Goa	172	172	172	175	207
Gujarat	7274	7274	7274	7274	7274
Haryana	2433	2433	2433	2508	2524
Karnataka	8143	8143	8143	8870	8871
Kerala	5094	5094	5094	4575	4575
Madhyapradesh	8833	8874	8834	8869	8869
Maharashtra	9727	10453	10579	10580	10580
Orissa	5927	5927	6688	6688	6688
Punjab	2852	2858	2858	2950	2951
Rajasthan	9926	10512	10742	11487	14221
Tamilnadu	8682	8683	8706	8706	8706
Uttarpradesh	18577	20521	20521	20521	20521
West Bengal	10356	10356	10536	10356	10356
India	142655	144988	146036	148124	151684

Source: National Health Profile of India- Central bureau of Health Intelligence, 2005,2012

Figure 3.1 Number of Sub Centres in Major States



Source: National Health Profile of India- Central bureau of Health Intelligence, 2005,2012

3.1.1.2Primary Health Centre (PHC)

Primary Health Centre (PHC) is the basic contact centre between society and medical Officer. It is maintained by the state Government under Basic Minimum Services programme (BMS).It covers 100000 population and it is a referral unit for 6 sub centres. Each primary health centre has 1 medical officer with 14 paramedical and other staff. Primary Health Centres provide services of

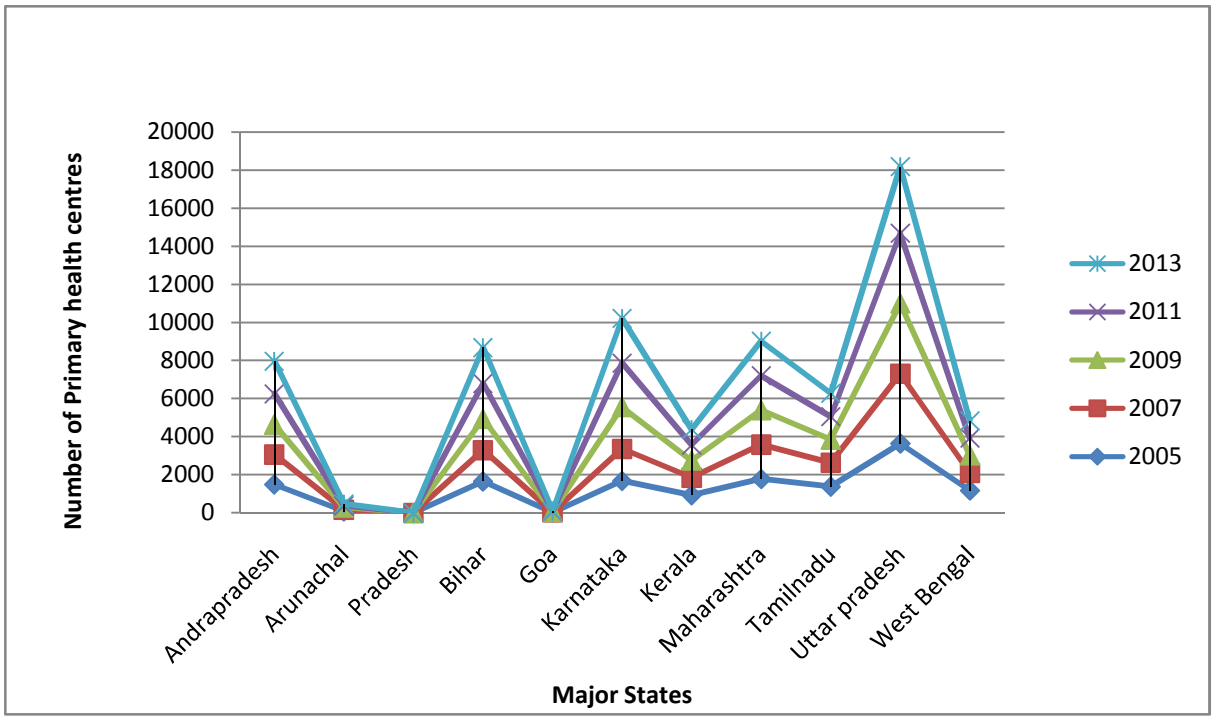
preventive, curative and family welfare services to the population. There are 24448 primary health centres functioning in India as on 2013 as compared to 23109 in 2005. From table 2.2 revealed that Utharpradesh (3496), Karnataka(2350),Bihar(1883), etc are the highest number of primary health centres states and Goa, Arunachal Pradesh, Haryana, etc are the least number of primary health centre states. Among the southern states Kerala is the number one state in the case of health. But compared to Tamilnadu and Karnataka, kerala has less number of primary health centres at the same time the total numbers of primary health centres were decreased from 933 in 2005 to 820 in 2013.

Table No.3 State wise number of Primary Health Centres in India

State	2005	2007	2009	2011	2013
Andrapradesh	1490	1570	1570	1624	1709
Arunachal Pradesh	78	85	116	97	97
Assam	610	610	844	938	978
Bihar	1648	1641	1641	1863	1883
Goa	19	19	19	19	21
Gujarat	1070	1072	1073	1123	1158
Haryana	408	408	420	444	452
Karnataka	1679	1679	2195	2310	2350
Kerala	933	909	909	809	820
Madhyapradesh	1194	1192	1149	1156	1156
Maharashtra	1780	1800	1816	1809	1811
Orissa	1282	1279	1279	1228	1305
Punjab	484	484	484	446	436
Rajasthan	1675	1713	1503	1517	1610
Tamilnadu	1380	1252	1215	1204	1229
-Uttar pradesh	3640	3660	3690	3692	3496
West Bengal	1173	922	924	909	909
India	23109	22669	23458	23887	24448

Source: National Health Profile of India- Central bureau of Health Intelligence, 2005, 2009, 2013

Figure 3.2 Number of Primary Health Centres among the Major States in India



Source: National Health Profile of India- Central bureau of Health Intelligence, 2005, 2009, 2013

3.1.1.3 COMMUNITY HEALTH CENTRE

Community health centre is maintained by the state Government under Minimum Needs Programme (MNP).Each Community Health Centre need four specialised medical officers with 21 paramedical and other staff. It is a referral unit for 4 Primary health centres and it provide the services like X ray, lab facilities, etc.

Table No.3.3 State wise number of Community Health Centres in India

State	2005	2007	2009	2011	2013
Andrapradesh	161	167	167	281	292
Arunachal Pradesh	31	31	44	48	54
Assam	100	100	103	108	110
Bihar	101	70	70	70	70
Goa	5	5	5	5	4
Gujarat	271	273	273	305	318
Haryana	72	82	86	107	110
Karnataka	253	254	323	180	188
Kerala	115	107	107	224	220
Madhyapradesh	227	229	270	333	333
Maharashtra	382	407	407	365	361
Orissa	231	231	231	377	377
Punjab	117	126	126	129	142
Rajasthan	298	325	349	376	431
Tamilnadu	35	165	206	385	385
Uttar pradesh	294	386	515	515	773
West Bengal	95	346	349	348	347
India	3222	3910	4276	4809	5187

Source: National Health Profile of India- Central bureau of Health Intelligence, 2007, 2013

From table No.3.3 it is revealed that the total number of community health centres were increased from 3222 in 2005 to 5187 in 2013.Among the states Uthar pradesh has the highest number of community health centres, it is increased from 294 in 2005 to 773 in 2013.It is followed by Rajasthan(431 in 2013),Tamilnadu (385 in 2013),Orissa (377 in 2013) and Kerala has only 220community health centres. was the highest number of community health centres in 2005 but it was decreased from

3.1.1.4 Allopathy Hospitals in India

Number of Government Hospitals in Allopathic Health Care system in India is increased from 7008 in 2005 to 19817 in 2013. Availability of beds in Government hospitals was very low in India. World Health Statistics (2010) reported that, bed population ratio in India is only .9 per 1000 population it is far below the international average of 2.9 beds. Currently Government hospitals available 1 bed per 2012 persons, it is around .5beds per 1000 population. Among the states.

Table No.3.4 State wise number of Govt. Hospitals & Beds in India

State	2005		2007		2009		2011		2013	
	Number of Hospitals	Beds	Number of Hospitals	Beds	Number of Hospitals	Beds	Number of Hospitals	Beds	Number of Hospitals	Beds
Andrapradesh	521	35021	359	34333	359	34337	475	38050	452	36954
Arunachal Pradesh	45	2166	66	2053	161	2218	161	2218	67	1675
Assam	100	3000	100	3000	153	7622	153	7622	1137	13381
Bihar	101	3030	101	3030	1717	22494	230	18516	1436	11552
Goa	20	2639	20	2579	20	2988	17	2609	33	3308
Gujarat	503	35056	1712	41032	373	28958	445	193210	388	27908
Haryana	133	7118	149	7662	154	7879	154	7879	159	7664
Karnataka	723	41304	868	42591	919	63741	919	63741	598	50764
Kerala	189	25839	250	28395	386	31285	446	31960	1279	37616
Madhyapradesh	324	17702	377	19918	377	19918	457	28533	428	26309
Maharashtra	1170	76447	666	45973	765	49579	1366	67594	1053	53168
Orissa	406	13146	1707	14550	1709	14763	1750	15184	1750	16683
Punjab	160	8973	249	11027	231	10620	213	10423	240	11804
Rajasthan	510	32080	475	32067	475	32067	826	25990	3138	46579
Tamilnadu	424	43567	581	47198	581	47198	581	47198	788	64243
Uttar Pradesh	294	8820	925	32460	925	32460	695	7965	861	56384
West Bengal	642	58516	383	49681	294	54759	654	71191	1566	78188
India	7008	469672	9976	482522	11613	540328	11993	784940	19817	628708

Source: National Health Profile of India- Central bureau of Health Intelligence, 2007, 201

3.1.2 Ayurveda in India

Ayurveda originated in India and it is considered as the traditional health care system in India. It is known as Indian System of Medicine. The word ayurveda derived from Sanskrit “ayus” –life and “ved” –Knowledge it means life of Knowledge. It (Ayurveda) was found in Vedic period especially originated from Atharvaveda. It is not only simple health care system but it is a balanced system for human existence and practiced yoga, aroma, meditation, gems, herbs, astrology, color, etc for treating patients. Globally Ayurveda is considered as a well developed and well established health care system. There are thousands of companies produced Ayurveda medicines in India and major suppliers are Dabur India Limited, Vicco laboratarries, Himalaya group of companies, Emami group, Charak Pharmaceuticals, etc.

Table No.3.5 State wise number of Ayurveda Hospitals& Dispensaries in India

State	2007		2009		2011		2013	
	Number of Hospitals	Dispensaries	Number of Hospitals	Dispensaries	Number of Hospitals	Dispensaries	Number of Hospitals	Dispensaries
Andrapradesh	9	620	9	557	8	1003	8	1003
Arunachal Pradesh	1	2	11	2	11	2	11	2
Assam	1	380	1	380	1	380	1	380
Bihar	11	311	11	311	11	311	11	311
Goa	1	11	1	11	1	9	1	9
Gujarat	48	501	44	504	41	523	41	523
Haryana	8	472	8	493	8	493	8	493
Karnataka	122	589	130	561	133	561	133	561
Kerala	124	740	124	740	126	898	126	898
Madhyapradesh	34	1427	34	1427	21	1427	21	1429
Maharashtra	51	490	55	469	63	469	63	469
Orissa	8	624	8	624	8	624	8	624
Punjab	15	507	15	507	15	0	15	507
Rajasthan	100	3496	107	3559	118	3577	118	3577
Tamilnadu	7	32	8	43	2	97	2	98
Uttar Pradesh	1771	340	1771	340	1771	389	1771	389
West Bengal	4	295	4	295	4	295	4	295
India	2398	13914	2432	13975	2420	15017	2421	15072

Source: National Health Profile of India- Central bureau of Health Intelligence, 2007, 2013

Homeopthy in India

German Missionaries and Physicians introduced homeopathy to India as early as 1810 by Dr. John Martin Honigberger with the name of Hahnemann. In 1995 Ministry of Health and Family Welfare created a separate department on Indian System of Medicine and Homeopathy and now it is renamed as Department of AYUSH that is department of Ayurveda, Yoga, Unani, Siddha, and Homeopathy in 2003. Now infrastructure facilities under AYUSH includes 1355 hospitals, with 53296 beds, 22635 Dispensaries, 450 undergraduate colleges, 99 post Graduate Departments, 9493 manufacturing units of Ayurveda and Homeopathy in the country.

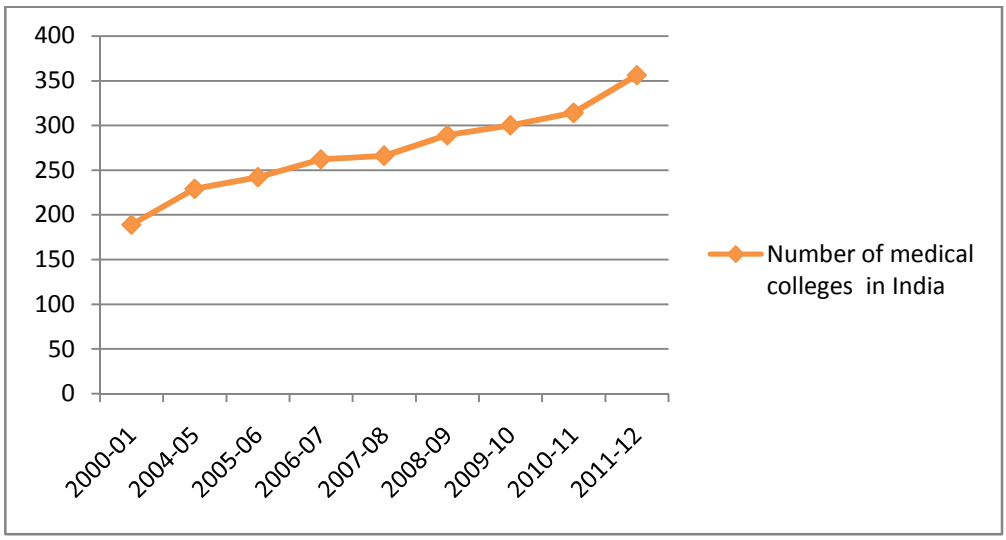
Table. No.3.6 State wise number of Homeo Hospitals&

Dispensaries in India

State	2007		2009		2011		2013	
	Number of Hospitals	Dispensaries	Number of Hospitals	Dispensaries	Number of Hospitals	Dispensaries	Number of Hospitals	Dispensaries
Andrapradesh	13	14	6	286	6	518	6	518
Arunachal Pradesh	6	283	2	53	1	55	1	55
Assam	3	75	3	75	3	5	3	75
Bihar	11	179	11	179	11	179	11	179
Goa	1	3	1	5	1	10	1	10
Gujarat	14	216	16	216	16	216	16	216
Haryana	1	20	1	22	1	22	1	22
Karnataka	20	42	21	43	21	5	21	43
Kerala	33	580	33	525	30	551	30	551
Madhyapradesh	20	146	22	146	2	146	2	146
Maharashtra	44	-	45	-	46	0	46	0
Orissa	6	603	6	603	6	637	6	638
Punjab	6	107	5	107	0	111	0	111
Rajasthan	8	147	9	177	11	180	11	180
Tamilnadu	9	43	9	46	1	105	1	105
Uttar Pradesh	8	1482	8	1575	8	1575	8	1575
West Bengal	12	1220	12	1534	12	1534	12	1534
India	230	5836	235	6354	215	7049	216	7023

Source: National Health Profile of India- Central bureau of Health Intelligence, 2007, 2012

Figure 3.3 Number of Medical Colleges in India



Source: National Health Profile of India- Central bureau of Health Intelligence, 2007, 2012

Table No. 3.7 Number of Registered AYUSH Doctors in India

State	2007	2009	2011	2012	2013
Ayurveda	453661	463485	429246	350655	387976
Unani	46558	48679	49431	44976	50475
Sidha	6381	6877	7568	7612	7600
Naturopathy	888	1172	1597	1508	1620
Homeopathy	217850	241859	224279	225883	238648

Source: Indian Nursing Council & Pharmacy Council of India 2013

2.2 HEALTH INFRASTRUCTURE IN KERALA

Health infrastructure includes health care facilities in Kerala. During the period of 1950's health care facilities was available and accessible to all sections of the community in kerala. Number of public institutions and facilities were increased rapidly. The total number of beds was increased from 13000 in 1960-61 to 29000 in 1980-81. But after 1980's due to fiscal deficit, central and state government reduced its expenditure on health and decreased the number of facilities under public health care institutions. This situation leads to increase the role of private sector on health care system in Kerala. There was sudden growth in private health care facilities especially in the case of total number of beds; it was increased from 49030 in 1986 to 67517 in 1996. So here we discussed about the available health care facilities in Kerala

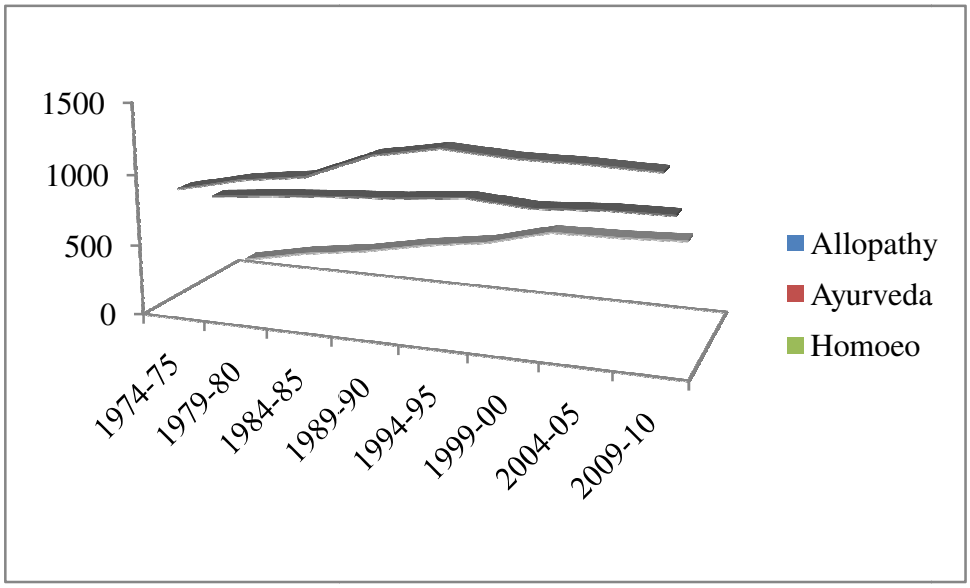
Health Infrastructure is an important indicator to health status of a Nation or State. Health care system in Kerala mainly based on three system ie, Allopathy, Ayurveda (Indian System of Medicine) and Homoeo, these three system of medicine have total 2724 Institution with 52893 beds (Kerala Economic review 2011).Out of these total institutions major portion is shared by Allopathy (46.44percentage), 32.2 percentage is coming under Ayurveda and remaining portion 21.36 percentage under Homoeopathy. Health Department in Kerala consist of five directorates such as, Health Services Department, Medical Education Department, Department of Indian System of Medicine, Department of Ayurveda Education, Department of Homeopathy.

Table. No.3.8. Growth Trend of health care institutions in Kerala

Year	Allopathy	Ayurveda	Homoeo	Total
1974-75	888	725	121	1734
1979-80	988	768	213	1969
1984-85	1048	802	279	2129
1989-90	1229	830	368	2427
1994-95	1310	875	436	2621
1999-00	1281	842	555	2678
2004-05	1279	871	561	2711
2009-10	1265	877	582	2697

Source: State planning board-Kerala economic review 1974,1980,2010

Figure 3.4 Trend of health care institutions in Kerala



Source: State planning board-Kerala economic review 1974,1980,2010

HEALTH SERVICES DEPARTMENT

Heath services Department operated its functions through Directorate of Health Services (DHS). DHS provides the services of Primary Health Centres, Community Health Centres, Sub Centres, District Hospitals, Dispensaries, T.B Clinics, etc. Following are the major Institutions under DHS (Directorate of Health Services).

Table 3.9 Major Medical Institutions under Directorate of Health Services

Institutions	2008	2009	2010	2011	2012	Total	Average
Primary Health centres	929	839	835	834	834	4271	854
Community Health Centres	114	245	237	230	230	1056	21
Taluk/District/Women& Child Hospital	136	83	95	103	106	523	104
Dispensaries	59	24	24	25	25	157	31
T.B Clinics	18	17	17	17	17	86	17
Grants in aid institutions	29	29	29	29	29		
Leprosy Centres	18	3	3	3	3		
Sub Centres	5094	5403	5403	5403			

Source: Kerala Economic Review 2010, 2011,2012

Table No 3.9 shows that, in 2008 there were 929 Primary Health Centres (PHC), 136 Taluk/District Hospital (it includes Taluk Hospital, District hospital, Women and Child Hospital),59 Dispensaries, 18 T.B Clinics and 18 Leprosy Centres existed in kerala, but due to lack of proper working and financial difficulties for its maintenance the number of these institutions were declined to 834 PHC$_{s,}$106District/ Taluk Hospital,25 Dispensaries and 3 Leprosy Centres in 2012.

MEDICAL EDUCATION IN KERALA

Department of Medical Education plays an important role in improving health status of the society. Out of the total medical colleges in kerala77 percentage of medical colleges are operating under private sector, only 23 percentages are functioning under Government sector. Government Medical Colleges are functioning at Thiruvananthapuram, Kottayam, Alappuzha, Thrissur, and Kozhikode. Details regarding medical education are given in below table.

Table No.3.10 Major Medical Colleges in Kerala

Institutions	Govt. Sector	Private Sector	Total
Medical College	5	17	22
Dental college	3	19	22
Nursing College	5	106	111
Ayurveda Medical College	3	14	17
Homoeo Medical college	2	3	5
Sidha	1	1	2
Total	19	160	179

SOURCE: Directorate of Health Service, Kerala (2012),

Directorate of Medical Education, Kerala University of Health Sciences

Table No.3.10 reveals that number of Private (160) medical colleges in Kerala is higher than Government medical colleges(19).

Table No.3.11 Status of Medical colleges in Kerala

Medical College	2006			2011			2014		
	Beds	Inpat Ients	Outpa tients	Beds	Inpat Ients	Outpa Tients	Beds	Inpat Ients	Outpa Tients
Thiruvan Anthapuram	3421	96700	798000	1935	66361	731416	2050	90394	1047261
Alappuzha	883	51596	462353	1035	30000	40000	1125	61247	903517
Kottayam	1286	56277	508117	1400	59255	551946	1500	77367	892768
Thrissur	999	60118	351780	714	28000	600000	800	34319	191847
Kozhikode	2380	114931	437656	2125	73056	432563	2200	80435	483439
Total	8969	379622	2557906	7209	256672	2355925	7675	343762	3518832

SOURCE: Directorate of Health Services, Kerala Government- 2007,2014

Table No.3.11 discusses about status of medical colleges in Kerala. There are five medical colleges in Kerala, comparing the last five years data about medical colleges reveals that there is decreasing the number of bed facilities. The total number of bed facilities available in medical colleges was decreased from 8969 in 2006 to7675 in 2014. It is one of the main reason for decreasing the number of inpatients in medical colleges ie,379622in 2006 to 343762 in 2014. But there is remarkable and positive changes happens in the case outpatient rate, it was increased from 2557906 in 2006 to 35188832 in 2014.

INDIAN SYSTEM OF MEDICINE

Indian System Of Medicine (ISM) Department provides services to the people through Ayurveda hospitals, Ayurveda dispensaries Sidha Vidya, Unani, Vishas and Naturopathy. List of major institutions under ISM are discussed below.

AYURVEDA

Ayurveda is the oldest or ancient health care system. Kerala Ayurveda treatment is the world famous treatment. There are number of private agencies are specialised in Ayurveda treatment such as Kottakkal Aryavaidyasala, Thaikkat Moos, Kerala Ayurveda, etc. These institutions are fully engaged in manufacturing Ayurveda medicines. Oushadhi is the only one institution producing ayurvedic medicines under Government Sector and it provides medicines to all Government Ayurveda hospitals and Dispensaries. There are three Government Ayurvedic Medical Colleges (Thiruvananthapuram, Thripunithura, Kannur) and 13 private Medical Colleges were situated in Kerala.

Table No.3.12 Number of Beds in Ayurveda Medical Colleges

Year	Thiruvananthapuram	Thripunithura	Kozhikode	Total	Average
2006	558	139	100	787	262
2007	638	205	150	993	331
2008	410	489	150	1049	349
2009	541	489	150	1180	393
2010	541	489	150	1180	393
2011	620	489	150	1259	419
2012	620	489	150	1259	419

Source: Kerala Economic Review in 2007,2010,2012

Table No. 3.12 shows that total number of beds available in Government Ayurveda medical colleges in Kerala and it reveals that the number of beds is increasing year by year. Comparing the available health care facilities especially the number of beds available in Allopathy and Ayurveda medical system , the average number of beds was increasing at a decreasing rate and it was increased from 262 in 2006 to 419 in 2012.

Table.No.3.13 Number of Ayurveda Hospitals & Beds , Dispensaries in Kerala

Year	Hospitals	Growth Rate	Beds	Growth rate	Dispensaries	Growth Rate
2008	117	-	2764	-	747	-
2009	117	0	2764	0	747	0
2010	117	0	2764	0	747	0
2011	119	1.7			745	-.2
2012	119	0			768	

Source : Directorate of Ayurveda Medical Education Kerala, Kerala Economic Review 2010,2012

Table No. 3.14 Number of patients treated under Government Ayurveda Medical Colleges

Ayurveda College	Inpatients			Outpatients		
	2009	2011	2012	2009	2011	2012
Thiruvananthapuram	4259	5518	22410	84207	140519	149247
Thripunithura	3088	2449	2701	225570	184092	189070
Kannur	366	1105	1328	10696	62110	65665
Total	7713	9072	26439	320473	386721	403982

Source : Directorate of Ayurveda Medical Education Kerala, Kerala Economic Review 2010,2012

Table.No.3.14 shows, number of inpatients and outpatients treated in Ayurveda Medical Colleges, there is increase in total number of inpatients from7713 in 2009 to 26439 in 2012 and outpatients from 320473 in 2009 to 403982 in 2012. Analysis revealed that number of patients treated under Ayurveda is increasing year by year and it concludes that the number of patients treated under other health care system (Allopathy/Homoeo) was shifted to Ayurveda.

Homoeopthy in Kerala

Christian missionaries introduced Homeopathy to Kerala and separate Directorate of Homeopathy was formed in 1973.Now facilities under homeopathy were well developed, there were 611 homeo dispensaries, 13 district hospitals and 17 Taluk hospitals in Kerala. We have one medicine manufacturing unit that is Kerala State Homeo Coperative Pharmacy(HOMCO) at Alappuzha.

Table No.3.15 Inpatient and outpatient cases in Homeopathy Hospitals in Kerala

Year	Inpatients	Outpatients
2006-2007	12212	16080166
2007-08	17520	12717424
2008-09	36785	13672530
2010-11	40708	1645564

State planning Board- Kerala Economic Review-2009,2011

FINDINGS

- In the health care facilities in Kerala, Directorate of Health Services provide medical services through Primary Health Centres, Community Health Centres, Taluk/District Hospitals, Dispensaries , T.B Clinics and Leprosy Centres.

- Public spending on health care facilities was growing up to 1980's but after mid 80's, due to fiscal deficit there was declining trend in growth of health care facilities in Kerala.

- Department of Medical Education plays an important role in improving health status of the society. Out of the total medical colleges in kerala77 percentage of medical colleges are operating under private sector, only 23 percentages are functioning under Government sector.

- Directorate of Health Services provide medical services through Primary Health Centres, Community Health Centres, Taluk/District Hospitals, Dispensaries , T.B Clinics and Leprosy Centres.

- The total number of bed facilities available in medical colleges in Kerala was decreased from 8969 in 2006 to7675 in 2014.

- Comparing the available health care facilities especially the number of beds available in Allopathy and Ayurveda medical system , the average number of

beds was increasing at a decreasing rate and it was increased from 262 in 2006 to 419 in 2012.

- Consider the number of inpatients and outpatients treated in Ayurveda Medical Colleges , there is increase in total number of inpatients from7713 in 2009 to 26439 in 2012 and outpatients from 320473 in 2009 to 403982 in 2012.

- The number of inpatient and outpatient cases in homeopathy were increased from 2007-2011.

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CHAPTER IV

DETERMINANTS OF URBAN HEALTH IN KERALA

INTRODUCTION

In this chapter we discuss the determinants of urban health in Kerala. So First Section of this chapter deals with Profile of the Study Area and Second Section describes Determinants of Urban Health. Profile includes historical, geographical, and health background of the study area. Determinants of health refer to socio, economic, cultural and environmental factors that influence health of the people in the urban Kerala.

Kerala the model of social democratic welfare state in India but health condition of the urban residents is very low. Health indicators are very high standard in Kerala as related to other states in India. But how the state can manage (TOI) or achieve these better health indices with the poor health condition of the urban poor or urban slum dwellers. Actually the health standard or health conditions of the people in urban area are decreasing day (increasing life style diseases or non communicable diseases more than the communicable diseases) by day. People with low income and informal settlements in cities face some health challenges (UN. Habitat). Health of the urban peoples are threatened by different tropical diseases that are influenced by social and environmental determinants. Health standards in Kerala as compared to India are satisfactory but the people in urban area face some health challenges. Before we go to discuss the determinants of urban health, we describe profile of the study area.

4.1 PROFILE OF THE STUDY AREA

Selection of the study area is one of the important factor of the study. For this purpose we select three most populous urban districts in Kerala that is Ernakulam, Thrissur and Kozhikode. Without analysing the profile of the study area, the research work is incomplete. So here we look in to the profile of each district.

4.1.1 ERNAKULAM DISTRICT

Ernakulam district is situated almost middle of the Kerala state. It was formed in 1958; it is bounded by 46.2 km coastline of the Arabian Sea on the west. It is the third populous district in Kerala after Malappuram and Thiruvananthapuram. It is surrounded by Thrissur, Idukki, Alappuzha and Kottayam Districts. Ernakulam District is known as commercial capital of kerala and it is the highest revenue yielding District in the state. It accommodates highest number of National and International Tour sq.km. Sex ratio in Ernakulam District is 1028 female per 1000 male, total literacy rate is 95.68 percent and density of population is1069. Per Sq.Km.

The district has a moderate climate, and mostly falls within the Malabar Coast moist forest eco region. Many types of sands, soil and rocks are available here. Ernakulam has a tropical climate. The average maximum temperature up to 36^0c in summer months and to a minimum of 18.0^0C in winter. Monsoon comes to Ernakulam in May. The average annual rainfall is 3099.1 mm with 132 annual average rainy days.

4.1.1.1 HEALTH INFRASTRUCTURE

Ernakulam is known as the metropolitan city in Kerala. There are large numbers of efficient Government and private hospitals, specialised centres, nursing homes with advanced medical treatment are available in this district.

Table No. 4.1 Government Allopathic Institutions under Ernakulam District

Institutions	2009	2010	2011	2012	2013
PHC	41	41	41	41	41
PHC(24*7)	35	35	34	34	33
CHC	25	24	23	23	23
District Hospital /Taluk Hospital	13	13	13	13	13
T.BCentre/ T.B Clinics	1	1	1	1	1
Leprosy Control Units	0	0	0	0	0

Source: Kerala economic review 2009,2011,2013

From table No. 4.1 it is understood that number of Government Allopathic Institutions under Ernakulam District. In this section we consider only allopathic health care institutions under public sector because in our analysis part we taken expenditure for allopathy health care system. There is ups and down in the number of institutions, lack of proper working of Primary Health Centers and Community Health Centers number of these institutions were declined from 35

Primary Health Centers and 25 Community Health Centers in 2009 to 33 Primary Health Centers and 23 Community Health Centers. There is no leprosy control units, at present there are 41 Primary Health Centers,13 District hospital and 1 Tuberculosis clinic.

4.1.2 KOZHIKODE DISTRICT

Kozhikode is also known as Calicut. It is bordered by Kannur (north),Wayanad(east), Malappuram(south) Districts and Arabian Sea to the west. It was the most important region of Malabar and the capital of the powerful Zamorins and a prominent trade and commerce centre. Kozhikode district found a place in the world history with the discovery of sea route to India in 1498 by the Portughese Navigator Vas Co Da Gama and he landed at Kappad sea shore. A monument is constructed here to commemorate the historical landing.

Total area in the Kozhikode district is 2206 sq.km with total population of 3,089,543. Literacy rate is 95.24 percent and sex ratio is 1097 female per 1000 male. Density of population in Ernakulam District is 3410 per sq.km. Kozhikode district has three distinct regions – the sandy, rocky highland formed by the hilly portion of the Western Ghats and lateritic midland. The district has a coastal length of about 80 kms. Climate in Kozhikode district is very hot season extending from March to May, rainy season extends from June to September and the average annual rainfall is 3266mm.

4.1.2.1 HEALTH INFRASTRUCTURE

Table No. 4.2 Government Allopathic Institutions under Kozhikode District

Institutions	2009	2010	2011	2012	2013
PHC	41	41	41	41	41
PHC(24*7)	35	35	34	34	33
CHC	25	24	23	23	23
District Hospital /Taluk Hospital	13	13	13	13	13
T.BCentre/ T.B Clinics	1	1	1	1	1
Leprosy Control Units	0	0	0	0	0

Source: Kerala economic review 2009,2011,2013

From table No. 4.2 it is revealed that, number of Government Allopathic Institution under Kozhikode District. There is ups and down in the number of institutions, lack of proper working of Primary Health Centers and Community Health Centers number of these institutions were declined from 35 Primary Health Centers and 25Community Health Centers in 2009 to 33 Primary Health Centers and 23 Community Health Centers. There is no leprosy control units, at present there are 41 Primary Health Centers, 13 District hospitals and 1 Tuberculosis clinic

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4.1.3 THRISSUR DISTRICT

Thrissur district is known as cultural capital of Kerala. It is the central part of Kerala. Thrissur district is famous for Temples (especially Thrissur pooram), Churches and Mosques. The term Thrissur is abbreviated from the word "THRISSIVAPERUR" which means the town of "Sacred Shiva". District was formed in 1st July 1949.Thrissur district is surrounded by Arabian sea in the west, Palakkad District in the east, Malappuram and Palakkad District in the south and Ernakulam District in the North are situated. Total population in Thrissur District is 31,10,327 with the total area of 4480 sq.km. Literacy rate is 95.32 percent and sex ratio is 1109 female per 1000 male.

Thrissur located in middle part of Kerala. Peechi Vazhani Dam and Wild life sanctuary act as a major water source for Thrissur town. Tropical monsoon climate is the major climate, summer season from March to May,south west monsoon from June to September,October and November is the retreating monsoon and winter from December to February. The average annual rainfall is 2500mm. The maximum temperature of the city in Thrissur district is 33 degree Celsius and minimum temperature is 22.5 degree Celsius.

Table No. 4.3 Government Allopathic Institutions under Thrissur District

Institutions	2009	2010	2011	2012	2013
PHC	41	41	41	41	41
PHC(24*7)	35	35	34	34	33
CHC	25	24	23	23	23
District Hospital /Taluk Hospital	13	13	13	13	13
T.BCentre/ T.B Clinics	1	1	1	1	1
Leprosy Control Units	0	0	0	0	0

Source: Kerala Economic Review 2009, 2011, 2013

From table No. 4.3 it is shows that number of Government Allopathic Institution under Thrissur District. There is an up and down in the number of institutions, lack of proper working of Primary Health C_s and CHC_s number of these institutions were declined from 35 PHC_s and 25CHC_s in 2009 to 33 PHC and 23CHC. There is no leprosy control units, at present there are 41 PHC, 13 District hospital and 1 T.B clinics

4.1.4 DETERMINANTS OF URBAN HEALTH

This section is divided in to two; first part describes urbanisation in India and Kerala. Second part explains socio economic status of the household in the study area. Urbanisation is one of the major factors influencing urban health. Besides urbanisation, social and economic conditions of the households are the important factors to determine urban health. It can be measures on the basis of primary data by using the variables like age, sex, marital status, education, occupation, income, housing, sanitation, drinking water, fast food consumption, etc.

4.1.4.1 URBANISATION IN INDIA

India is witnessing rapid urbanisation, nearly one-third of India's urban population or nearly 100 million live in slums which are characterized by overcrowding, poor hygiene and sanitation. According to UN's prognosis, India will more than double its urban population from 367 million in 2010 to 915 million in 2050 (UN 2011).Characteristics of each city is different from others but the common urban health challenges are overcrowding, air pollution, rising levels of risk factors like tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol, road traffic injuries, inadequate infrastructure, transport facilities, poor solid waste management systems, and insufficient access to health facilities in slum areas. Most of these cities also face various health challenges of communicable diseases, non communicable diseases, maternal and child health

problems, and threat of reemerging and emerging diseases. India's dream of "World Class" health care delivery system is difficult to achieve, 1991 economic reforms has brought some changes in the social sector especially in the health and education, financial reforms are unfavorable to those sectors. The share of public expenditure as a percentage to GDP on health and education at higher level has been gradually declining (Panchamukhi 2000). The health sector, therefore, faces "dual" challenges: while control of communicable and non-communicable diseases on the one hand, the budget allocation by the government is gradually declining on the other.

4.1.4.2 URBANISATION TREND IN INDIA

India has a long tradition of urbanisation which has continued since the days of Indus Valley Civilisation. Majorities of world population are living in cities .Urbanisation has been termed as an inevitable consequence of development and essential condition for social and economic development. Urbanisation is treated as an index of both modernisation and economic development. Different Urbanisation level reflect different degrees of economic development. (Raja Bella1986).In generally Urbanisation is always passes through industrialisation and modernisation, this will lead to more employment opportunities in industrial and service sector. Urban areas provide better facilities for education, transportation, communication, etc. and these changes in the urban area were influenced by People in the rural area so they are transferred from rural areas to urban areas. This leads to increasing the rate of ubanisation .

Table No 4.4Trend of urban and rural Population in India

States	1971		1981		1991		2001		2011	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Andhra Pradesh	19.31	80.69	23.32	76.68	26.89	73.11	27.08	72.92	33.49	66.51
Assam	8.52	83.6	9.88	90.02	11.1	88.9	12.72	87.28	14.08	85.92
Bihar	10.00	90	12.47	87.53	13.14	86.86	13.36	86.64	11.30	88.7
Gujarat	28.08	71.92	31.10	68.9	34.49	65.51	37.35	62.65	42.58	57.42
Haryana	17.66	82.34	21.88	78.12	24.63	75.37	29	71	34.79	65.21
Himachal Pradesh	6.99	93.01	7.61	92.39	8.69	91.31	9.79	90.21	10.04	89.96
Jammu & Kashmir	18.59	81.41	21.05	78.95	23.83	76.17	24.88	75.12	27.27	72.73
Karnataka	24.31	75.69	28.89	71.11	30.92	69.08	33.98	66.02	38.57	61.43
Kerala	16.24	83.76	18.74	81.26	26.39	73.61	25.97	74.03	47.72	52.28
Madhya Pradesh	16.30	83.7	20.30	79.7	23.21	76.69	24.92	75.08	27.63	72.37
Maharashtra	31.17	68.83	35.03	64.97	38.69	61.31	42.40	57.6	45.23	54.77
Orissa	8.41	91.59	11.79	88.21	13.38	86.62	14.97	85.03	16.68	83.32
Punjab	23.73	76.27	27.68	72.32	29.55	70.45	33.95	66.05	37.49	62.51
Rajasthan	17.63	82.37	21.05	78.95	22.88	77.12	23.38	76.62	24.89	75.11
Tamil Nadu	30.26	69.74	32.95	67.05	34.15	65.85	43.86	56.14	48.45	51.55
Uttar Pradesh	14.02	85.98	17.95	82.05	19.84	80.16	21.02	78.98	22.28	77.72
West Bengal	27.75	72.25	26.47	73.53	27.48	72.52	28.03	71.97	31.89	68.11
India	19.91	80.09	23.34	76.66	25.71	74.29	27.78	72.22	31.16	68.84

Source :

From table No. 4.4 it is reflected that urbanisation was very slow during the period of 1901 to 1941(India's Census Report), but the situation was changed from 1981 onwards. Consider the degrees of urbanisation, India ranks quite low among the countries of the world. More than one fourth of the population in India is urban. Consider the urbanisation trend in India up to 2001 it

revealed that the proportion of urban population and the total number of urban centres have been increasing decade after decade. Such a rapid growth has been possible by migration of population to urban places (Dr. P.K Singh). Census of India 2011 recorded that in India 31.16 percent of the population lived in urban area. Consider the urbanisation trend among the states, in 70's Maharashtra, Tamilnadu, Gujarat, etc are the major urbanised states, presently Tamilnadu (48.45), Kerala (47.71), Maharashtra(45.23), Gujarat(42.58), etc are the most populous urban states in India.

4.1.4.3. URBANISATION TREND IN KERALA

Urbanisation is the urban population to the total population. Growth of urbanisation in kerala was very slow during the years of 1901(7.11) to 1971's but after 80's there was sudden growth, It can be seen through table Table No. 4.5

Table No. 4.5 Urban Population in Kerala and India

Census Year	Urban population in Kerala	Urban Population in India
1901	7.11	11
1911	7.34	10.4
1921	8.73	11.3
1931	9.64	12.2
1941	10.84	14.1
1951	13.48	17.6
1961	15.11	18.3
1971	16.24	19.93
1981	18.74	23.7
1991	26.39	25.75
2001	25.97	27.78
2011	47.72	31.16

Source: Census Reports in India on various years,(1991,2001,2011)

From table No. 4.5 it is understood that Urbanisation has been increased from 26.39 in 1991 to 47.72 in 2011. In generally urbanisation is accompanied by economic and social development but the characteristics of urbanisation in Kerala are entirely different i.e urbanisation without economic development. Increases in census towns are the one of important reasons for increase in urban population, due to re classification number of villages were changed as towns these are known as census towns. In 2001, 60 statutory towns and 99 census towns were existed, in 2011 number of statutory towns reduced to 59 and census towns are increased to

461.Here new 362 census towns were emerged as the part of urban agglomerations.

4.2. SOCIO ECONOMIC STATUS

Social and economic conditions of the households are the important factors to determine urban health. It can be analyse by using the variables like age, sex, marital status, education, occupation, income, etc.

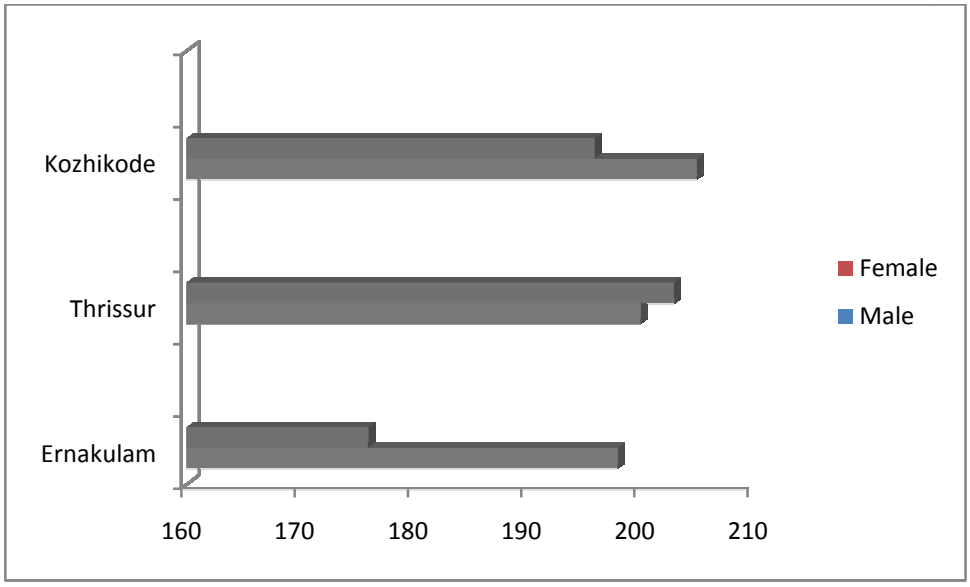
Let us initially consider distribution of households according to sex.

Table No. 4.6 Distribution of Households According to Sex

District	Male	Female	Total
Ernakulam	198	176	374(31.8)
Thrissur	200	203	403(34.2)
Kozhikode	205	196	401(34.0)
Total	603(51.2)	575(48.8)	1178(100)

Source: primary survey

Figure 4.1 Sex Composition



Source: primary survey.

From Table No. 4.6 it is shows that Out of the total 1178 people male constitutes about 51percent, females constitutes about 49 percent. In the total population majority of them are males. Consider the male female ratio; males are dominating the study area. Our study area is opposite to state level population; in kerala female population is greater than male population but in our study, considered each district male population is greater than female population.

Table No:4.7 Age Wise Classification

Age	Town			
	Ernakulam	Thrissur	Kozhikode	Total
0-15	75	75	77	227(19.3)
15-30	87	107	71	265(22.5)
30-45	80	73	94	247(20.9)
45-60	79	85	101	265(22.5)
60&above	53	63	58	174(14.8)
Total	374(31.8)	403(34.2)	401(34)	1178(100)

Source: primary survey

From table No: 4.7 it is understood that , in the total sample majority of them coming under the age group of 15-30(265 people) and 45-60 (265 people). Out of the total population 34 percentage of the people are entered in to dependency group, it include the age group between 0-15,60 and above60 category people , As compared to younger generation old age people(14.8) are not less in the study area.

Table No:4.8 Marital Status

Marital status	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Married	85	87	91	263
Unmarried	15	13	9	37
Total	100	100	100	300

Source: primary survey

From table No:4.8 it is revealed that marital status of households, we can see a similar trend in each district i.e. in each district majority of them are married such as Eranakulam 85 percent, Thrissur 87 percent, and Kozhikode 91 percent.

Table No: 4.9 Religious Compositions

Religion	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Hindu	55	40	78	173
Christian	39	47	12	98
Muslim	6	13	10	29
Total	100	100	100	300

Source: primary survey

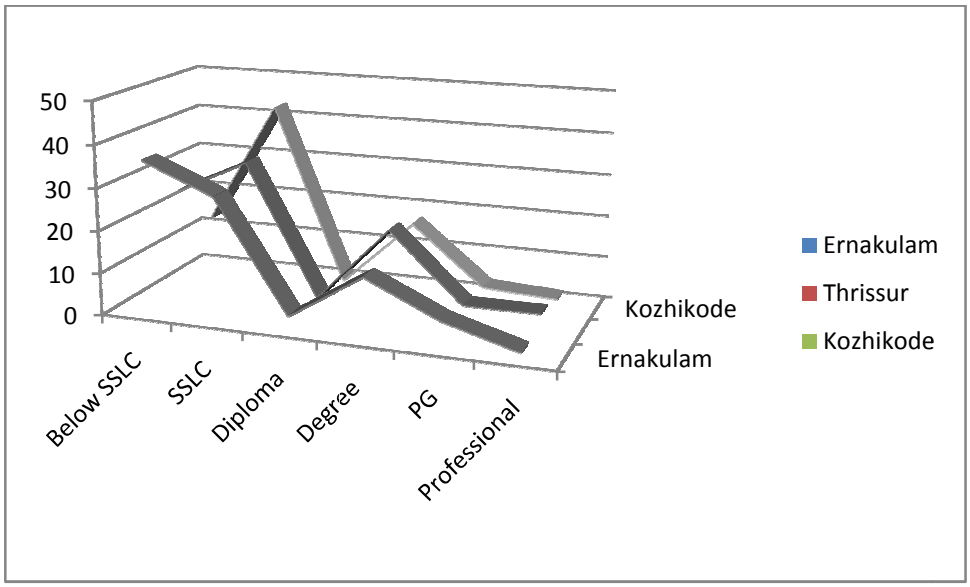
From Table No:4.9 it is reflected religious composition. Study also follows religious composition of national and State level. Out of 300 households Hindu families dominate the area [57 percent], they constitute 55 percent in Eranakulam, 40 percent in Thrissur, and 78 percent in Kozhikode. Second category is Christians compared to Eranakulam 39 percent, Kozhikode 12 percent, Thrissur occupies more Christians i.e. 47 percent Share of Muslim population is very less, Eranakulam constitute 6 percent and Kozhikode 10 percent.

Table No:4.10 Qualification or Education Status

Qualification	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Below SSLC	36	25	14	75
SSLC	29	33	43	105
Diploma	3	2	1	6
Degree	14	20	17	51
PG	6	4	3	13
Professional	1	4	2	7
Total	100	100	100	300

Source: primary survey

Figure 4.2 Educational Status



Source: primary survey

From table No:4.10 it is revealed education status of households. Kerala's education status is world famous we had attained 100 percentage of literacy in 1998. Our study area is also keeping this education standard [education standard of Kerala). In some situations we can see uniformity among the districts i.e. up to

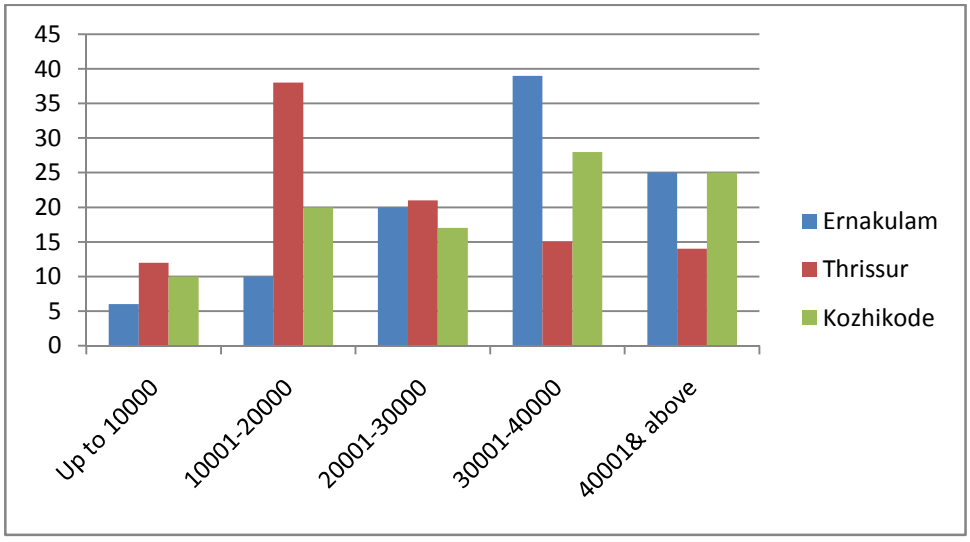
30 percent of household attained matriculation. All households in the study area are educated and we can't see anyone with illiteracy. Above 35 percent of households in each district have higher education status.

Table No:4.11 Income Wise Classifications

Monthly Income Group	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Up to 10000	6	12	10	28 (9.3)
10001-20000	10	38	20	68 (22.7)
20001-30000	20	21	17	58 (19.3)
30001-40000	39	15	28	82 (27.3)
40001& above	25	14	25	64 (21.3)
Total	100	100	100	300

Source: primary survey

Figure 4.3 Income Wise Classifications



Source: primary survey

From table No:4.11 it is revealed that income wise classification of households [per month].We can divide income group in to five categories i.e. Less than 10000, 10001-20000, 20001-30000, 30001-40000, 40001 and above. In Eranakulam and Kozhikode nearly 30 percent of households belongs to the income group of 30001 and 40000, In Thrissur most of the households belongs to the income group of 10000 and 20000. Only 25 percent of households in Eranakulam and Kozhikode come under the higher income group i.e. higher proportion of households come under the higher income group but nobody reveal or they have no interest to share the amount of income. Only less than 15 percent of households coming under the income group of less than 10000.

Table No:4.12 Ownership of House

Type of house	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Own house	82	90	92	264(88)
Rented house	18	10	8	36 (12)
Total	100	100	100	300(100)

Source: primary survey

From table No:4.12 it is presented that ownership of housing pattern it includes own house and rented house. Majority of the households [Above 80 percent] in these three districts have own house. Only less than 15 percent of households depend on rented house.

Table No: 4.13 Sources of Drinking Water

Source	Town			Town
	Ernakulam	Thrissur	Kozhikode	
Own well	16	41	45	102(34)
Public well	0	0	4	4(1.3)
Bore well	9	2	2	13(4.3)
Public Tap	6	6	8	20(6.7)
Water connection	68	50	38	156 (52)
Others	1	1	3	5(1.7)
Total	100	100	100	300

Source: primary survey

From table No:4.13 it is shows that, more than 50 percent of the households in Eranakulam [68 percent] and Thrissur [50percentage] districts depends on water connection for drinking water and most of the households in Kozhikode(45 percentage) have own well but only 38 households in Kozhikode district depends on water connection for drinking water. 40 percent of households in Eranakulam and Thrissur have own well. Bore well is also an important source of drinking water. Public well available in the locality of the study area, but nobody depends on these public well for drinking water especially in Ernakulam and Thrissur district but Kozhikode 4 percent of households depends on public well for drinking water. Others include the combination of one or two source

Table No:4.14 Purification of Water

Type	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Electronic purifier	0	0	1	1
Water purifier	21	8	17	46
Boiling	78	85	79	242
Nothing	0	2	1	3
Others	1	5	2	8
Total	100	100	100	300

Source: primary survey

Table No:4.14 presents purification of water, as compared to rural area purity of water is very poor in urban water. There are so many possibilities for emerging water born diseases. For avoiding these types of diseases households purifying water by using different sources such as electronic purifier, boiling water, water purifier etc. More than 75 percent of the households in each district using boiled water . All of them are well bothered about their health and Number of households met by waterborne diseases are increasing day by day. So the households are using water only after purifying it. Quality of water in the study area is too better, there is no salient content.

4.3 LATRINE FACILITY

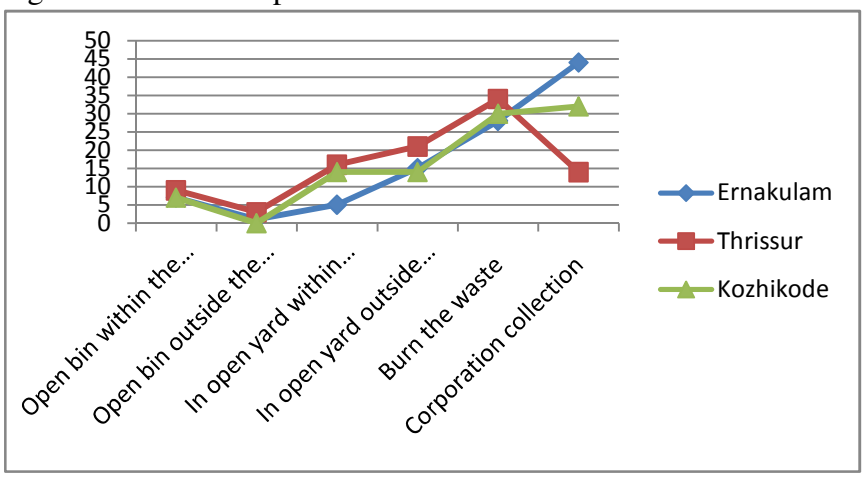
Consider the latrine facility 100% of households have latrine facilities.

Table No:4.15 Waste Disposals

Type	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Open bin within the compound	7	9	7	23(7.6)
Open bin outside the compound	1	3	3	7(2.3)
In open yard within the compound	5	16	14	35(11.7)
In open yard outside the compound	15	21	14	50(16.7)
Burn the waste	28	34	30	92(30.7)
Corporation collection	44	17	32	93 (31)
Total	100	100	100	300(100)

Source: primary survey

Figure 4.4 Waste Disposals



Source: primary survey

Table No:4.15 shows that, households in the study area follows various sources for waste disposal such as throughing waste to open yard with in the compound, outside the compound, burning, collection of waste by corporation etc. People in the urban area are throughing their waste to the open yard outside their compound, this is the common nature in urban area. This will adversely affecting health of the people but nearly 35 percent of the households in Ernakulam and Kozhikode districts dispose their waste through corporation. Among the three districts 30percentage of the households burn their waste and16 percentage throughing their waste on outside the compound. It will create so many health problems such as re -emergence of communicable diseases like dengue fever, malaria, Leptospirosis, etc.

Table No:4.16 Sources of Income

Source	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Own business	43	40	38	121(40.3)
Regular salary job	26	32	29	87 (29)
From land or other property	2	3	2	7 (2.3)
Interest from bank deposit	28	11	26	65(21.7)
Social security scheme	0	0	1	1(.3)
Others	1	14	4	19(6.3)
Total	100	100	100	300

Source: primary survey

Table No:4.16 presents that Households depends on various sources for getting income such as business , Salary job, land or property, interest from bank deposits , Social security schemes etc. Business is the main source of income of 40 percent of households in the study area and out of the total, 29 percent depends on monthly salary. Interest from bank deposit is the other source of income of 25 percent of households in Ernakulam and Kozhikode district. From this study we can found that business is the main source of income of households in urban area.

Table No: 4.17 Period of Fast Food consumption

Period	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Daily	2	0	3	5
Weekly	40	20	9	69
Fortnightly	5	26	30	61
Monthly	11	14	13	38
Total	58	60	55	173

Source: primary survey

Table No: 4.17 reveals that period of fast food taken by the households, it is another determinant factor for urban health. Out of the total 300 households 57 percent of the households have the habit of fast food. Among these 40 percent and 35 percent of the households weekly and fortnightly tasted fast food. 38 percent of the households monthly taken the fast food. Only 2 percent of the households daily follow fast food. People in the urbanised world give importance to fast food. Study area also support this trend i.e. nearly 60 percentage of the households had the habit of fast food but the proportion of using fast food is different i.e. daily, weekly, fortnightly and monthly.

Table No:4.18 Savings

Type	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Commercial Banks	40	45	31	116
Saving Group	29	39	38	106
Gold/Silver	11	6	16	33
Others	20	10	15	45
Total	100	100	100	300

Source: primary survey

From table No:4.18 it is shows that distribution of sample on the basis of annual saving. Among the total 100 percent of them have saving habits. There are mainly three types of savings such as savings in commercial banks, private saving groups and gold /silver. Out of the total sample households, 39 percent of household come under the category of commercial bank deposits, 35percent and 11 percent of households have savings in gold/silver. Others include more than one type of savings, it include 15 percent of the total households.

Table No:4.19 Amount of Loan

Amount	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Up to 1 lakh	12	2	4	18
1- 5 lakh	25	27	24	76
5-10 lakh	5	2	2	8
10-15 lakh	2	0	0	2
15 lakh & above	0	1	0	1
Total	44	32	29	105

Source: primary survey

Table No:4.19 presents, Out of the 300 samples only 105 households have liabilities to the financial institutions. It can be categorised in to 5 i.e., up to 1 Lakh, 1-5 Lakh, 15 Lakh, 5-10Lakh. 10-15 Lakh, 15 Lakh and above [Household took loan for various purposes]. From the table we can see that up to 25 percent of households in each district took loan between 1-5 Lakh only, only one household in Thrissur district took loan with the amount of 15 Lakh and above.

Table No:4.20 Purpose of Loan

Purpose	Town			Total
	Ernakulam	Thrissur	Kozhikode	
For Health	0	1	0	1
For Marriage	7	3	3	13
Others	38	28	26	91
Total	44	32	29	105

Source: primary survey

Table No:4.20 reveals Household have been taken loan for various purpose such as health, marriage and others (it include vehicle loan, home loan etc.). Out of total 105 households (liability households) 86 percent of the household took loan for house and vehicle purpose. 13percent of households took loan for marriage purpose. In generally there is one talk that is currently large number of households will take loan for meeting health expenditure. But it is not true in the study area. Only one household took loan for health purpose.

FINDINGS

- Primary data is collected from Ernakulam, Thrissur and Kozhikode districts in Kerala. Out of the total 1178 people, male constitutes about 51percent, females constitutes about 49 percent. In the total population majority of them are males. Consider the male female ratio; males are dominating the study area.
- In the total sample majority of them coming under the age group of 15-30(265 people) and 45-60 (265 people).As compared to younger generation old age people is not less in the study area.
- Income, housing, drinking water and sanitation, waste disposals, fast food consumption, etc are the major determining factors for health status in the study area.
- Consider the income wise classifications, In Eranakulam and Kozhikode nearly 30 percent of households belongs to the income group of 30001 and 40000, In Thrissur most of the households belongs to the income group of 10000 and 20000. Only 25 percent of households in Eranakulam and Kozhikode come under the higher income group i.e. higher proportion of households come under the higher income group but nobody reveal or they have no interest to share the amount of income. Only less than 15 percent of households coming under the income group of less than 10000.
- Housing is one of the important determinants of urban health. Above 80 percentage of the households in the 3 districts have owned house, Only less than 15 percent of households depends on rented house.

- In the case of drinking water, 68 and 50 percent of households in Eranakulam and Thrissur districts depends on water connection for drinking water. 40 percent of households in Eranakulam and Thrissur have own well. Bore well is also an important source of drinking water. Public well available in the locality of the study area, but nobody depends on these public well for drinking water especially in Ernakulam and Thrissur district but Kozhikode 4 percent of households depends on public well for drinking water.
- As compared to rural area purity of water is very less in urban water. There are so many possibilities for emerging water born diseases. For avoiding these types of diseases households purifying water by using different sources such as electronic purifier, boiling water, water purifier etc. More than 75 percent of the households in each district using water only after boiling.
- Out of the total households nearly 60 percent of the households have the habit of fast food consumption.
- People in the urban area are throughing their waste to the open yard outside their compound. There are various sources for waste disposal such as throughing waste to open yard with in the compound, outside the compound, burning, collection of waste by corporation etc. Nearly 35 percent of the households in Ernakulam and Kozhikode districts dispose their waste through corporation. Among the total 300 households 16 percent throughing their waste on outside the compound. It will create so many problems especially health problems

- Households depends on various sources for income such as business , Salary job, land or property, interest from bank deposits , Social security schemes etc. but business is the main source of income of households in urban areas.
- Among the total population, 235 had met communicable diseases such as Hepatitis, Chickenpox, T.B, Water born diseases, etc. Among these most of them(38 percent) had been found water born diseases,27 percent of people was faced T.B. Even though central government introduced so many schemes for eradicating T.B but our state cannot completely eradicate T.B.
- Consider the non communicable diseases, our study is also supporting the global trend that is number of cases of non communicable diseases (351) are greater than communicable diseases(235).
- In the non communicable diseases 63 and 21percent of them have cardiac and neurological diseases.
- The number of accidental injury cases among the households are very less in the study area only 9 percent of the people met accidental injuries.
- People permanently taken medicine for some type of diseases such as blood pressure, diabetes, cholesterol and breathing problems.

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CHAPTER V

ANALYSIS OF UTILISATION OF HEALTH CARE SERVICES AND HEALTH EXPENDITURE IN URBAN KERALA

INTRODCUTION

Chapter V is classified in to three. First part includes morbidity in the study area, second part contains utilisation of health care services and third section describes health expenditure in Kerala. Utilisation of health care depends on perception of diseases of each individual. Perception of disease is different among different people. In Kerala we mainly followed three type of health care system such as Allopathy, Ayurveda and Homeopathy. Human Development Report 2009 noted that more than 50 percent of the people in Kerala followed allopathic treatment. Old age people depend on Ayurveda treatment and currently people give more preference to homeopathic treatment for children. Due to the lack of financial resources for health government introduced user charges or user fee for treatment. This leads to increasing out pocket expenditure on those who utilised public services. On the absence of efficient facilities in public sector people were forced to depend on private hospitals for better treatment. It is a golden opportunity for private health care system and they increase the cost of health care services. Privatisation is the main reason for increasing health expenditure in Kerala.

5.1 MORBIDITY IN THE STUDY AREA

For analysing period of morbidity diseases can be divided in to two (1) communicable diseases (2) non communicable diseases. Communicable diseases are infectious and spread from one person to others. Example. Leptospirosis, Hepatitis, Malaria, T.B, Waterborne diseases etc. Diseases like small pox, Guinea

Worm have been eradicated in India but diseases like T.B, Hepatitis etc. are still existed. Non communicable diseases include cardio vascular diseases, neurological diseases, psychological diseases, etc.

Table No: 5.1 Major Communicable Diseases during the last three months of survey

Diseases	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Dengue fever	3	2	4	9
Leptospirosis	3	1	6	10
Hepatitis	23	20	18	61
Malaria	1	1	0	2
Chicken pox	9	16	11	36
TB	7	11	9	27
Water born diseases	33	27	30	90
Total	79	78	78	235

Source: primary survey

From table No:5.1 it is revealed that,. Out of total 1178 people, 235 had met communicable diseases such as Hepatitis, Chicken pox, T.B, Waterborne diseases etc. As compared to rural area urban area had the possibilities for deriving or emerging water born diseases. In the study area 38 percent of people (count of 235 people) had been found water born diseases. Central Government introduced so many schemes for eradicating T.B but we cannot eradicate T .B like small pox. In the study area 27 percent (out of 235) of people is now facing T.B

and 36 percent had been faced chicken pox. As compared to earlier year number of cases of Dengue fever, Leptospirosis and Malaria was very less.

Table No: 5.2 Non Communicable Diseases during the last three months

Diseases	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Cardiac	94	78	82	254(72.3)
Neurological	19	39	17	75(21.3)
Psychological	0	2	1	3(.9)
Others	5	8	6	19(5.5)
Total	118	127	106	351(100)

Source: primary survey

From table No:5.2 it is understood that, in the present World non communicable diseases are the major reason for morbidity and mortality. WHO (2001) reported that Non Communicable Diseases are the main factor for 60 percent of death in global basis and 75 percent of the total deaths in developing countries. Rapidly changing life style is positively related to Non Communicable Diseases. High alcoholic consumption, and physical inactivity, overweight, obesity are the major determinants of urban health. It also leads to high blood pressure, increasing Cholesterol level, variations in insulin etc. It increases the cases of Coronary heart diseases, Stroke, Diabetes mellitus, Cancer, etc.

Study area is also supporting the global scenario i.e. Number of cases of Non Communicable Diseases (351) are greater than Communicable diseases (235). Non Communicable Diseases include Cardiac diseases, neurological, Psychological diseases, etc. If a person had met more than one disease that

included in the others category. Out of the total 1178 People 351 people are facing Non Communicable Diseases. Among the cases of Non Communicable Diseases 72 percentage of them met Cardiac Diseases 21 percentage of them had neurological diseases

Analysing morbidity in the study area we considered the total number of cases of communicable and non communicable diseases and using following formula

$$\text{Morbidity} = \frac{\text{Number of ailing persons in the urban area}}{\text{Total number of population}} * 1000$$

$$= 586/1178 * 1000$$

$$= 497.4$$

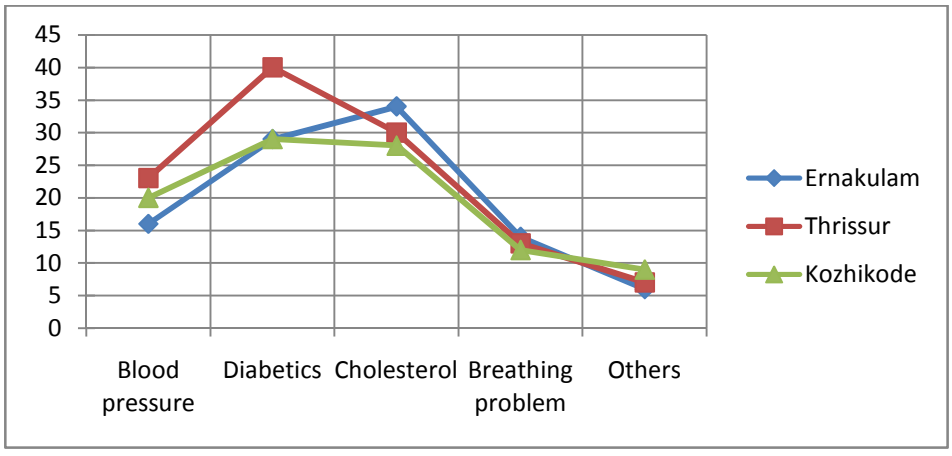
Comparing the morbidity rate of study area (497.4) with NSSO 62nd Round data(24.06) on urban Kerala revealed that morbidity rate is increasing especially the non communicable diseases rate is increasing at higher rate. There are number of reasons for increasing morbidity rate, First, increasing life expectancy ,second high literacy rate and third behaviour pattern of people in Kerala ie; suppose today one person is sneezing suddenly tomorrow they will go to hospital for treatment. People in Kerala are well bothered or well conscious about their health .These are the main factors leads to high morbidity in urban Kerala.

Table No: 5.3 Total Number of Persons Permanently Taken Medicine

Diseases	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Blood pressure	16	23	20	59
Diabetics	29	40	29	98
Cholesterol	34	30	28	92
Breathing problem	14	13	12	39
Others	6	7	9	22
Total	99	113	98	310

Source: primary survey

Figure5.1 Number of Persons Permanently Taken Medicine



Source: primary survey

From table No: 5.3 it is shows that, the total number of persons permanently taken lifestyle medicines. Present world is the globalization era or

urbanization era, people facing more lifestyle diseases or Non Communicable Diseases than Communicable Diseases. We can see that people are permanently taken medicine for some type of diseases such as B.P, Diabetes, Cholesterol and Breathing problem. We cannot found out that, any one family without any type of these diseases. Out of total sample population 310 people are facing different type of life style diseases [B. P, Diabetes, Cholesterol, Breathing problem etc.] and permanently taken medicine for these types of diseases. Among these 32 percentage are Diabetic patients, 30 percentage Cholesterol patients, 19 percentage are facing B.P variations (B.P high or low) 12 percentage of them had breathing problems. Others include combination of above four diseases [with 13 percentage diabetic, B.P and Cholesterol, Cholesterol and breathing problems etc. Majority of these patients are taken medicine from last 5 years onwards. This leads to increasing health expenditure.

Table No: 5.4 Period of Permanently taken medicine

Period	Town			Total
	Ernakulam	Thrissur	Kozhikode	
One month	4	7	8	19(6.2)
Six Months	16	23	10	49(15.8)
One Year	34	25	31	90 (29.0)
More than 1Year	39	45	40	124(40)
Others	6	13	9	28(9.0)
Total	99	113	98	310

Source: Primary Data

From table No.5.4 it is reflected that period of permanently taken medicine by the people in urban area. It reveals that out of the total population 310

people are usually follows medicines for lifestyle diseases. Among these most of them (40 percentage)continuously used medicines by more than one year. We can't see any one family without any lifestyle diseases, at least one person in a family follows medicines because they may be cardiac or diabetic patients. Others category include more than one person in a family takes medicines from various periods. Data reveals that while people continuously take medicines will leads to increasing their health expenditure in the total expenditure.

Table No. 5.5 Type of Preventive Health Care Methods

Preventive methods	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Regular health check ups	31	41	54	126
Stress relaxing techniques	18	1	1	20
Facilities for exercise	6	0	2	8
Food control	20	30	28	78
Others	19	15	18	52
Total	94	87	93	284

Source: primary survey

From table No: 5.5 it is understood that, People in Kerala are well educated so they are very conscious about their health and give more importance to preventive health care methods. Out of the total 300 households,95 percent of the households take preventive health care methods, it include regular health checkups, stress relaxing techniques, facilities for exercise, food control, etc.

Majority of the households in three districts follows regular health checkups. Nearly 30 percent of the households controlling food as a part of preventive health care methods. Some households in Ernakulam (6 households) and Kozhikode (2 households) districts have exercising facilities, others include of persons using more than one preventive health care methods.

Vaccination against Diseases In the case of vaccination against diseases we can see uniformity among the districts i.e. only 15 percent of the households in each district take vaccination against diseases. Among the total households (300) 15 percentage of them takes vaccination against diseases.

Table No: 5.6 System of Medical Treatment among Children

System	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Allopathy	33	52	57	142(72.0)
Homeopathy	17	8	9	34(17.3)
Ayurveda	2	0	5	7(3.5)
Others	5	4	5	14(7.2)
Total	57	64	76	197(100)

Source: primary survey

From table No: 5.6 it is understood that present medical treatment, it include Allopathy, Ayurveda and Homeopathy. In the total population (1178] 197 are children. Higher proportion of children in Eranakulam [58 percent], Thrissur [81 percent] and Kozhikode [75 percent] follows Allopathy for medical treatment. There are some differences in the utilisation of medical treatment i.e. more than

75 percent of the children in Thrissur and Kozhikode depends on Allopathy for medical treatment, dependency rate on Allopathy in Ernakulam is only 57 percent. As compared to Thrissur and Kozhikode they give importance to homeopathy for children. Dependency ratio on homeopathy in Ernakulam district is too high (30 percent) as compared to Thrissur (12.5) and Kozhikode (12). Dependency on Ayurveda is very less in Ernakulam and Kozhikode it is only less than 10 percent and nobody depends on Ayurveda in Thrissur district. Households in the study area give more preference to Allopathic treatment for children and next to the Homoeopathy treatment. Dependency on Ayurveda for medical treatment on children is decreasing in the present generation.

Table No: 5.7 Classification of choices on different type of hospital

Type	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Private	73	67	67	207(69)
Public	17	14	18	49(16.3)
Cooperative	6	6	8	20(6.7)
Private & public	4	13	7	24(8)
Total	100	100	100	300

Source: primary survey

From table No: 5.7 it is reflected that choices on different type of hospital include private, public, cooperative, private and public. Like fast growth of privatisation, dependency on private hospital has been increased vastly. Out of total 300 households 207 households (69%) depends on private medical agencies or private hospital for medical treatment, 16 percentage of the households purely

depends on public hospital and only 6 percentage of households depends on cooperative hospitals. In Ernakulam district nobody depends on cooperative hospitals. 11 percentage of the households depends both private and public. Here we can see that choices on private hospital have been increased at the same time choices on public hospital have been decreased day by day. Cooperative hospital had no more importance in medical treatment especially in Ernakulam district.

Table No: 5.8 Choices on medical agencies in the Private Sector

Type of agencies	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Private nursing home	6	7	3	16
Private Hospitals	40	37	24	101
Private Doctors	14	4	24	42
Clinic	12	11	2	25
Others	1	8	14	23
Total	73	67	67	207

Source: primary survey

From table No: 5.8 it is describes Medical agencies in the private sector include private nursing home, private hospitals, private doctors, private clinics, etc. In the total, 207 households depends on private medical services, in that majority of them (49 percentage) depends on private hospitals, 20 percentage depends on private doctors. Dependency on private nursing home and clinics are very less.

Table No: 5.9 Utilisation of Public Sector Hospital

Govt.Hospitals	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Community health centre	2	-	-	2
Primary health centre	2	2	-	4
District Hospital	8	12	14	34
Medical College	3			3
Others	2		4	6
Total	17	14	18	49

Source: primary survey

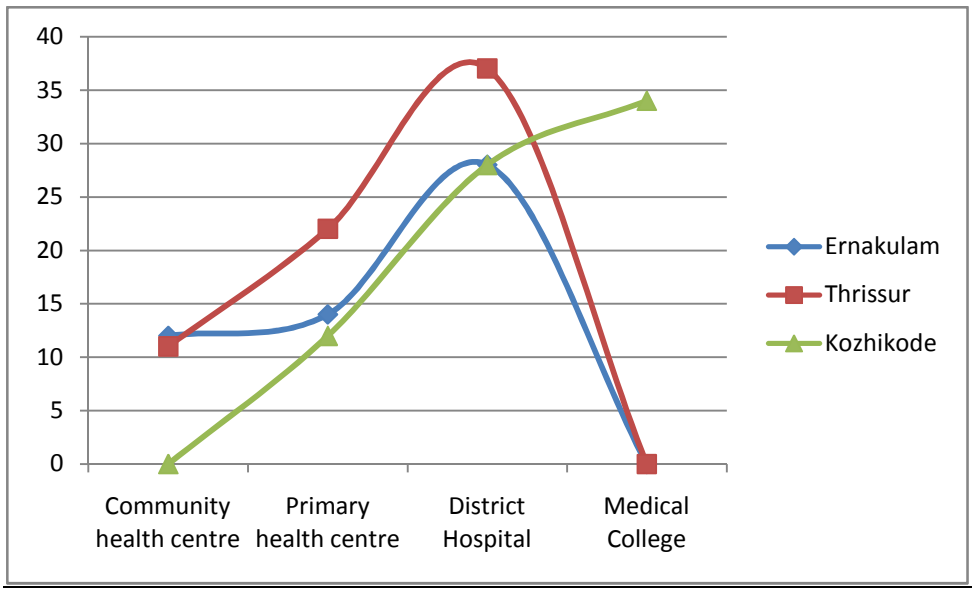
From table No: 5.9 it is shows that, Among the total households only 16 percent (49 households) depend on public medical services. It include Community health centers, primary health centers, district hospital and medical college. Utilisation of public sector medical services among the districts had a similar trend i.e.; Dependency on public hospitals in Ernakulam district is 17 percentage, Thrissur 14 percentage, Kozhikode 18 percentage. Among these most of them depends on District hospital (69 percent).6 percentage of household in Ernakulam and 8 percent of households in Kozhikode depends on medical colleges.

Table No: 5.10 Availability of medical facilities

Facilities	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Community health centre	12	11	-	23
Primary health centre	14	22	12	48
District Hospital	28	37	28	93
Medical College	-	-	34	34
Total	54	70	74	198

Source: primary survey

Figure5.2 Availability of medical facilities



Source: primary survey

From table No: 5.10 it is revealed that, availability of medical facilities on their locality. Primary health centers, Community health centers, District hospital

and medical colleges. More than 50 percent of the households in 3 districts available government medical facilities on their locality. Here we can see a contradictory situation i.e.; In Ernakulam district totally 54 household available different type of government medical facilities on their locality but only 17 households utilised these facilities(14 households available primary health centers, 12 household available community health centers and 28 households available district hospital).In Thrissur District 70 household available government medical facilities(22 household available primary health centers,11 household available community health centers and 37 households available district hospital) but only14 household utilised these medical facilities. In Kozhikode district 74 household available government medical facilities on their locality (12 household available primary health centres.28 household available district hospitals and 34 households available medical college.) but only 18 household utilised these government medical facilities. This trend shows decreasing the utilisation of public medical services and increasing the utilisation of private medical services. There are so many reasons for these situations that will be discussed in later tables.

Table No: 5.11 Reasons for Non utilising Government Medical Services

Reason	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Inconvenient timings	11	14	8	33
Lack of lab facilities	32	28	30	90
Rude behaviour of doctors and staff	18	23	23	64
Far away	12	10	10	32
Others	10	11	11	32
Total	83	86	82	251

Source: primary survey

From table No: 5.11 it is understood that non utilisation of Government facilities. Among the 300 households 251 households didn't utilised government health care facilities. Out of the total, 198 households available these facilities on their locality but only 49 households utilised government medical facilities. There are so many reasons for non utilising government facilities. Throughout the survey we can found out that inconvenient timing, lack of lab facilities, rude behaviour of medical staff, far away from house, etc are the major factors for non utilising. Nearly 30 percent and 40 percent of the households in each 3 districts said that lack of lab facilities and rude behaviour of the medical staff are the major reasons for non utilising government medical facilities. As compared to private hospital, there are no necessary lab facilities in the government hospital and approaches of medical staff to patients are very rude, so they didn't depends on

government medical facilities. As a part of government rule a health nurse must be visit in each area but in our study 283 households told that nobody visit from health department.

Table No: 5.12 Age wise classification of Inpatients

Age	Town			Total
	Ernakulam	Thrissur	Kozhikode	
0-15	2	1	4	7
16-30	3	9	0	12
31-45	3	16	6	25
46-60	12	15	12	39
60&above	18	16	8	42
Total	38	57	30	125

Source: primary survey

From table No: 5.12 it is reflected that among the total population 125 had met hospitalised treatment. Here we can classify inpatients on the basis of age i.e.; age between 0-15, 16-30, 31-45, 46-60, 60 and above. Majority of inpatients are coming under the age group of 45 and above, total 81 people includes in this category. In Kerala higher numbers of people are in the category of 45 and above. Study area is also supporting this factor. As compared to Ernakulam (38 percentage) and Kozhikode (30 percentage) number of inpatients in Thrissur District is too high that is 57 percent.

Table No: 5.13 Inpatient Diseases

Diseases	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Cardiac	21	23	13	57
Neurological	7	16	9	32
Common fever	8	12	6	26
Accidents	2	6	2	10
Total	38	57	30	125

Source: primary survey

From table No: 5.13 it is reflected that, Major inpatients diseases are classified in to five i.e.; cardiac diseases, neurological diseases, common fever without any reason and accidental injuries. Our literature shows that number of cardiac diseases is increasing day by day. This factor is true in the study area also. Consider the inpatients diseases in each district we can see that more than 40 percentage of the patients had met cardiac disease. There are different types of fevers such as dengue fever, chikenguinea, H1N1, etc. but we can't see any one with these type of fevers20 percentage of the inpatient had met fever without any reason. Numbers of accidental cases are common in Kerala. As compared to state level numbers of accidental injuries are very less in our study area.

Table No: 5.14 Number of days Hospitalised

Days	Town			Total
	Ernakulam	Thrissur	Kozhikode	
1-7 days	29	34	13	76
8-14 days	5	16	12	33
15 & above	4	7	5	16
Total	38	57	30	125

Source: primary survey

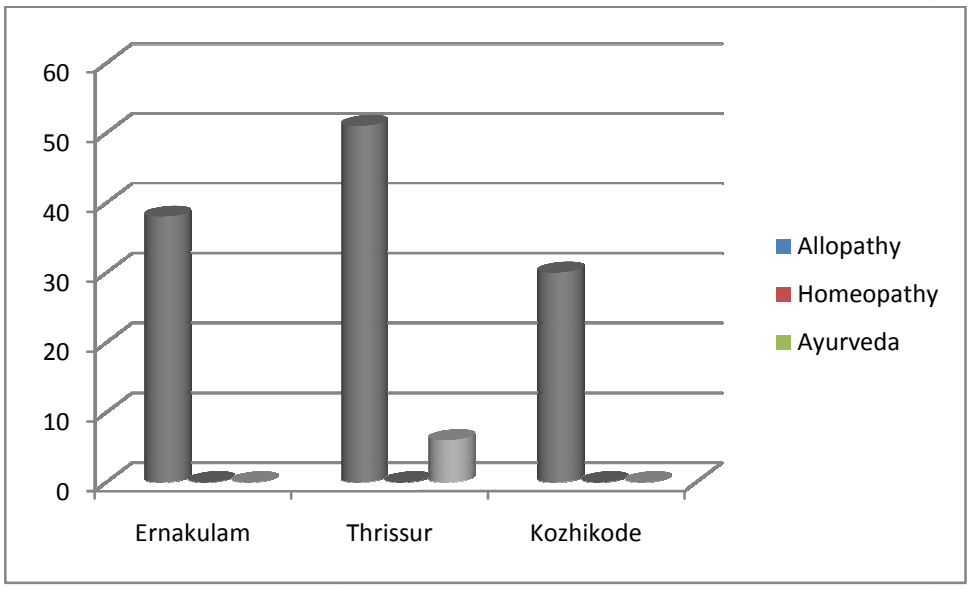
Table No.5.14 shows that, number of hospitalised days. Among the total inpatients (total125 inpatients) 59 percentage of them were hospitalised between 1-7 days, (nearly 50 percent of the inpatients in each district were hospitalised between 1-7 days). Only less than 15 percent were hospitalised in 15 days and above.

Table No: 5.15 Agencies for Hospitalised Treatment

Agency	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Allopathy	38	51	30	119
Homeopathy	-	-	-	-
Ayurveda	0	6	0	6
Total	38	57	30	125

Source: primary survey

Figure 5.3 Agencies for Hospitalised Treatment



Source: primary survey

From table No: 5.15 it is understood that, Agency for hospitalised treatment includes Allopathy and Ayurveda. In the total hospitalised patients 95 percentages of them followed Allopathy, only 5 percentage followed Ayurveda. Through this we can understood one thing ie; most of the people in the study area give importance to allopathic treatment. This trend is same in our state also.

Table No: 5.16 Number of Deaths

Gender	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Male	10	22	6	38
Female	6	5	3	14
Total	16	27	9	52

Source: primary survey

Table No: 5.16 reveals number of deaths up to the last three months of the survey period. Number of deaths in this period was 52, it include 38 males and 14 females.

Table No: 5.17 Reason for Death

Reason	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Accident	2	1	1	4
Normal death(old age death)	5	3	1	9
Cardiac	1	17	4	22
Neurological	7	6	3	16
Various fevers	1	0	0	1
Total	16	27	9	52

Source: primary survey

Table.5.17 shows there are various types of reasons for death, it can be categorised in to cardiac diseases, neurological diseases, various fevers (such as chikenguinea, dengue fever, etc), normal death (old age death) and accident. Out of the total death cardiac diseases (reason for 42 percent of death) and neurological diseases was the major reason for death. Accidental deaths are low in three districts.

HEALTH EXPENDITURE IN URBAN KERALA

In socially Kerala is one of the most advanced states in India with high literacy rate and better health care system. After independence, state achieved significant progress in human development. The proportion of elderly was around 9 percent to the total in 1991, with the decline in fertility and mortality rates population projections expect to increase 19 percent in 2021 and 35 percent in 2051(Census 2001). After the implementation of new economic reforms there was reduction in expenditure in social sector. Due to some financial constraints, quality of public services especially public health services has decreased. Lack of investment in public health services leads to unregulated expansion of private sector in health care system. Lack of facilities in government hospitals people were compelled to depend on private health care system. This leads to financial threat of household health care system and increased out of pocket health expenditure . Increasing health expenditure will restrict the accessibility of health care system to the poor households. With the high literacy rate, people were well aware or well bothered about their healthcare so the utilisation of health care services was shifted from public sector to private sector (K.P.Kannan).

According to Aravindan increase in per capita medical expenditure was twice that of increase in general consumption expenditure. Non drug items like doctors fees, laboratory investigations, etc have shown a far greater increase, they coined the term mediflation for explaining the large increase in medical expenditure. NSSO 55^{th} round report shows that as compared to other states monthly percapita health expenditure of inpatient and outpatient was very high it

is based on health expenditure among different income groups, age, disease groups, etc

According to National Health Accounts Report, highest per capita health expenditure states were Kerala (1858), Haryana (1570), Punjab (1530), Himachal Pradesh (1305), Uttar Pradesh (1124),etc. and lowest states were Assam(569), Orissa(582), Rajasthan(597), Karnataka(712), etc.

During the period of 1950's health expenditure was a significant area. Technological development in medical sciences or application of advanced medical technology improved the health condition or health status of the people in Kerala. During the period of 90's and after Liberalization, Privatisation and Globalisation polices, there was a reduction in financial assistance from Central to State and declined the share of health expenditure among the total expenditure. This leads to increasing private health expenditure or per capita health expenditure among the people and creates financial burden or financial threat to the society. Here we discussed about health expenditure in the study area ie. health expenditure in Ernakulam, Thrissur, and Kozhikode Districts.

Table 5 .18 District wise Income & Health Expenditure in Kerala

Income	Town					
	Ernakulam		Thrissur		Kozhikode	
	Medical Expenditure	Total Expenditure	Medical Expenditure	Total Expenditure	Medical Expenditure	Total Expenditure
Up to 10000	1243.58	5586.85	1442.42	5399.28	1212.24	5285.14
10001-20000	2708.06	9441.11	2991.23	9234.44	2624.12	9383.74
20001-30000	2634.47	15601.1	3231.41	14400.62	3198.84	16861.28
30001-40000	1301.25	15890.25	2426.64	18938.28	2686.46	19252.46
40000& Above	1212.12	25134.12	1898.82	24988.84	1902.53	26472.47
Total	1819.89	15230.68	2398.10	14592.29	2328.44	15451.2

Source: Primary Survey

From table No. 5.18 shows district wise monthly health expenditure. It is analysed on the basis of income distribution and results found that as income increases health expenditure also increases but after a particular level of increased income or higher income class health expenditure will be declined. Ernakulam, Thrissur and Kozhikode shows similar trend that is in Ernakulam district up to 10000 income group spend 23 percent of their total expenditure for medical care(1243.58 /5586.85).In Thrissur district the same income group spend 1442.2/5399.28 for medical expenditure and in Kozhikode 10000 income group spend 23 percent of their total expenditure for medical expenses.

When we consider the income class of 40000 and above, they spend only 1212.12 out of 25134.12 (5 percent of total expense).Up to 30000 income level there is an increasing trend in health expenditure of these category but above 30000 income class ,there is decreasing trend in health expenditure. There are various reasons for low income group spend too much for health expenditure and high income category spend less amount for health expenditure.

Low to diseases become income category do not take any treatment at the initial stage of any ailment, this will lead to diseases become chronic. In this situation we must spend too much for health expenditure but the situation of high income category is different. Suppose if they have any symptom related to any disease, immediately they go to hospital for better treatment.

Household with low income category do not have interest take treatment by giving up their daily duty ,it creates their acute diseases become chronic. So they must spend too much for health.

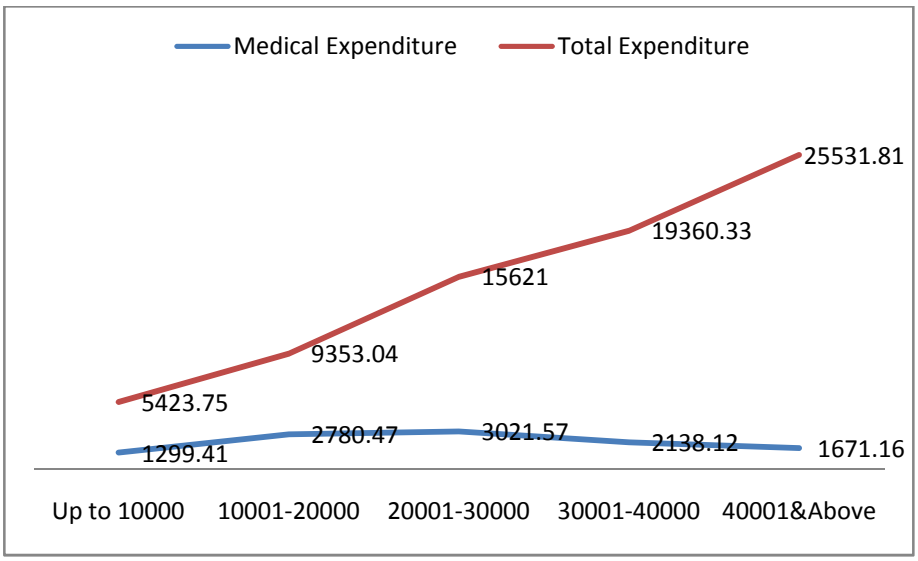
Table No 5.19 Income and Per capita health Expenditure

Income	Ernakulam		Thrissur		Kozhikode	
	Per capita medical expenditure	Per capita medical expenditure	Per capita medical expenditure	Per capita medical expenditure	Per capita medical expenditure	Per capita medical expenditure
Up to 10000	203(23)	931	120.2(24)	499.64	121.2(23)	528.51
10001-20000	271(29)	944	78.71(32)	243.01	131.20(28)	469.18
20001-30000	132(17)	780	153.87(22)	685.74	188.16(19)	991.84
30001-40000	45(11)	407	161.77(13)	1262.55	95.94(14)	687.58
40000& Above	48.48(5)	1005	135.63(7)	1784.91	760.10(7)	1058.89

Source : Primary Survey

From table No. 5.19 it is understood that per capita health expenditure. Low income category up to 10000 people spend at least Rs.207 per month for medical expenses. Up to 20000 income group per capita health expenditure is 271 per month. Above 30000 income group in Ernakulam,Thrissur and Kozhikode district spend minimum Rs.45 for their health.

Figure 5.4 Income Wise Health Expenditure in Urban Kerala



Source: Primary Survey

Table 5.20 Age wise Health Expenditure among the Districts

Age	Ernakulam		Thrissur		Kozhikode	
	Medical Expenditure	Total Expenditure	Medical Expenditure	Total Expenditure	Medical Expenditure	Total Expenditure
Up to 14	140.34	980.85	117.98	717.95	157.40	1044.48
15-30	114.44	1151.45	169.79	1333.15	145.30	964.15
31-40	109.19	913.84	143.88	875.53	169.79	1081.57
41-50	327.58	2741.52	479.62	2918.45	442.40	2935.69
51-60	545.97	4569.20	695.45	4231.76	721.82	4189.82
60& Above	582.37	4873.82	791.38	4815.47	698.53	4635.31
Total	1819.89	15230.68	2398.10	14592.29	2328.44	15451.02

Source: Primary Survey

From table No. 5.20 shows age wise per capita health expenditure. In this analysis we consider only health expenditure of patients. It includes, fee for consultation, lab test, medical drugs, travelling charge, etc. Study result understood that above age group 40 spend too much money for medical expenses because after 40 people met some life style diseases such as blood pressure variations, diabetes, cardiovascular diseases, etc. Cost of these medical drugs is increasing day by day. In the study area more than 50 percent of the people are above 40age group. Advanced medical care facilities are available in theses three districts. It leads to increasing life expectancy. In the study area 15 percent of the populations are old age persons. They have various types of diseases. So this dependency group needs too much money for maintaining their health. In Thrissur and Kozhikode district per capita health expenditure per month is Rs.722 and Rs.

695 .It is Rs. 546 in Ernakulam district , as compared to other two districts people in Ernakulam take preventive health care methods such as regular exercise, food control, etc .This is reason for low per capita expenditure in Ernakulam District.

Table No: 5.21 Type of health Insurance

Type	Town			Total
	Ernakulam	Thrissur	Kozhikode	
Employer insurance scheme	4	4	5	13
Central Govt. health scheme	22	19	13	54
Privately purchased insurance	28	29	29	86
Others	1	1	2	4
Total	55	53	49	157

Source: primary survey

Table No. 5.21 shows among the total 300 households 157 had insurance coverage. It includes various types of health insurance schemes such as employer insurance scheme, central government health scheme and other private insurance. In the total insured households more than 50 percent of them had been taken private health insurance.34 percent of the households are coming under central government health insurance scheme but majority of these households didn't t utilised this scheme.

Table No:5.22 Reason for not covering health Insurance

Reason	Town			Total
	Ernakulam	Thrissur	Kozhikode	
No need	40	34	40	114
No proper information	5	2	9	16
Financial reason	0	11	2	13
Total	45	47	51	143

Source: primary survey

Table 5.22 reveals that, different types of health insurance schemes are available in the present world so people took any type of health insurance for avoiding risk in the health expenses. But in our study area 47 percent of the household didn't purchase any type of health insurance. In that 79 percent of the household said that they have no need for purchasing any health insurance. They are always ready for accepting any type of risk in health expenses.

FINDINGS

- The study found that morbidity rate in the study area is 497.4, compared to morbidity of kerala in 2010(270).
- Consider the health care system, Allopathy, Ayurveda and Homoeopathy services are available in the study area. Among the three districts, 58, 81,and 75 households in Ernakulam, Thrissur, and Kozhikode followed allopathic treatment.
- Dependency ratio on homeopathy in Ernakulam district is too high (30 percent) as compared to Thrissur (12.5) and Kozhikode (12). Dependency on Ayurveda is very less in Ernakulam and Kozhikode it is only less than 10 percent and nobody depends on Ayurveda in Thrissur district.
- Out of the total sample more than 70 percent of the households prefer private health care services; only 16 percent depends on public health care services.
- Private sector provide medical services through private doctors, private nursing home, clinics, etc
- Among the total 300 households 207 households (69%) depends on private medical agencies or private hospital for medical treatment, 16 percent of the households purely depends on public hospital and only 3 percentage of households depends on cooperative hospitals.
- The public sector provides medical services through primary health centres, community health centres, district/taluk hospital and medical college.
- Consider the availability and utilisation of medical facilities, In Ernakulam district totally 54 household available different type of government medical facilities on their locality but only 17 households utilised these facilities(14 households available primary health centers, 12 household available community health centers and 28 households available district hospital).
- In Thrissur District 70 household available government medical facilities(22 household available primary health centers,11 household

available community health centers and 37 households available district hospital) but only14 household utilised these medical facilities.

- In Kozhikode district 74 household available government medical facilities on their locality (12 household available primary health centres.28 household available district hospitals and 34 households available medical college.) but only 18 household utilised these government medical facilities. This trend shows decreasing the utilisation of public medical services and increasing the utilisation of private medical services.
- The study found out that inconvenient timing, lack of lab facilities, rude behaviour of medical staff, far away from house, etc are the major reasons for non utilising Government medical facilities.
- The study reveals that among the total population 125 had met hospitalised treatment.
- The study classified inpatients on the basis of basis of age i.e.; age between 0-15, 16-30, 31-45, 46-60, 60 and above. Majority of inpatients are coming under the age group of 45 and above, total 81 people includes in this category. Like Kerala's population higher numbers of inpatients in the study area are in the category of 45 and above.
- Among the inpatients more than 40 percent of the them had met cardiac disease.
- Out of the total inpatients (total 125 inpatients) 59 percent of them were hospitalised between 1-7 days, (nearly 50 percent of the inpatients in each district were hospitalised between 1-7 days). Only less than 15 percent were hospitalised in 15 days and above.
- Numbers of accidental cases are common in kerala. As compared to state level, number of accidental injury case is less in our study area.
- In the total hospitalised patients 95 percent of them followed Allopathic treatment, only 5 percent followed Ayurveda.

- The study found that number of deaths up to the last three months of the survey period was 52, it include 38 males and 14 females.
- Out of the total death, cardiac diseases (reason for 42 percent of death) and neurological diseases was the major reason for death.
- Test result shows that income and health expenditure have significant relationship between themselves. Household with low Income group needs high health expenditure. They did not take any treatment at the initial stage of any ailment, this will led to diseases become chronic in this stage health expenditure become too high. But the situation of high income class is too different that is they take medical treatment at the initial stage of any ailment suppose if they have any symptom related to any disease, immediately consult with a doctor for better treatment. So they need only less money for health expenditure.
- Study result revealed that there is significant relationship between income and health expenditure, as income increases health expenditure also increases but after a particular level of increased income or higher income class health expenditure will be declined. Ernakulam, Thrissur and Kozhikode shows similar trend that is in Ernakulam district up to 10000 income group spend 23 percent of their total expenditure for medical care(1243.58 /5586.85).In Thrissur district the same income group spend 1442.2/5399.28 for medical expenditure and in Kozhikode 10000 income group spend 23 percent of their total expenditure for medical expenses.
- Consider per capita health expenditure, Low income category up to 10000 -people spend at least Rs.207 per month for medical expenses. Up to

20000 income group per capita health expenditure is 271 per month. Above 30000 income group in Ernakulam,Thrissur and Kozhikode district spend at least 5 percent of their total expenditure for medical expenses.

- The study revealed that ,among the total sample(300 households) 157 households had insurance coverage.
- In the total insured households, more than 50 percent of them had been taken private health insurance.
- In the study area 47 percent of the household didn't purchase any type of health insurance. In that 79 percent of the household said that they have no need for purchasing any health insurance.

CHAPTER VI

SUMMARY AND CONCLUSION

INTRODUCTION

In this chapter include two sections, first section discuss summary of the study, it deals with major findings. Second section contain conclusion. The present study were focus on the topic "HEALTH PROBLEMS AMONG URBAN HOUSEHOLDS IN KERALA" and it look in to the objectives of evaluating available health care facilities in Kerala, morbidity and utilisation of health care services and health expenditure in urban kerala. These objectives can be analysed with the help of primary and secondary data by using the statistical tools like Multiple Regression, Simple Growth rate, Histogram, Pie diagram etc and important findings of the study are summarised as follows.

6.1MAJOR FINDINGS

- Primary data is collected from Ernakulam, Thrissur and Kozhikode districts in Kerala. Out of the total 1178 people, male constitutes about 51percent, females constitutes about 49 percent. In the total population majority of them are males. Consider the male female ratio; males are dominating the study area.
- In the total sample majority of them coming under the age group of 15-30(265 people) and 45-60 (265 people).As compared to younger generation old age people is not less in the study area.
- Income, housing, drinking water and sanitation, waste disposals, fast food consumption, etc are the major determining factors for health status in the study area.
- Consider the income wise classifications, In Eranakulam and Kozhikode nearly 30 percent of households belongs to the income group of 30001 and 40000, In Thrissur most of the households belongs to the income group of 10000 and 20000. Only 25 percent of households in Eranakulam and Kozhikode come under the higher income

group i.e. higher proportion of households come under the higher income group but nobody reveal or they have no interest to share the amount of income. Only less than 15 percent of households coming under the income group of less than 10000.

- Housing is one of the important determinants of urban health. Above 80 percent of the households in the 3 districts have owned house, Only less than 15 percent of households depends on rented house.
- In the case of drinking water, 68 and 50 percent of households in Eranakulam and Thrissur districts depends on water connection for drinking water. 40 percent of households in Eranakulam and Thrissur have own well. Bore well is also an important source of drinking water. Public well available in the locality of the study area, but nobody depends on these public well for drinking water especially in Ernakulam and Thrissur district but Kozhikode 4 percent of households depends on public well for drinking water.
- As compared to rural area purity of water is very less in urban water. There are so many possibilities for emerging water born diseases. For avoiding these types of diseases households purifying water by using different sources such as electronic purifier, boiling water, water purifier etc. More than 75 percent of the households in each district using water only after boiling.
- Out of the total households nearly 60 percent of the households have the habit of fast food consumption.
- People in the urban area are throughing their waste to the open yard outside their compound. There are various sources for waste disposal such as throughing waste to open yard with in the compound, outside the compound, burning, collection of waste by corporation etc. Nearly 35 percent of the households in Ernakulam and Kozhikode districts dispose their waste through corporation. Among the total 300 households 16

percent throughing their waste on outside the compound. It will create so many problems especially health problems

- Households depends on various sources for getting income such as business , Salary job, land or property, interest from bank deposits , Social security schemes etc. but business is the main source of income of households in urban areas.
- Among the total population, 235 had met communicable diseases such as Hepatitis, Chickenpox, T.B, Water born diseases, etc. Among these most of them (38%) had been found water born diseases, 27 percent of people was faced T.B. Even though central government introduced so many schemes for eradicating T.B but our state cannot completely eradicate T.B.
- Considered the non communicable diseases, our study is also supporting the global trend ie, number of cases of non communicable diseases (351) are greater than communicable diseases (235).
- In the non communicable diseases 63 and 21percent of them have cardiac and neurological diseases.
- The number of accidental injury cases among the households are very less in the study area only 9 percent of the people met accidental injuries.
- People permanently taken medicine for some type of diseases such as blood pressure, diabetes, cholesterol and breathing problems.

Analysis of the third objective (To assess the utilisation of health care services) revealed that,

- The study found that morbidity rate in the study area is 497.4, comparing this rate (24.06) with urban kerala (NSSO 62nd Round) it is very high.

- Consider the health care system, Allopathy, Ayurveda and Homoeopathy services are available in the study area. Among the three districts,58, 81,and 75 households in Ernakulam, Thrissur, and Kozhikode followed allopathic treatment.
- Dependency ratio on homeopathy in Ernakulam district is too high (30 percent) as compared to Thrissur (12.5) and Kozhikode (12). Dependency on Ayurveda is very less in Ernakulam and Kozhikode it is only less than 10 percent and nobody depends on Ayurveda in Thrissur district.
- Out of the total sample more than 70 percent of the households prefer private health care services; only 16 percent depends on public health care services.
- Private sector provide medical services through private doctors, private nursing home, clinics, etc
- Among the total 300 households 207 households (69%) depends on private medical agencies or private hospital for medical treatment, 16 percent of the households purely depends on public hospital and only 3 percentage of households depends on cooperative hospitals.
- The public sector provides medical services through primary health centres, community health centres, district/taluk hospital and medical college.
- Considered the availability and utilisation of medical facilities, In Ernakulam district totally 54 household available different type of government medical facilities on their locality but only 17 households utilised these facilities(14 households available primary health centers, 12 household available community health centers and 28 households available district hospital).
- In Thrissur District 70 household available government medical facilities(22 household available primary health centers,11 household available community health

centers and 37 households available district hospital) but only14 household utilised these medical facilities.

- In Kozhikode district 74 household available government medical facilities on their locality (12 household available primary health centres.28 household available district hospitals and 34 households available medical college.) but only 18 household utilised these government medical facilities. This trend shows decreasing the utilisation of public medical services and increasing the utilisation of private medical services.
- The study found out that inconvenient timing, lack of lab facilities, rude behaviour of medical staff, far away from house, etc are the major reasons for non utilising Government medical facilities.
- The study reveals that among the total population 125 had met hospitalised treatment.
- The study classified inpatients on the basis of basis of age i.e.; age between 0-15, 16-30, 31-45, 46-60, 60 and above. Majority of inpatients are coming under the age group of 45 and above, total 81 people includes in this category. Like Kerala's population higher numbers of inpatients in the study area are in the category of 45 and above.
- Among the inpatients more than 40 percent of the them had met cardiac disease.
- Out of the total inpatients (total 125 inpatients) 59 percent of them were hospitalised between 1-7 days, (nearly 50 percent of the inpatients in each district were hospitalised between 1-7 days). Only less than 15 percent were hospitalised in 15 days and above.
- Numbers of accidental cases are common in kerala. As compared to state level, number of accidental injury case is less in our study area.
- In the total hospitalised patients 95 percent of them followed Allopathic treatment, only 5 percent followed Ayurveda.

- The study found that number of deaths up to the last three months of the survey period was 52, it include 38 males and 14 females.
- Out of the total death, cardiac diseases (reason for 42 percent of death) and neurological diseases was the major reason for death.
- Test result shows that income and health expenditure have significant relationship between themselves. Household with low Income group needs high health expenditure. They did not take any treatment at the initial stage of any ailment, this will led to diseases become chronic in this stage health expenditure become too high. But the situation of high income class is too different that is they take medical treatment at the initial stage of any ailment suppose if they have any symptom related to any disease, immediately consult with a doctor for better treatment. So they need only less money for health expenditure.
- Study result revealed that there is significant relationship between income and health expenditure, as income increases health expenditure also increases but after a particular level of increased income or higher income class health expenditure will be declined. Ernakulam, Thrissur and Kozhikode shows similar trend that is in Ernakulam district up to 10000 income group spend 23 percent of their total expenditure for medical care(1243.58 /5586.85).In Thrissur district the same income group spend 1442.2/5399.28 for medical expenditure and in Kozhikode 10000 income group spend 23 percent of their total expenditure for medical expenses.
- Consider per capita health expenditure, Low income category up to 10000 -people spend at least Rs.207 per month for medical expenses. Up to 20000 income group per capita health expenditure is 271 per month. Above 30000 income group in Ernakulam,Thrissur and Kozhikode district spend at least 5 percent of their total expenditure for medical expenses.

- The study revealed that ,among the total sample(300 households) 157 households had insurance coverage.
- In the total insured households, more than 50 percent of them had been taken private health insurance.
- In the study area 47 percent of the household didn't purchase any type of health insurance. In that 79 percent of the household said that they have no need for purchasing any health insurance.

6.2 CONCLUSION

The study about HEALTH PROBLEMS AMONG URBAN HOUSEHOLDS IN KERALA concluded that, by evaluating health care facilities in urban area found out that health care facilities are available in the study area but the quality or efficiency of these facilities are very low. Socio, economic, cultural and environmental factors are the major determinants of urban health in India. In the socio economic conditions income, housing, drinking water and sanitation, waste disposals, fast food consumption, etc are the major influencing factors for health status in the study area. In the environmental factors Urbanisation is one of the major determinant of health status. In the morbidity status life style diseases or non communicable diseases are greater than communicable diseases. In the three districts more than 50 percent of the households available health care facilities on their locality but only less than 20 percent utilised these facilities. Inconvenient timing, lack of lab facilities, rude behaviour of medical staff, far away from house, etc are the major reasons for non utilising Government medical facilities. income and health expenditure have significant relationship between themselves. Household with low Income group needs high health expenditure. They did not take any treatment at the initial stage of any ailment, this will led to diseases become chronic in this stage health expenditure

become too high. But the situation of high income class is too different that is they take medical treatment at the initial stage of any ailment suppose if they have any symptom related to any disease, immediately consult with a doctor for better treatment. So they need only less money for health expenditure.

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APPENDIX

HEALTH PROBLEMS AMONG URBAN HOUSEHOLDS IN KERALA

INTERVIEW SCHEDULE

Name of the Town :

Date of interview :

A. General Information

1. Name of the Respondent :

2. Sex : M ☐ F ☐

3. Age :

4. Marital Status : Married ☐ Unmarried ☐

5. Religion : Hindu ☐ Christian ☐ Muslim ☐

6. Education Qualification :

B. Family particulars

A Sl.No	B Relationship To the head	C age	D M/F	E Marital status	F Educational status	G Employment G.S/PS/SE/UE	H Monthly Income

B. 1. Head 2. Spouse of the head 3. Son/daughter 4. Sister in law 5. Brother in law 6. Grand child

D. 1. Male 2. Female

E. 1. Married 2. Unmarried 3. Others

F. 1. Up to VIII 2. S.S.L.C 3. Plus two 4. Higher studies

G. 1. Govt 2. Private sector 3. Self employed 4. Unemployed

C. Housing Facility

1. Does the house hold have own house ☐ rented house ☐

2. What is the main Source of drinking water?

   Own well ☐ Public well ☐ Tube well ☐ Public Tap ☐

3. What is the quality of water?

   Clean ☐ Muddy ☐ Saline ☐

4. What will you do to purify the drinking water?

   Electronic purifier ☐ Water purifier ☐ boiling ☐ nothing ☐

5. What kind of toilet facility

   Sceptic latrine ☐ No Sceptic latrine ☐

6. What does the household dispose waste

   Open bin within the compound ☐

   Open bin outside the compound ☐

   In open yard within the compound ☐

   In open yard outside the compound ☐

   Burn the waste ☐

   Others (specify) ☐

D Consumption Particulars

Expenditure on

Monthly Expenditure	Rs.
Food	
House Rent	
Education	
Medical care	
Clothing	
Energy	
Others	

E Household Income And Liabilities

1. What is your total monthly household income.....

2. Did the household earn any income from the following source

   Own business ☐

   Regular salary job ☐

   From land or other property ☐

   Interest from bank deposit/Saving ☐

   Social security scheme ☐

   Remittance ☐

   Any other source (specify) ☐

3. Do you have any savings? Yes ☐ No ☐

4. If yes, where do you usually save?

   Commercial banks ☐

   Saving groups ☐

   Gold, Silver or other jewellery ☐

   Others (specify)

5. Has your household taken loan in the last one year? Yes ☐ No ☐

6. Loan details

Sl .No	A From where did You take loan	B How much is the amount	C What was the Interest rate	D What is the status of loan	E For what purpose

A: 1. Commercial banks 2. NGO 3. Money lenders 4. Others

B: 1. Repaid the loan 2. Outstanding the loan 3. Still in the loan period 4. Others

E: 1. Agricultural purpose 2. To pay off other loans 3. For health 4. For marriage 5. Others(specify)

F Health care use and Health Expenditure

1. What are the major diseases that have been affected your family ?

Communicable diseases	☐	Non Communicable diseases	☐
a. Dengu fever	☐	a. Cardiovascular diseases	☐
b. Leptospirosis	☐	b. Neurological diseases	☐
c. Hepatitis	☐	c. Diabetes Mellitus	☐
d. Malaria	☐	d. Lungs diseases	☐
e. Chicken pox	☐	e. Psychiatric disorder	☐
f. TB	☐	f. Accidental injuries	☐
g. Waterborn diseases	☐	g. Cancer	☐

2. Does anyone in the family continuously taken medicines for the following

Yes ☐ No ☐

If yes, specify

a.Blood preassure ☐

b.Diabetese ☐

c.Cholostrole ☐

d. Breathing problems ☐

3. When you are starting to take these medicines

Last one month ☐

Last six month ☐

Last one year ☐

4. Have had the habit 0f taking fast food? Yes ☐ No ☐

If yes, Daily ☐ Weekly ☐ Fortnightly ☐ Monthly ☐

5. Did you follow any preventive healthcare methods? Yes ☐ No ☐

If yes (specify)

1. Regular health checkups ☐
2. Stress relaxing techniques ☐
3. Facilities for exercise ☐
4. Life style related advice like diet/nutritional counselling ☐
5. All of the above ☐
6. Others(specify) ☐

6. Does the household take any vaccination against diseases? Yes ☐ No ☐

If yes (specify)

7. In general the system of medical treatment

1. Children : Allopathy ☐ Homeopathy ☐ Ayurveda ☐
2. Middle aged group : Allopathy ☐ Homeopathy ☐ Ayurveda ☐
3. Old aged : Allopathy ☐ Homeopathy ☐ Ayurveda ☐

8. What type of medical facilities are used for treatment?

Private Medical Sector	☐	Public Medical Sector	☐	Co-operative sector	☐
a. Pvt.Nursinghome	☐	a. Sub centre	☐	Co-operative hospitals	
b. Pvt.hospitals	☐	b. PHC.	☐		
c. Pvt.doctors	☐	c. Thaluk hospitals	☐		
d. Medical shop	☐	d. Community health centre	☐		
e. Clinic	☐	e. District hospitals	☐		
f. others (specify)	☐	f. Medical college hospitals	☐		

9. What type of govt. Medical facilities are available in your locality

a. PHC ☐ b. CHC ☐ c. Thaluk hospitals ☐ d. District hospital ☐

10. Did you utilise all these facilities? Yes ☐ No ☐

If yes, give details

Utilization of Government Facilities

When	What purpose	What is your opinion

11. What are the reasons for non utilising govt facilities?

a. Inconvenient timings ☐

b. Lack of lab facilities ☐

c. Rude behaviour of doctors and staff ☐

d. Far away ☐

e. Others (specify) ☐

12. Do you have public health nurse in your locality? Yes ☐ No ☐

If yes, did she ever visit your home? Yes ☐ No ☐

13. Did anyone in the family have any illness that required only outpatient treatment?

Yes ☐ No ☐

If yes (specify)

14. Does anyone in the household have hospitalised during the last three months?

Yes ☐ No ☐

If yes give details

Health Expenditure

Sl.No	Age	Name of diseases	No. of days hospitalised	Agency for treatment	HEALTH EXPENDITURE							
					medicine	Fees	Lab test	Surgery	Rent	Travelling	Food	Total

15. How did the household paid for the medical treatment?

a. Own money ☐ b. Worked overtime ☐ c. Insurance ☐ d. Sold property ☐

e. Borrowed money from money lender ☐ f. Support from friends and relatives ☐

f. Sold jewellery and household goods ☐

16. In the past 3 years there have been any deaths in the households? Yes ☐ No ☐

If Yes, give details

Sl .No	Gender M/F	Age	Reason for death

G. Nutritional Status

Sl.No	Age	Height	Weight	BMI

H. Nutritional Status of Mother and Child

a. Did you get anti natal care during pregnancy? Yes ☐ No ☐

b. Did you have any health problems at the time of delivery? Yes ☐ No ☐

If yes, (specify)

c. Whether your child has the problem of underweight at the time of delivery?

Yes ☐ No ☐

d. What are the major diseases faced by your child?

e. Nutritional awareness: 1. Low ☐ 2.Medium ☐ 3.High ☐

f. Did you attend any health and nutritional education classes? Yes ☐ No ☐

g. What is the major food item in your diet?

a. Vegetables ☐ b. Non-vegetables ☐ c. Fruits ☐ d. Snacks ☐ e. Soft drinks ☐

I. HEALTH INSURANCE

Sl.No	A Covered any health insurance	B What type of health insurance	C What are the reason for not covering health insurance

B 1. Employer Insurance scheme

2. Central govt health scheme

3. Medical reimbursement from employer

4. Other privately purchased commercial health insurance

5. Others

C 1. No need of 2. No proper information

3. Financial reason 4. Others