

**FEMALE EDUCATION AND HEALTH STATUS
OF HOUSEHOLDS IN KERALA – A CASE
STUDY OF THRISSUR DISTRICT**

Thesis

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for the award of the degree of

Doctor of Philosophy in Economics

By

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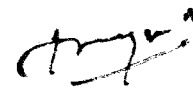
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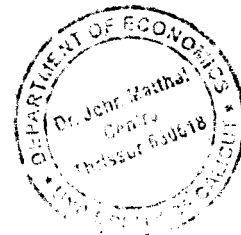
Certified that this written account on '**Female Education and Health Status of Households in Kerala – A Case Study of Thrissur District**', submitted for the award of the Degree of Doctor of Philosophy of the University of Calicut is a bonafide record of research work done by Miss. Rajini R. Menon under my guidance and supervision. No part of this work has been submitted earlier for the award of any other degree by any other university.

Place: Thrissur

Date: 18.06.07



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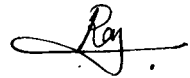
Declaration

I, Rajini R. Menon, do hereby declare that this written account titled **‘Female Education and Health Status of Households in Kerala – A Case Study of Thrissur District’** is a bonafide record of research done by me under the guidance of Dr. U T Damayanthi, Professor in Economics, University of Calicut.

I also declare that this thesis has not been submitted by me earlier for the award of any degree, diploma, fellowship or any other similar title.

Place: Thrissur

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Rajini R. Menon

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Introduction

Rajini R. Menon “Female education and health status of households in Kerala - A case study of Thrissur district” Thesis. Department of Economics, Dr. John Matthai Centre Thrissur, University of Calicut, 2007

Chapter I

Introduction

1.1 Introduction

Human beings are both, ends in themselves and means of production. So comes the need to promote human development. Health Status is a valid indicator of human development. Health Status of a population is also a reflection of social development of the country. The constitution of World Health Organisation says, "Enjoyment of the high standard of health is one of the fundamental rights of every human being". Good health is among the valuable possessions of human life. A positive health is defined as a state of complete physical, mental and social well being and not merely the absence of disease or infirmity(WHO, 1946).

The concern for health improvements stem from several considerations. Improvements in health translate into substantial gains in economic performance and overall wellbeing of society. Poor health adversely affects the economic well being of affected households and individuals. T.N.Krishnan¹ points out that a single episode of hospitalization in India account for 20 to 60 percent of annual percapita income. Health Status of a population may be influenced by a host of factors. Of the various components, mother's schooling emerges to be the prime determinant in the household production of health (Heller and Drake;1979², Behrman and Wolfe;1982³, Rosenzweig and Schultz;1982⁴).

Education and health are mutually reinforcing. Health is related to physical capability, education is concerned with imparting knowledge; ultimately helping a person to improve his/ her quality of life.

Education has strong impacts on health. It is a common indicator of socio economic status. Relationships between socioeconomic status and health have been widely studied by many social scientists. Educational attainment is set early in the life course compared to the levels of income and occupation which are other two indicators of socio economic status. It is the years immediately prior to retirement from labour force that a person would attain their highest level of occupation status and level of income. This life course stability to education makes it a preferred indicator of socio economic status (David Hay;2006⁵).

No longer passive recipients of welfare enhancing help, women are increasingly seen, by men as well as women, as active agents of change (Amartya Sen;2000⁶). The expansion of women's capabilities not only enhances women's own freedom and well-being, but also contribute substantially to the lives of all people - men as well as women, children as well as adults (Amartya Sen;2001⁷). Thus variables relating to women's agency (female literacy) play an important role in promoting the social well being than variables relating to general level of opulence in the society (Amartya Sen;2000⁶).

There are different perspectives on women's education. Women can play a significant role in determining the pace of change in the status of health. The household responsibilities of women provide ample room for contribution towards health. The family members comply with maternal

directions about diet, hygiene and other behaviour to avoid illness. Her expertise in the matters of childcare depends on the level of awareness of health needs in the changing systems and her level of education. Sanitation and hygiene in and around the family can be maintained only if women are aware of its importance.

Besides many other factors, overall happiness of the family depends a lot on good health, proper child care, appropriate food consumption, maintenance of proper sanitation and hygiene and so on. So no doubt, education of women deserves highest priority for improving the quality of life of all family members.

1.2 Importance of the study

Health transition comprises of three components ie, demographic transition, epidemiological transition and healthcare transition. Kerala has apparently made advances in all three components. The state has entered the final phase of demographic transition as seen from low death rate, birth rate and infant mortality rates as compared even to those of developed countries.

Epidemiological transition of Kerala reflects a morbidity profile which is a mixed one. On one hand we find acute infectious diseases resembling the morbidity pattern of typical underdeveloped country. On the other hand there is the emergence of chronic diseases especially among the adult population resembling the situation of developed countries which have gone through epidemiological transition.

The major difference of Kerala and countries of West is in the morbidity rate. The morbidity rate of Kerala seems to be more than that of other states of India. Kerala is also ranked high in terms of female literacy.

Women play a pivotal role in the household production of health. No other member in the family can perform such multiple roles for the benefit and overall happiness in the family resulting out of good health, proper childcare, appropriate food consumption patterns, maintenance of better sanitation and hygiene etc. In this context we have tried to expose the influence of female education on the health status of households in Kerala by considering Thrissur district as a representative sample.

1.3 Concepts

Female Education: It implies the education of our respondents. Our respondents are married females living along with family members. On the basis of the formal education received by our respondents they are classified into various education categories.

Household: A group of persons normally living together and taking food from a common kitchen (excluding temporary visitors) constitutes a household.

Health: It is considered as a state of complete physical wellbeing.

Health Status: Health Status is measured by a composite index of six indices (Physical environment index, consumption index, maternal health index, child health index, illness and treatment level index and health awareness index) which are constructed by considering the variables which directly or indirectly influences the health of individuals.

1.4 Objectives of the study

The major objective of the study is to delineate the determinants of health status in Thrissur district and to probe more into its influence on the former. Within this broad framework, the study has laid down the following specific objectives:

- (i) To study the health status of households in Kerala
- (ii) To delineate the determinants of Health Status in Thrissur district
- (iii) To analyse the influence of female education on the health status of women in Thrissur district
- (iv) To examine the influence of female education on the health status of children in the study area.

1.5 Hypothesis

The study is based on the following hypothesis:

- 1) Female education influences the health status of women
- 2) Female education influences health status of children
- 3) Female education influences the health status of proximate family.

1.6 Methodology and Data Source

The investigation is based on the information from secondary as well as primary sources. Various publications, journals and reports have been made use of for the study. Economic Review (various years) of State Planning Board, Statistics for Planning, Educational Statistics Since Independence, SRS annual reports, NSS reports are the major publications we have made use of for the purpose of the study.

Considering Thrissur as a representative district of Kerala with respect to all human development indicators, a micro level attempt is made through this study to analyse the health status of households in Kerala.

The raw data of The District Level Household Survey (RCH) and 52nd round National Sample Survey has been extracted for analysis purpose.

For supplementing the information from District Level Household Survey we conducted a primary survey in the urban and rural areas of Thrissur district.

1.7 Sampling Design

We have examined the health status of households in Thrissur district in comparison with Kerala picture using District Level Household Survey (RCH). But many of the variables influencing the health status of households were found to be lacking. Hence we have conducted a random sample survey of 100 households to capture the dimensions not covered by District Level Household Survey. Among the 100 households, 75 households were covered from rural areas and 25 households from urban areas. The urban samples were selected from Thrissur Corporation area and rural samples from Adat panchayat and Kadappuram panchayat. The selection of these samples were based on panchayat level statistics which showed semi urban characteristics for Adat panchayat and rural features for Kadappuram panchayat. In order to test the hypothesis that female education influences the health status of households we have considered only married females living with family members as our respondents.

1.8 Method of Data Analysis

For analyzing data, suitable statistical methods have been used. Apart from simple statistical tools like percentages, graphs, growth rates, various other methods like indexing, ANOVA (Analysis of Variation), linear regression and Principal Component Analysis have been used to make our analysis more scientific and systematic.

1.9 Scheme of the study

The present chapter is devoted to discuss the importance of the study, hypothesis, objectives and methodology.

We have presented a theoretical frame for the study and examined the previous studies in this area in the Chapter II.

In Chapter III attention has been given to unveil the transition that has occurred in Kerala's education and health sectors especially since the last twenty years.

Chapter IV discusses the health status of households in Kerala extracting the raw data of District Level Household Survey and the 52nd round National sample Survey.

Chapter V is devoted to identify the major determinants of health status in Thrissur district.

Chapter VI gives a picture of the influence of female education on the health status of households in Thrissur district.

In Chapter VII we have given a brief picture of the main findings of our study and have also tried to give some concluding remarks on the study.

10. Limitation of the Study

For analysing the health status of households in Kerala, the study has made use of the District Level Household Survey data (RCH) 2001. But as it fails to cover the illness and treatment level details we have made use of the 52nd round National Sample Survey data, 1995-96. The difference in the time period between the two data sources is one of the major limitation of the study.

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THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

Rajini R. Menon “Female education and health status of households in Kerala - A case study of Thrissur district” Thesis. Department of Economics, Dr. John Matthai Centre Thrissur, University of Calicut, 2007

CHAPTER II

THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

2.1 Dimensions of Education and Health

Importance has to be attached to the distinct influences that promote freedoms that individual have, including their abilities to make use of economic opportunities. Education and health are important enabling factors. The role of these 'social variables' in fostering economic progress has recently received much attention in the development literature.

Education and health can be seen to be valuable to the freedom of a person in at least five distinct ways(Jean Dreze and Amartya Sen; 2002)¹.

(i) Intrinsic importance : Being educated and healthy are valuable achievements in themselves, and opportunity to have them can be direct importance to a person's effective freedom. The act of learning may have much intrinsic value in terms of fulfilling aspirations for enlightenment, self improvement and social interaction.

(ii) Instrumental personal roles : A person's education and health can help him or her to do many things from reading newspapers to participating in local politics.

(iii) Instrumental social roles : Greater literacy and basic education can facilitate public discussion of social needs and encourage informed collective demand (e.g., healthcare and social security); these in turn can

help expand the facilities that public enjoys and contribute to the better utilization of the available services. Wide spread education is indeed essential to the practice of democracy.

(iv) Instrumental process roles : The process of schooling can have benefits even aside from its explicitly aimed objectives. Expansion of schooling can reduce the distressing phenomenon of child labour. Schooling also brings young people in touch with others and thereby broadens their horizons and this can be particularly important for young girls.

(v) Empowerment and distributive roles : Greater literacy and educational achievements of disadvantaged groups can enhance their ability to resist oppression and to get a fairer deal. The redistributive effects can be important not only between different social groups or households, but also within the family, since there is evidence that better education (particularly female education) contributes to the reduction of gender based inequalities.

These influences need not work only for the person who receives education or health care. They can also involve important interpersonal effects. A community may benefit generally from the civic attention, it receives through the educated activism of a particular groups within that community. There are similar interconnections in the matters of health because of the importance of externalities in morbidity, preventive care and curative treatment. Through these various interconnections, education and health can be variables of great strategic importance in the process of economic development.

2.2.1 Household Production of Health

It is conceptual framework for analysis of health status and health change. (Leela Visaria, John Simons and Peter Berman,1997)². The household production of health (HHPH) places households at the centre of the health improvement process, as the locus of the production of health. Utilising the households as an institutional focus is a fruitful approach in improving health. The HHPH approach gives less emphasis to formal health services (clinics, hospitals, disease control programme) as the primary determinants of health. They can be seen as the one of the many resources which households can employ to maintain and promote health.

Production of Health: Linking Household Health Behaviour with Health Outcomes :

A key focus of attention in the household production of health is on health related behaviour by household members. Behaviours does not take place unconditioned by the cultural context and economic conditions of households. Similarly behaviours vary in their influence on health outcomes. To place focus on household health behaviour, the levels in the process of health maintenance is given below.

Figure 2.1 Household Production of Health in the Larger System

Macro Socio, Economic system e.g. Education, Income, work, Wealth	Household Health Producing Behaviour	Exposure Susceptibility Resistance to Infection →	Morbidity Mortality
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Households exist within a socio economic environment which includes factors specific to each household as well as community and socio economic factors affecting a large number of households. This includes education, income, social status which affect the options available to households. Physical access to health services also make up part of the socio economic environment within these conditions constraining household choices, households engage in a wide range of health producing behaviour, the second level of health maintenance.

The intra household health behaviour can be classified as follows.

- (i) Infant and child feeding practices such as breast feeding the types of food given, amount, frequency etc.
- (ii) Child care, including quality and time spent with children, care takers, intensity of supervision etc.

(iii) Health seeking behaviour such as home diagnosis and treatment and utilization of home based services.

(iv) Home hygiene and sanitation behaviour, such as behaviour leading to contamination with infective agents, cleaning practices, hand washing, water storage, water disposal, animal care practices, etc.

(v) Antenatal and postpartum care of women including the work intensity and nutrition of pregnant women, child spacing etc.

Health producing behaviour also include a wide range of external health and treatment seeking behaviour.

For e.g.

(i) Use of preventive health services : antenatal care, immunization, etc.

(ii) Use of curatives services.

(iii) Spending on all forms of treatment.

(iv) Financial investments in health such as purchase of health related capital goods.

Each of these sets of behaviours is constrained by the households environment. These behaviour also have differing effects on health outcomes ie, incidence, duration and severity of specific diseases, nutritional status and mortality.

Economic Perspective of Household Production of Health

Households might seek to consume such things as health of their members.

These ultimate consumption goods are called 'commodities'. The New

Household Economics framework argues that households do not purchase and procure 'commodity' like they do 'goods'. Households demand goods and services in order to use them, within some type of household production process to produce the final products desired by them – the actual sources of satisfaction.

New Household Economics is a theory of choice and assumes the possibility of choice. Households face a large number of possible sources of satisfaction and clearly cannot attain them all. They may be able to use different combinations of their own time and capacities to produce the same level of satisfaction. Healthy children for e.g. are one of the obvious source of satisfaction that many households would seek to optimize. The inputs of producing healthy children include food, feeding behaviour, willingness to seek health care for both prevention and treatment etc. All these inputs require household application of time and skills and sometimes purchased goods applied through households patterns of behaviour. Different combinations of these inputs might produce equally healthy children. Household make choices in terms of how much importance they place on having healthy children. These choices are constrained by competing costs such as housing, adult care etc. They are constrained by the resources available to them and prices of goods and their own time. Thus New Household Economics framework describes the parameters of this choice and production process.

In the application related to child survival the first stage describes the households demand for the inputs to child health. The second stage

describes the technical relationship between those inputs and health of children. This latter model is called health production function. Since households are assumed to make their decisions on inputs in part with reference to their expectations about the health production function; these two dimensions of choice occur simultaneously or are interdependent.

2.2.2 Expanded Health Production Model

It has been 30 years since Michael Grossman's influential book, 'Demand for Health : A Theoretical and Empirical Investigation' (Grossman, 1972) revolutionized the economic analysis of health. Based on Grossman, health can be thought of as a stock of human capital. At a point in time, an individual's health stock depends on decisions concerning health such as food intake, use of medical care, nature of work, inherited genetic health endowments and health environment in which individual is placed. The change in health status of a person over a period of time is determined through a health production function (P. Duraisamy,2001)³.

$$H_t = H(H_{t-1}, X_t, M_t, E_t, e_t)$$

Where H_t is health at time t , X_t is a vector of health related inputs such as consumption, preventive care, M_t is curative care, E_t is a vector of individual, family and community characteristics and e_t is the unobserved initial endowments.

The household or family utility in any time period (U_t) depends on the stock of health of each member (H_t), leisure of family members (L_t) and a composite consumption of commodity (C_t), given household environment S_t .

$$U_t = U(H_t, C_t, L_t, S_t)$$

But recent empirical health research introduces an expanded view of health production which treats net investment in health in a given period (ΔH_t) as depending not only of purchased medical inputs (M_t) and time to medical care (t_n), but on choices about time spent in other consumption (t_c) and choices about non medical purchased good (X_t). Other household consumption activities and time spent in labour market may have either positive or negative affects on net health stocks. In addition, education (E) also enters into the production of additions to health capital (Avleen. A. Leibowitz,2004)⁴.

$$\Delta H_t = H(t_n, t_c, t_w, X_t, M_t, H_{t-1}, E)$$

New Evidence on the Role of Education :

Grossman argued that education increases efficiency in producing health and reduces the shadow price of investment in any given age. The positive relation between education and wage rates means that increase in future healthy days will be more valuable to persons with more schooling. Rates of return on investment in the form of purchased medical care are likely to be higher for more educated. More educated individuals have a comparative advantage in acquiring new information. The efficiency enhancing effect of education may relate to the ability to follow medical regimes more reliably.

2.3 Review of literature

In this section we discuss a brief review of the literature related to the topic under consideration. The available literature is classified into three

categories. Viz.(1) studies, relating to education and health status (2) studies relating to gender and health status (3) studies relating to factors effecting health status.

2.3.1 Education and Health

Nag (1983)⁵ attributes the decline in death rates to increased availability of healthcare and its utilization 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 income and assets.

Albino Barrera (1990)⁶ proves maternal education positively effects child health as measured by height for age. There is difference in its impact across child age groups, with preschoolers showing the greatest sensitivity. The pattern of interactions between maternal education and public health programmes suggests that maternal education affects child health through an efficiency effect (by effecting the productivity of health inputs) and an allocative effect (by lowering the cost of information).

Kimstreatfield, Masri Singarimum and Ian Diamond (1990)⁷ in their article explore the hypothesis that formal education of women results in increased child survival because of greater knowledge of the protective function of the major childhood immunisations. Education is also associated with greater awareness of proper immunization schedules. Specific immunization knowledge is associated with an increased likelihood of using immunisation.

Irma.T.Elo (1992)⁸ in his article explores the hypothesis that formal education of women influences the use of maternal healthcare services in Peru, net of mother's childhood place of residence ,household socio economic status and access to healthcare services. The findings are consistent with the hypothesis; they show a positive effect of maternal schooling on the use of prenatal care and delivery assistance. In addition, large differentials were found in the utilization of maternal health services by place of residence suggesting that much greater efforts on the part of government are required if modern maternal healthcare services are to reach women in rural areas.

V.B Tulasidhar (1993)⁹ in his paper examines how child mortality changes with different levels of maternal education. Child mortality gradients according to years of education are rather steep at the primary education level for both male and female children. Excess female child mortality prevailing in certain parts of India also has an inverse relationship with length of mother's education and female labourforce participation.

Abusaleh Sharrif and Namkee Ahn (1995)¹⁰ in their analysis document the significant effects of mother's education on the long term health measure of children less than five years of age. Parental education have positive but not significant association with the short term measure of health. However mother's education improves child's height for age more in urban areas than in rural areas. The positive effects of radio ownership on weight for height are much greater among uneducated mothers. It has also been found

that the benefits of mother's education are greater for sons than for daughters.

K.Subbarao and Laura Raney (1995)¹¹ analyse the role of female secondary education relative to and in combination with health and family planning programme to reduce fertility and infant mortality. It is based on cross country data from 72 developing countries. The study concludes that family planning and health programmes reduce fertility and infant mortality and the impact of secondary school enrollments appears to be even greater in countries with low female secondary school enrollment.

Ana.L.Kassouf and Benjamin Sanauer (1996)¹² focus on the effects of parental education on malnutrition among preschool children in Brazil. Their finding is that most serious malnutrition problem among Brazilian preschoolers was stunting as reflected in their height for age. Malnutrition was more wide spread among children of parents with little or no education.

Behrman (1996)¹³ says child health and nutrition are strongly associated with educational achievements. But association do not necessarily indicate causality; estimates generally are likely to be biased in one direction or the other.

David Shapiro and B.Oleko Tambashe (1997)¹⁴ examine fertility behaviour of women in Kinhasa, Zaire's capital city with a population of roughly 6 million. They look at the relationships linking women's education, employment, fertility behaviour using data from a 1990 survey of reproductive age women. The results suggest that modern contraception

and abortion are alternative fertility control strategies in Kinhasa; with abortion appearing to play an important role in fertility differential by education and employment. The increase in women's access to secondary and higher education are likely to reduce fertility in future.

Pallavi Govindasmy and B.M.Ramesh (1997)¹⁵ examine the relationship between maternal schooling and factors known to reduce the risk of maternal and child mortality for some northern and southern states in India using data from NFHS-1992'93. Results prove that higher level of maternal education results in improved child survival because health services that prevent fatal childhood diseases are used to a great extent by mothers with higher education than by those with little or no education.

Sonalde Desai and Soumya Alva (1998)¹⁶ examine the effect of maternal education on three markers of child health: infant mortality, children's height for age and immunization status using data from first round of demographic and health surveys for 22 developing countries. They argue that although there is a strong correlation between maternal education and markers of child health, a casual relationship is far from established. Education acts as a proxy for the socio economic status of family and geographical area of residence introducing controls for husband's education and access to piped water and toilet attenuate the impact of maternal education on infant mortality and children's height for age. Maternal education remains statistically significant for children's immunization status in about one half of the countries even after individual level and community level controls are introduced.

R.Nagarajan (1999)¹⁷ in his paper examines the social gains from female education in India using NFHS results. According to NFHS data illiteracy among women of reproductive age (13-49) is very high in India and among illiterate women, the proportion reaching secondary level education is very low. The analysis of NFHS results suggest that educated women marry and enter motherhood later and have fewer children than their uneducated counterparts in India. Infant and child mortality probabilities are much lower for the children of educated women than uneducated women. Educated mothers are more likely to use antenatal services, delivery care services. They are also better informed of ORS packets, vaccination etc.

T.Paul Schultz (2001)¹⁸ shows that women and men receive same percentage increase in wage rates with advances in schooling because these returns decline with more schooling, the marginal returns for women tend to exceed those for men especially in countries where women are less educated. Health and schooling of children are closely related to mother's education than father's. This justifies allocation of public expenditure towards women's education.

S.Rajoo Krishan (2002)¹⁹ analyses the current literacy rate in the country based on the provisional results of census of 2001. The country at present has 53 literates for 100 literates and 85 female literates for every 100 literates. Kerala is a way ahead of other major states in male and female literacy. The least difference in male and female literacy rates is seen in North East Zone.

Oysteen Kravdal (2004)²⁰ estimated with the data from NFHS-2 that average education of women in a census enumeration area has a strong impact on child mortality, in addition to the effect of mother's own education. The child mortality associated with women's autonomy is taken into account in this estimation. Results suggest that the effect of community education operates through the use of maternity services and other health services on the child's nutrition and mother's care for the sick child.

2.3.2 Gender and health

Bhattachargee (1981)²¹ argues that in developed countries the females have chances of surviving right from childhood to oldage. But in India the females are suffering from bad mortality condition as compared to males and the major possible reason is the poor nutrition, housing and sanitary conditions and inadequate medical facilities.

Jere. R. Behrman and Barbara. L. Wolfe in their article examine the impact of women's schooling on women's health and nutrition with and without controls for unobserved childhood background factors related to ability and motivation. Results show that women's schooling positively effects their health and nutrient intakes.

Freeman. I. and Maine. O (1993)²³ on the neglect of women, aptly point out that, shamefully large number of girls and women die each year because of unique risk inherent in being female in a world where females are second class citizens.

Kutty et.al. (1993)²⁴ analyse birth and death rates as calculated from sample of 9440 households with respect to other variables such as region, religion and socio economic status. In order to study the socio economic factors on birth and death rates effect a socio economic status rating (SES) was developed taking into account such factors as income, education, housing conditions and land ownership. SES was found to have a definite influence on birth and death rates with high socio economic status resulting in low birth and death rates. This effect was independent of such confounding variables as age structure of population, religion, region. The high risk of mortality among the poor households can partly be explained by their maternal deprivation and high birth rates could be the result of poor educational attainments.

Sanghamitra Acharya Tara Kanitkar(1994)²⁵ focus mainly on village level factors particularly affecting health care ,mother and child health.The nonavailability of health services, poor transport, absence of medical personnel, poor sanitation and huge population size was responsible for the deplorable condition of women and children.

C. P. Prakasan and S. M. Thalte (1995)²⁶ aims to find out the health resource utilization which has been catered through primary health centres in Gundur district.(A.P). The study found out that only 54 percent rural women utilized PHC services for general health care but 90 percent of women used immunization services through PHC. The remaining were not aware of it.77 percent of rural masses did not utilize family planning services through PHC and the utilization of causality service was very poor.

Bajaj (1999)²⁷ attempts to study the knowledge and utilization of maternal and child health services available to women residing in the slums of Delhi. The findings of field study based on five hundred women selected from 5 slums in South Delhi indicated low utilization of maternal and child health services provided by the public health care system. An important reason for the nonutilization of these services may be lack of knowledge about these services offered by the government.

P.N.Maribhatt and A.J.Francis Xavier (2001)²⁸ show that as desired family size falls son preference also falls in northern India. Son preference declines with influence of education, urbanization and exposure to mass media.

N. Krishnaji and K. S. James (2002)²⁹ make a preliminary exploration of the trends and spatial variation in gender differential in adult mortality in India as also the related rural urban differentials. Particular attention was given to female mortality of two primary reproductive age groups 15-29 and 30-34. The study found that rural urban differences over the period from 1970 seem to be much larger than gender differences so the rural females still suffer from double disadvantage of being female and belonging to rural areas.

S. C. Gulati et al.(2002)³⁰ highlighted that women's empowerment factors like women's education, women's gainful employment play a significant and promotive role towards reproductive health status improvement. It also helps in fertility reduction, higher contraceptive usage, lowering age at marriage, higher utilization of reproductive healthcare and children's

immunization. Health infrastructure development and extent of urbanization have promotive impact on RCH status.

David. E. Sahn and David.C.Stiefel (2002)³¹ model the determinants of preschool age malnutrition in Africa using demographic and health surveys by examining the differences in the impact of mother's and father's education on the nutrition of boys and girls. Using statistical testing criteria they find that preferences of fathers and mothers differ with regard to health of boys and girls.

Reduction of infertility among uneducated women owe a critical factor in India's fertility decline. The link between education and fertility form accurate predictors of fertility behaviour. Kristy Mc Nay et al.(2003)³²in their paper try to investigate other factors influencing fertility behaviour. Significant relationship is found with use of contraception and education. Mass media also emerges as an important diffusion channel.

Anjali Pattnaiak and Gunum Patnnayak (2004)³³ has taken up this study with the objective of knowing the media exposure of mothers in respect of health and nutrition case of their children. 400 working mothers having atleast one child (under here years of age) have been selected randomly from rural and urban areas of Ganjam district of Orissa. Statistical analysis of the results revealed that health and nutrition practices of mothers in rural and urban areas were much influenced by their demographic aspects as well as media exposure. Child health and nutrition practices and sanitary condition were better among urban mothers as compared to rural mothers

Susmita Mukhopadhyay, Subha Ray and Jagdish Bhatia (2004)³⁴ reveal women's perceptions, knowledge and awareness of lacunae in the health system in their study on maternal morbidity conducted in the three districts of West Bengal through focus group discussions. The study reveals that age at marriage of girl in the past was very low and this trend continues till today. Several women indicated that they were not free to take independent decisions on the matters of family planning. Women of both older and younger generations indicated that they were not free to take independent decisions on the matters of family planning. Women of both older and younger generations indicated that specific problems were associated with pregnancy. With the exception of few educated women, majority of women prefer home deliveries and use the services of traditional birth attendants. Women were also aware of the health facilities at government institutions in the rural areas and the type of services provided by them. Women were also aware of the family planning services provided by the health assistants.

2.3.3 Factors Influencing Health Status

Reynaldo Martorell et al.(1984)³⁵ examine characteristics and determinants of child nutrition in the districts of Bara and Ranhat of the Terai region of Nepal. The sample studied consists of 510 rural children ranging from 3 years to 10years. The Nepali children had highest reported prevalence of stunting. Multiple regression analysis showed that age, district of residence, household income, breast feeding and specific food items were significant predictors of nutrition status. The study found that the boys were as likely to be malnourished as girls. Landholding and household income were

positively correlated and significantly associated with all measure of nutritional status.

Soman et al.(1991)³⁶ have conducted a study of two areas in Trivandrum city and found of the high morbidity with common symptoms predominating in under 3 children with significant gradient between the slum area and socio economically better area. They have found that policies in respect of certain non health sectors did have a positive impact on health status.

Kanan et al. (1993)³⁷ have conducted a study of rural Kerala regarding the linkage between socio economic status and health status, based on the survey data in 1987.Their study was based on two status groups; one is socio economic status(SES) and the other is environmental status(ENS). In their judgment the high rate of morbidity in Kerala is a manifestation of its continued economic backwardness and the poverty of the masses.

Victor Lavy, John Strauss, Duncan Thomas and Phillipe de Vreyer (1996)³⁸ in their paper analyse the effect of quality and accessibility of health services and other public infrastructure on the health of children in Ghana. Child survival, child height and weight is focused using data from Ghana Living Standards Survey. The results suggest an important role for public health policy in eliminating rural urban disparities in health status and particularly in improving the health status of rural children and reducing their mortality rates. Increased availability of birth services and other related child programmes, as well as improved water and sanitation infrastructure would have an immediate pay off.

Nagaraj and Prasad (1999)³⁹ analyse the influence of socio demographic factors like maternal age, maternal education, maternal occupation, caste. Number of living children and distance of medical facility on the utilization of antenatal care services.

K.Navaneetham and A.Dharmalingam (2000)⁴⁰ in their study examine the patterns and determinants of maternal health care across different social setting in the states of Andhrapradesh, Karnataka, Tamilnadu using data from National Family Health Survey 1992-93. The study focuses on most recent births to ever married women that took place during the four year prior to the date of survey. The study indicates that determinants of maternal health care services are not same across the states. Although illiterate women are less likely to use maternal health services; there was no difference among the educated. The level of utilization was highest in TamilNadu followed by AndhraPradesh and Karnataka. Part of the differences in utilization is likely to be due to difference in availability and accessibility. Differential in access to healthcare facilities between rural and urban areas is an important factor for lower utilization of maternal health care services.

Sodani and Gupta (2001)⁴¹ provide insight into the healthcare expenditure and utilization to elicit information on patterns of household expenditure on government and private sources of treatment in both rural and urban segments of the tribal areas of Rajasthan. Their study reveals a high dependence (50 percent) on the traditional practitioners in the rural areas and

also reveals that rural people have significantly higher burden of almost all components of indirect expenses for treatment.

Ratnaraj (2001)⁴² says that greater the urbanization that a developing country experiences, more will be the devastating effects manifested in terms of high level of death rate, infant mortality, poor sanitation, inadequate hospital facilities etc. But the Kerala experience has shown a different picture ie, despite its rapid urbanization in the 1980's Kerala maintains a good health status. He examines the reasons for upholding such paradoxical pattern by using some human development indicators to examine the urban health of Kerala.

Abusaleh Sharrif and Geeta Singh (2002)⁴³ in their paper discuss the issues associated with the demand and supply of the 5 measures of maternity care- antenatal care, blood pressure checkup, place of delivery, use of trained help at the time of delivery and post natal care. Analysis shows that education and information variables significantly increase the utilization of prenatal, child delivery and post natal healthcare. Women with primary education are more likely to use maternal health services as compared to illiterate women. Exposure to media increases the probability of reproductive health care utilization. Wages and income are important for the utilization of child delivery services. Access to locally available health services increases maternity care use.

P. N. Maribhat (2002)⁴⁴ in his paper presents evidence to show that in recent years there has been substantial fall in fertility among illiterate women in India. Using data from Human Development Profile Survey of

1994, it shows that child schooling among illiterate parents is inversely related to family size and positively related to contraceptive use. By connecting these two pieces of evidence in his paper he argues that fertility is falling and child schooling is rising among illiterate couples because of quantity and quality trade off. A detrimental effect of family size on child schooling is found to be more severe on female children and on the first born of either sex. When family size is large these children are either not sent to school or withdrawn early to supplement the family income to look after the young siblings. So he argues that the first female child would particularly stand out to gain from declines in fertility.

Discussions on mortality in developed countries often centre on causes and places of death. In developing countries inadequate healthcare systems coupled with economic, sociocultural factors add another dimension to mortality and morbidity: lack of medical attention. Indrani Gupta and Deepa Sankar (2002)⁴⁵ indicate that in India especially rural India a large number of deaths still take place without medical attention. The most vulnerable are children and elderly. The study stress the need for accessibility and availability of medical care, spread of education and communication.

Abhar Rukh Hussain (2002)⁴⁶ undertakes the multivariate cross national analysis of the determinants of national life expectancies. Level of education, income per head, nutrition status, fertility are major determinants of life expectancy in developing countries. Result suggest that life

expectancy can be improved if proper attention is given to fertility reduction and increase in calorie intakes.

Ramamani Sunder and Abhilasha Sharma (2002)⁴⁷ examine the patterns of morbidity and healthcare utilization by urban poor living in slums and resettlement colonies in Delhi and Chennai and compare the health status of the two segments. The findings indicate that the people living in resettlement colonies have a better health status than the slum dwellers.

In contrast to the Human Development Report of the UNDP, the World Bank has argued that health spending is ineffective in reducing infant or child mortality which is mainly explained by a country's income percapita. Lucia Hanmer, Robert Lensink and Howard White (2003)⁴⁸ in their article contest this position through testing the robustness of determinants of infant and child mortality. Article exposes that income percapita is a robust determinant of infant and child mortality, so are the indicators of health, education and gender inequality. Some heath spending such as immunization is a most effective way of saving lives. The results prove that health spending in developing countries is ineffective, but do not support the position that public health strategies should not be given too great a role in pursuing improvements in health welfare.

Jyotirmayee Kanungo and Dibya Lochan Mohata (2004)⁴⁹ in their paper has given emphasis on the analysis of reproductive health care status of different social groups in India based on the findings of NFHS-2. The main objective of the paper is to examine the utilization of healthcare services by the mothers and their children along with availability of the facilities like

existence of health institution ,communication and service providers. Their analysis highlights that mothers and children belonging to lower rank in the society have shown less utilization of healthcare and they also differ accordingly in awareness of good health and healthcare facilities.

Subhash Pokhrel and Rainer Saureborn (2004)⁵⁰ in their paper offer a four step construct which maps out a hierarchical scale of household decision making regarding child health care. The construct begins with the perception of illness, moves on to choice of care and provider and finally ends with healthcare expenditure. The construct is substantial by means of a descriptive analysis of nationally representative data from the 1996 round of Nepal Standards Survey about 10 percent of total population reported illness, 69 percent of whom sought care and depending upon the provider they choose, spent between 2.5 to 5.3 percent of their percapita household expenditure on healthcare. More than 80 percent were taken to either public or private providers who offered formal and mostly allopathic forms of medicine. The average expenditure associated with the private providers were high. Households reported illness of infants than of elder children, girls were less likely to be reported ill than boys. Mothers who attended school or were household heads reported children's illness more often. The patter of health expenditure differed across different income groups and was regressive. Having perceived ill households did not discriminate between boys and girls in any step indecision making process.

Susan. E. Short and Fengyu Zhang (2004)⁵¹ analyse the use of maternity services in rural mainland China using the data from the 1997 Demographic

Health Survey. The data indicate that roughly 60 percent of women had at least one prenatal visit while 40 percent had a professionally assisted birth over the period 1988-97. Despite China's shift from a more socialist to a more privatized health care system, use of maternity services increased over this period. Population programmes with birth targets negatively affect the use of maternity services. Analysis also proves strong community effects in the use of maternity services in China.

K. Gangadharan (2006)⁵² in his study seeks to identify the major factors contributing to the poor health status of women and children in the urban areas of Kerala. The maternal mortality rate in Kerala is estimated at 87 which is higher than the average of 26 for the high human development nations. Inadequate utilization of antenatal and postnatal health services, the unhygienic condition of government hospital an indifferent attitude of government doctors, the poor socio economic status of the family and less access to the mass media are the important factors identified for the deterioration of the health of mothers and children in the urban areas of Kerala.

Considering Kerala as a role model, Alpana Kateja (2006)⁵³ in her paper primarily attempts to unravel the trend of IMR and its major causes in Rajasthan. The study reveals that in spite of spectacular decline in IMR, Rajasthan is still nowhere near what Kerala had achieved thirty years back. Moreover the decadal percentage decline in Rajasthan is not even half in Kerala. The article also briefly discusses important factors responsible for high IMR in Rajasthan and concludes that infant survival is influenced by

the operation of several closely interrelated biological, social, economic and environmental factors.

K.Gangadharan (2006)⁵⁴ through his article exposes that though Kerala is considered at par with the advanced countries of the world in healthcare advancement, the urban health environment of Kerala is different from that of rural one. The rapid urbanization process coupled with scarcity and contamination of water supplies the lack of sanitation and appropriate sewage disposal makes serious morbidity problems among the poor in urban areas. Urban Kerala is subjected to more noninfectious than infectious diseases. The public health delivery system is getting alienated from the people and only 30 percent of the people from lower income group seek medical help from the government hospitals.

The above discussion exposes that previous studies have explored various areas relating female education, child health and maternal health. Also attempts have been made to identify the various factors influencing the health status of a household. In the light of the available literature the present study tries to delineate the major household factors that influence the health status of a household and tries to establish its relation with the latter in a representative district of Kerala.

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EDUCATION AND HEALTH TRANSITION: LESSONS FROM KERALA

Rajini R. Menon “Female education and health status of households in Kerala - A case study of Thrissur district” Thesis. Department of Economics, Dr. John Matthai Centre Thrissur, University of Calicut, 2007

CHAPTER - III

EDUCATION AND HEALTH TRANSITION:

LESSONS FROM KERALA

Introduction

The state of Kerala is situated at the southwestern tip of India, with its capital Trivandrum located only 80 kms away from the sub continental Cape Kanyakumari. Its narrow, fertile strip of land is intersected by an extensive network of canals, rivers and lakes and flanked by the Arabian Sea on the west and the Western Ghats on the east.

Kerala is one of the smaller but by far the most densely populated of Indian states with a population density of 819 per sq.km living in an area of just 38.863 sq.kms, its population density ranks second to Bangladesh. Despite rather overcrowded, she has the lowest infant mortality and adult mortality rates and highest literacy rates in India. This is partly due to the farsighted land ownership and income distribution policy dating back from princely state of Travancore, which later constituted an essential part of reforms that characterized Kerala's policies after independence.

While most countries in the developing world seek their advancement primarily through increased agricultural and industrial production, Kerala has emphasized land reform, education and access to public health services. Kerala remains at the top of National Human Development Report Table

with an HDI of .638 in 2001 while Orissa at the bottom with an index of .404 in 2001.

3.1 Health Transition: Theoretical Aspects

Health Transition is a complex process comprising demographic, epidemiological and healthcare transitions. It is manifested in rising life expectancy at birth due to changes in fertility, mortality and morbidity profile of a population. The first component i.e., demographic transition brings down birthrates and death rates and changes age structure. The third component i.e. healthcare transition is brought about through changes in the pattern of organised social responses to health condition. The changes in the prevalence of disease during the course of health transition is described by the second component, i.e. epidemiological transition. Epidemiological transition is characterized by three stages. The first stage shows high level of infectious and parasitic diseases. Because of malnutrition and general poor health in this stage especially children experience high mortality risks, leading to a low life expectancy and high morbidity. The second stage welcomes a substantial reduction of major infectious epidemics. Although mortality declines, morbidity may not fall proportionately because of continuing prevalence of parasitic, air and water borne diseases. In the last stage of transition the latter diseases have a much lower incidence, paving the way for chronic, degenerative and accident related diseases. Levels of illness rise with age and childhood years tends to be more or less disease free. The health profile changes from one dominated by death to one dominated by morbidity. Transition is thus a dynamic process, where by

health and disease patterns of society evolve in diverse ways.(P.G.K.Panikar;1999)¹

3.2 Health Transition in Kerala

The experience of Kerala's health transition provide a number of lessons to other states in India.

3.2.1 Demographic Transition

Kerala has apparently entered the third or final phase of demographic transition characterized by low death rate and declining birth rate leading to slow down in the growth rate of population. The impressive performance of Kerala on the demographic front has received worldwide attention and admiration. [E.g. (1) Zachariah (1983) (2) Zachariah and Irudaya Rajan (1994), (3) Bhat and Irudaya Rajan (1990) (4) Ratchiffe (1994) (5) Zachariah and Irudaya Rajan (1997)]²

Population Growth Rate: Population growthrate is a summary index of the stage of demographic transition. At present the growthrate of population is less than 1 percent per year and is declining. For the decade 1981-91, the annual growth rate of population in Kerala was estimated by census authorities at about 1.3 percent per year, the lowest rate for any major state of the country. Until 1971-81 Keral's population growth rate was one of the highest in the country. (Bhat and Irudaya Rajan 1990; 1992)². The high growth rate in the past was due to high marital fertility and very low mortality rates. The present low growth rate is partly because of net out migration and emigration.

Fertility: The total fertility rate (TFR) which reflects the total number of live births a woman will eventually end up with if she bears children under current fertility rates, declined from 5.6 in 1951-61, to 2.3 in 1986-88 and 1.70 in 2002. For the year 2002 the all India average is 3.30 (Economic Review 2002) ³. Even during 1951-61, Kerala had lower fertility than all India average, the difference being about 3 per thousand in crude birth rate and 0.7 births per woman in the TFR. Estimates suggest that there was indeed a small fall in fertility in Kerala between 1951-61 and 1961-71, and it has been falling rapidly after 1961-71. This can be seen from the table 3.1 given below.

Table 3.1 Total Fertility Rate

Decade	Kerala	India
	(per-woman)	
Census Analysis		
1951-61	5.6	6.3
1961-71	5	6
1971-81	3.4	5.2
Sample Registration System		
1966-70		
1971-75	3.7	5
1976-80	3.1	4.5
1981-85	2.6	4.5
1986-88	2.3	4.2

Source: P.N Mari Bhat and S. Irudaya Rajan

Age specific fertility rates also shows a decline. The reproductive age group of 35-39 shows largest decline of 118.4 in 1971 to 12.17 in 1995. This is evident from table 3.2.

Table 3.2 Age Specific Fertility Rates in Kerala – Rural

Age group	1971	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
15-19	49.1	39.3	31.8	34.9	34.5	33.7	36.7	31.3	28.1	26.8	26.4	25.15	22.4	21.3	22.08	28.61
20-24	213.9	175.9	176.5	172.7	179.2	177	166.1	171.6	153.1	156.3	151.9	141.6	145.9	137.1	137.1	145.3
25-29	226.6	166.2	168	161	168	155.4	147.1	140	128.2	134.9	134.6	125.2	114.5	116.5	117.1	133.7
30-34	175.8	98.6	95.4	87.5	74.6	73	67.5	55.1	57.2	54.1	50.1	47.5	43.3	52.6	44.44	48.09
35-39	118.4	53.9	53.8	42.5	35.8	29.6	27.4	24.4	24.1	19.9	14.7	15.1	12.2	14	13.9	12.17
40-44	43.6	19.4	18.1	13.6	14.1	14.2	11.2	7.2	6.3	6.6	5.8	4.7	2.7	3.4	2.97	2.41
45-49	7	4.9	3.8	3.1	4	1.8	2.9	2.1	3	1.9	1	0.5	0.6	0.6	0.3	1.06

Source: Statistics for planning 2001

The trends in Child Woman Ratio (CWR) suggest that fertility decline began first in Travancore – Cochin region, about five years before it occurred in the Malabar region. Fertility levels of Christians and Hindus were very similar, but Muslim women were giving birth to an average, one-and-a-half children more than others. At the beginning of 1980s the level of fertility among the scheduled castes was about the same as the general population but that of scheduled tribes was somewhat higher. Working women had lower fertility than non workers (Mari Bhat and Irudaya Rajan; 1997) ² Though there were differentials, fertility has declined among all sections in Kerala.

Crude Birth Rate : Crude Birth Rate which denotes the number of live births per 1000 mid year population, in Kerala has come down from 44 per thousand in 1951-61 to 16.90 per thousand in 2002 where as the all India average for 1951-61 was 47.1 per thousand and 25 per thousand in 2002 (Economic Review 2002). Birth rate also varied considerably from region

to region and from district to district. (K.C Zacharich, 1997) ¹. According to the tabulations of Sample Registration System (SRS) data in 1988, the birth rate ranged from 14.8 in Alappuzha to 28.4 in Malappuram. The birth rate in some northern districts such as Malappuram, Kasargod was reported to be near all India average. The below given table provides available information on birth rate.

Table 3.3

Decadal Crude Birth Rate for Kerala and India.

Decade	Kerala	India
Census Analysis	(Per thousand population)	
1951-61	43.9	47.1
1961-71	37.1	43
1971-81	28.1	37.2

Source : K.C Zachariah et al. (1994); Bhat and Irudaya Rajan (1990)

It is clear from the table that the birth rate has declined from 43.9 in 1951-61 to 28.1 in 1971-81 in Kerala. The data on birth rates for the next 22 consecutive years is given below.

Table 3.4 Crude Birth Rate for Kerala and India.

Year	Kerala	India
	(per thousand population)	
1980	26.8	33.7
1981	24.7	35.5
1982	24.3	35.5
1983	23.5	35.3
1984	23.7	35.1
1985	23.2	34.0
1986	22.6	34.1
1987	21.5	33.5
1988	19.9	31.3
1989	20.3	30.5
1990	20.3	30.5
1991	19.8	30.5
1992	18.1	29
1993	17.3	29.3
1994	17.1	28.6
1995	18	28.3
1996	18	27.5
1997	17.9	27.2
1998	18.2	27.2
2001	16	27.2
2002	16.90	25

Source : DES; 1989, Economic Review; 1986, 2002, 2004

Mortality : The Crude Death Rate, defined as the number of deaths per 1000 mid year population, declined in Kerala from 20 per thousand in 1951-61 to 6.40 per thousand in 2002. Where as the all India average was 28 per thousand in 1951-61 and 25 per thousand for 2002. (Economic Review, 2004)³. The SRS estimates clearly indicate that the rate of fall in mortality in Kerala during 1971-86 was significantly higher in ages under 10. Except for ages 10-14, in all other age intervals death rates have fallen more sharply among females than males. The sex differential in the rate of fall is significant in ages 25-29. (P.N. Mari Bhat and S. Irudaya Rajan; 1997)².

The estimates presented in the table 3.5 confirm the dramatic fall in mortality in Kerala.

Table 3.5 Decadal Crude Death Rate for Kerala and India

Decade	Kerala	India
	(per thousand population)	
Census Analysis		
1951-61	19.7	28.2
1961-71	12.2	20.8
1971-81	8.6	15.2

Source : Bhat (1987)

Crude Death Rate for the next 22 years is given below.

Table 3.6 Crude Death Rate for Kerala and India

Year	Kerala	India
	(per 1000 population)	
1981	6.5	13.6
1982	5.9	13.1
1983	6.6	13.1
1984	6.4	13.7
1985	6.6	12.9
1986	6	11.1
1987	6.1	10.8
1988	6	10
1989	6.1	10.2
1990	6.1	14.2
1991	5.8	10.2
1992	6	10
1993	6	9.8
1994	6	9.2
1995	6	9
1996	6.2	8.9
1997	6.2	8.9
1998	6.4	9
2002	6.4	8.1

Source : DES; 1989, Economic Review; 1996, 2002, 2004

A review of the trend in crude death rate shows that there is a steady decline in death rate and also it is very low compared to all India figures.

As infant mortality is one of the basic factors that determine death rate, we may examine the trends in infant mortality rates. The infant mortality is defined as the estimated number of deaths of infants below one year of the age out of 1000 live births in a year. The Table below gives available mortality data on Kerala.

Table 3.7
Infant Mortality Indicators for Kerala and India.

Year	Kerala	India
1971	58	129
1972	63	139
1973	58	134
1974	54	126
1975	54	140
1976	56	129
1977	47	130
1978	42	127
1979	43	120
1980	40	114
1981	37	110
1982	30	105
1983	33	105
1984	29	104
1985	31	97
1986	27	96
1987	28	95
1988	28	94
1989	21	91
1990	17	80
1991	16	80
1992	17	79
1993	13	NA
1994	13	73
1995	13	74
1996	14	72
1997	12	71
1998	15.6	71.6
2002	10	63

Source : DES, Economic Review; 1996, 2002, 2004

A trend in the infant mortality rate shows that IMR in Kerala has declined from 58 in 1971 to 10 in 2002. The decline was 21 points during 1971-81 and 20 points between 1981-1990 and 11 during 1988-90. Thus the absolute decline in IMR was the same in 1981-90 as during 1971-80, about 20 points, but the mortality decline accelerated during 1988-90 and after.

A composition of the decline in infant mortality rate indicated that the decline in the neonatal mortality (NNMR) was larger than that of the post neonatal mortality rate. (PNMR)

Table 3.8 Neonatal and Post Neonatal Mortality Rates for Kerala

Year	NNMR	PNMR
1971	21	37
1972	26	37
1973	27	31
1974	23	32
1975	20	34
1976	22	34
1977	19	28
1978	15	27
1979	13	30
1980	11	30
1981	12	26
1982	9	22
1983	10	23
1984	8	21
1985	9	22
1986	8	19
1987	9	19
1988	10	18
1989	14	17

Source : K.C. Zachariah (1997)

The fall in death rates, particularly infant mortality, first reflects itself in the increase in life expectancy at birth.

Table 3.9
Expectation of Life at Birth

Decade	Kerala		India	
	Male	Female	Male	Female
1951-61	44.3	45.3	35.5	35.7
1961-71	54.1	57.4	43.2	43.5
1971-81	60.6	62.6	49.8	49.3

Source : Zachariah (1997)

It is clear from the table that life expectancy at birth increased from around 45 years in 1951-61 to 62 years in 1971-81 in Kerala. Kerala has lower levels of mortality than India throughout the 30 year span considered here. In terms of decline, Kerala seems to have done only marginally better than India.

Expectation of life at birth for the period 1979-81 to 1999-2000 is given below.

Table 3.10**Expectation of Life at Birth in Kerala**

Year	Male	Female	All
1	2	3	4
1979-81	64.7	69	66.8
1981-83	66	71.8	68.8
1983-85	65.7	72.5	68.9
1985-87	67.1	73.1	70.1
1987-89	67.6	73.9	70.6
1988-90	67.9	74.7	71.1
1989-91	68.1	74.7	71.3
1990-92	67.9	74.8	71.2
1991-93	68.3	75.2	71.6
1992-94	63.4	75.2	67.5
1993-95	70.2	76.6	73.3
1995-96	70.4	76.8	73.5
1996-97	70.2	77.5	73.6
1997-98	69.1	76.7	72.7
1998-99	69	76.4	72.5
1999-00	69.3	75.8	72.4

Source: SRS annual reports, Directorate of Economics & Statistics (Economic Review)

The latest estimate in 2002, suggests that life expectancy is 70 for males and 73.62 for females. The difference in life expectancy of males and females may be attributed to several factors. One major factor that led to this difference is the increase in the death rate of men in the age group 25-59 compared to women. The rising trend in smoking and alcohol consumption among men may be cited as major factors that led to high death rate of men in the age group 25 to 59, leading to lower life expectancy of men. As a result the proportion of children in the population declines and the proportion of the old in the population increases. The changes in the proportion of the population in the age groups 0-5 and 60 years and above from 1971 to 1991 is shown below.

Table 3.11**Shares of Different Age Groups in the Total Population**

	0-4 years			60 and above		
	1971	1981	1991	1971	1983	1991
Kerala	13.38	10.69	9.48	6.21	7.55	8.80
All India	17	12.55	12.80	6.97	6.54	6.67

Source : Census of India; 1991 (Economic Review)

It is evident from the table 3.11 that the percentage share of child population in Kerala declined from 13.4 percent in 1971 to 9.5 in percent 1991; and that of the old increased from 6.2 percent to 8.8 percent during the same period.

Of the two variables the change in the proportion of the old is an indicator of the phase of the demographic transition reached in the state. However, the picture would be incomplete without further analysis of the oldage group.

Table 3.12

**Percentage Distribution of the Population Aged
60 years and Above : 1991**

	60-74 years			75 years and above		
	Males	Females	Total	Males	Females	Total
Kerala	6.55	7.13	6.85	1.26	2.14	1.96
All India	5.42	5.41	5.42	1.25	1.25	1.25

Source : Census of India 1997 (Economic Review)

It is clear from the table that the proportion of elderly population is high in Kerala. It is higher than other states and even all India average. In the age groups, the 'young old' (60-74 years) and the 'old old' 75 years and above, the proportions are high in Kerala.

Thus in terms of survival norms, Kerala's record is comparable to that of high income developed countries. Does this picture represent the real health status of the Keralites? Not necessarily, because mortality rates could be brought down through medical intervention without any positive change in nutrition levels and incidence of illness. Does Kerala score high even with respect of these two parameters of health? To this question we now turn.

3.2.2 Epidemiological Transition

The two broad contours of the morbidity profile are infectious or communicable diseases and chronic diseases or noncommunicable diseases. Infectious diseases themselves passed through an epidemiological transition. During the first half of 20th century plague, cholera and small pox constituted the dominant health hazards accounting for a sizeable proportion of total deaths in the erstwhile princely states of Travancore and Cochin. The severity of the major infectious diseases in these two states was brought down during the first-four decades of the present century. By 1920'21 the epidemic of plague seems to have disappeared from the scene. The decline in mortality from infectious diseases continued even after 1940's, the most dramatic fall having been achieved in the deaths from cholera. The fall was continuous in the case of small pox too; but it was eliminated only by the end of 1980s. The second generation infectious or

communicable diseases include respiratory infections, diarrhoeal disorders, skin infections, gastroenteritis etc.

Respiratory infections contribute the largest share of morbidity. Infection rate is highest among the people in the coastal villages where the problems of overcrowding and environmental sanitation are the worst. (P.G.K Panicker and C.R. Soman; 1984)³. Such environmental conditions are too well known as conditions conducive to the spread of respiratory infections. The major diseases encountered in the group of respiratory illnesses are acute bronchitis, chronic bronchial asthma allergy, all of them are infective in nature. The tables given below show the trend of acute and chronic respiratory infections in Kerala during 1994-97 and 1987-96 respectively.

Table 3.13

Trend of Acute Respiratory Infections (ARI) in Kerala

Year	1994	1995	1996	1997
ARI Case	3020084	3189579	3680295	3623312
Death	92	150	145	197

Source : T.P. Kunhikannan, K.P. Aravindan; 2000⁵

Table 3.14

Prevalence of chronic respiratory conditions as a cause of Medical consultation per 1000 population

Disease	1987	1996
Bronchial Asthma	5.2	4.15
Allergy	2.8	1.09

Source : T.P Kunhikannan, K.P Aravindan; 2000

The prevalence of diarrhoeal disorders ranked second. Diarrhoeal disorders include diarrhoeas, dysenteries, gastroenteritis. More than 80 percent of the cases are dysenteries, mostly bacterial, the rest being of amoebic origin. Faecal contamination of drinking water and food are chiefly responsible for the spread of diarrhoeal disorders. As per Directorate of Health Services record in 1994, 786,201 cases of diarrhea were reported. In 1997 the corresponding figure was 582,537. This can be seen from table below.

Table 3.15

Diarrhoeal Diseases in the state (as per DHS records)

Year	1994	1995	1996	1997
Cases	786201	700974	675848	582535
Deaths	65	61	119	45

Source : T.P. Kunhikannan, K.P. Aravindan; 2000

Skin infections contribute fairly significant proportion of the illness for which people seek medical care in rural areas. The types of infections included infected ulcers, scabies, and numerous fungal infections. All these diseases are related to personal hygiene, are infective in nature and contribute greatly to morbidity among people.

No age group is immune from the attacks of intestinal parasites. Round worms invariably are the most common intestinal parasites at all places and among all ages. Hook worm infestation ranks second while whip worms follow closely. It had been widely recognized that severity and prevalence

of worm infestation are much more in the coastal areas of the state. (P.G.K Panicker and C.R Soman;1984)⁴

Massive intestinal parasitism is associated with many other disorders. Anemia, malabsorption, malnutrition, eosinophilia associated with acute respiratory illnesses have been found to be correlates of worm infection. Therefore massive worm infection prevalent among the population of Kerala is partly responsible for the genesis of many commonly encountered morbidity in the state.

Data provide clear evidence of high prevalence of anemia among the child population of Kerala. The reported prevalence among preschool children in the non-coastal village and tea estates is much less than its prevalence among the coastal pre-school children or older children. Children studied at the non coastal village and tea estate were beneficiaries of supplementary feeding programme where iron and vitamin supplements were part of a regular package. Even here 53 percent and 54 percent of children have respectively unsatisfactory haemoglobin levels (P.G.K Panicker and C.R. Soman;1984)³.

Eosinophilia is another common accompaniment of parasitic infections and in communities where intestinal helminthiasis is quite common, marked eosinophilia may be expected.

Gastrointestinal infections still remain one of the major illnesses among children in Kerala. The case of acute poliomyelitis is also not different. The proportion of children admitted for acute poliomyelitis shows a steady increase since 1967. This is not entirely unexpected since the coverage of

children with poliomyelitis vaccine has never been good in our immunisation programmes which gave emphasis only on small pox vaccine and triple vaccine. Poliomyelitis is also a disease spread primarily through faecal contamination of water.

Table 3.16
Prevalence of Fevers in Kerala : 1987 and 1996

Disease	1987	1996
Pneumonia	0.55	0.87
Fever and Cold	118.5	67.95

Source: T.P. Kunhikannan and A.P. Aravindan; 2000.

A small increase in Pneumonia can be seen from the table above. The prevalence rates of fevers may vary with the occurrence of epidemics. Enteric fever registers a small but steady decline over the period. The extent of decline is not as sharp as in children. A small but steady decline is also observed in the proportion of patients with tuberculosis over the period. Viral hepatitis does not demonstrate a declining trend. Malaria shows a small but steady increase, suggesting its reemergence. Most cases of malaria have been imported from the neighboring states where eradication was less successful. Filariasis is considered as a chronic infection with elephantiasis. Urinary Tract Infection is one of the commonest problems that elderly face. It is common among women of reproductive age. It may be due to prostrate enlargement among males or loss of muscle tone among females. Hygienic practices and prompt interventions may reduce the disease load in the community.

Table 3.17
Prevalence of Chronic Infection in Kerala (Per 1000 population)

Disease	1987	1996
TB	6.2	4.6
Filariasis	.76	1.38
UTI	4.8	3.68

Source : T.P. Kunhikanan and K.P Aravindan; 2000

Gynecological problems have also not recorded any change in this occurrence rate over the period 1987-1996. They remain at 4.8 per thousand in 1987 and 4.14 per thousand in 1996. The prevalence of goiter remains unchanged in the state even after years of marketing of iodised salt. For 1987 the prevalence rate was 2.1 per thousand and for 1996 it remains at 2.3 per thousand.

Steady but alarming increase in the proportion of patients admitted under the category of accidents and poisoning can be seen in Kerala.

Deficiency diseases are also widespread particularly among children of Kerala. Nutrient intake is a function of food availability and its price and purchasing power of masses. In Kerala, rice is the staple diet and major source of calories, though compared to other states, the contribution of cereals to total calorie intake is relatively less in Kerala. On the other hand the per capita production of cereals in Kerala is one of the lowest. The average price of cereals in Kerala was naturally one of the highest among all the states. The output of food production in the state is not too bright.

The area under food production has been steadily falling since mid seventies. Per capita availability of food grains declined. The marine fish landing in the state has also been declining. The employment situation has also been getting from bad to worse. Hence it is unrealistic to expect significant improvement in the nutritional level of the people in the near future. Therefore the incidence of deficiency diseases is unlikely to show any perceptible decline.

Demographic trends and health transitions along with changes in the distribution of risk factors have accelerated the incidence of noncommunicable diseases. Cardiovascular disorder and cancer are the two leading noncommunicable diseases causing mortality and disease burden among adults as well as older adults.

One of the major public health problems is the emergence of lifestyle led cancer. In recent years the incidence of cancer disease has been increasing. Among women 40 percent cancers are of breast while men, oral activity (15 percent) and lung cancer (10 percent) are most common. Based on 2001 census the estimated number of cancer patients annually is 25409. Cancer of oral activity and lung in men and breast in women account for 56 percent of cancer deaths. The prevalence of cancer has gone up from .92 per thousand in 1987 to 2.3 per thousand in 1996 (T.P Kunhikannan and K.P – Aravindan; 2000) ⁵ and 39 per one lakh population in 2003 (Economic Review; 2004) ³.

Studies conducted by different agencies indicate that the prevalence of diabetes and high blood pressure is much higher in Kerala than in other

states. About 8 percent of adults are diabetic in Kerala ranging from 6% in rural areas to 20 percent in urban areas. It is 980 per one lakh population in 2004 where as the all India figure is 221. One out of three adults in Kerala tends to be hypertensive. Lack of physical activity, overweight and obesity create a favourable milieu for diabetes and hypertension. As per Economic Review 2004, 1433 per one lakh population is hypertensive in Kerala, where as it is only 589 for All India. Alarming increase in heart attacks and strokes in Kerala is partly the contribution of high prevalence of hypertension. The Human Development Report of NCAER – 2000 shows that Kerala stands second in the prevalence of major noncommunicable diseases. The table given below shows the trend of Coronary Heart Disease, Hypertension and Diabetes Mellitus for 1987' 96.

Table 3.18

Prevalence of CHD, HT, DM/1000 population

Disease	1987	1996
CHD	5.0	5.98
Hypertension	11.8	22.99
Diabetes Mellitus	3.4	5.52

Source : T.P Kunhikanan and K.P Aravindan; 2000

As per the study of T.P Kunhikanan and K.P. Aravindan (2000), the rate of occurrence of mental disorders is, 92 per thousand population. 2 to 3 percent may suffer from mental disorders which may not be severe (Economic Review, 2004). Suicide is a major problem in Kerala which is reported at 28.8 per one lakh people. According to the Crime Record

Bureau the suicide rate in Kerala is almost 3 times the national average of 11.6 per one lakh people.

HIV positive case was identified in Kerala in 1987. Till now total number of AIDS cases reported from different parts of Kerala is 1995 of which 617 are AIDS death cases. It is likely that there are at least 3500 HIV positive children below 10 in the state.

According to 2001 census, 60⁺ population in Kerala is 33.62 lakh (10.5 percent). In Kerala the ratio of 60⁺ people is significantly higher than other states in India. Statistics show that the prevalence rate of chronic diseases and levels of disability among elder people are increasing.

In Kerala there are 8.60 lakh disabled persons as per 2001 census. Disability is more among males than females. Seeing disability is more followed by moving disability and mental disability.

According to NSS 60th round prevalence of morbidity is measured as the number of persons reporting ailment during 15 days per 1000 persons. The number of persons (per 1000) reporting ailments (PAP) and number reporting commencement of any ailment (PPC) during last 15 days is given below.

Table 3.19
Numer (Per 1000) of persons reporting ailment (PAP) and Number Reporting Commencement of any ailment (PPC) during last 15 days, 2004

State	Rural		Urban	
	PAP	PPC	PAP	PPC
Andhra Pradesh	90	36	114	47
Assam	82	58	83	48
Bihar	53	32	63	30
Chattisgarh	69	38	72	31
Delhi	NA	NA	16	7
Gujarat	69	29	78	29
Haryana	95	48	87	43
Himachal Pradesh	87	26	59	19
Jammu and Kashmir	70	30	78	34
Jharkhand	33	21	50	21
Karnataka	64	32	57	20
Kerala	255	103	240	100
Madhya Pradesh	61	32	65	36
Maharashtra	93	44	118	50
Orissa	77	49	54	30
Punjab	136	61	107	44
Rajasthan	57	23	72	27
Tamil Nadu	95	54	96	49
Uttaranchal	52	31	65	25
U.P.	100	55	108	55
West Bengal	114	56	157	62
India	88	45	99	44

Source : NSS 60th Round Report; 2004⁶.

It is clear from the table that the level of morbidity is high in Kerala. The level of morbidity in the rural areas measured in terms of PAP varied from 33 in Jharkhand to 255 in Kerala and PPC ranged from 21 in Jharkhand to 103 in Kerala. Whereas the All India average PAP and PPC in the rural areas are 88 and 45. In the urban areas PAP varied from 16 in Delhi to 240 in Kerala and PPC varied from 7 in Delhi to 100 in Kerala.

As per NSS 60th round the number of ailing persons during the last 15 days per 1000 persons by age and sex for each type of ailment i.e. acute, chronic & any other ailment for Kerala and All India is given below.

Table 3.20

Number per 1000 persons reporting ailment during last 15 days for Kerala and India

	Males Age group (years)					Female Age group (years)				
	0-14	15-29	30-44	45-59	60 & above	0-14	15-29	30-44	45-59	60 & above
Kerala	229	119	177	317	554	189	154	203	382	583
India	78	42	64	113	301	69	56	93	143	307

Source : N.S.S 60th Round Report 2004

In Kerala females above 45 years report maximum number of ailing days. Morbidity rate among the males is high for the 60 & above and 0-14 age group. Whereas for all India males and females above 45 years show maximum morbidity rate. As a whole morbidity rate seems to be high among the children and the aged category.

The number of persons hospitalised in Kerala and India is high among the age group of 60 years & above in rural & urban areas. Yet the figures are more for Kerala than all India. Hence morbidity prevalence also depends on age distribution as the morbidity among those of 60 years and above is observed to be higher than among the rest.

Table: 3.21**Morbidity load / 1000 Population from different studies in Kerala**

Sector	Disease	2000 Krishna Swami	1996 KSSP	1995 – 1996 NSS 52 nd Round	1995 Panicker	1998 Ittiyamma PHC-1	1998 Ittiyamma PHC-2	1987 KSSP	1974 NSS
Rural	Acute	57	121.86	80	78.9	108.2	110.95	206.39	71.21
	Chronic	62	114.6	38	58.6	117.25	153.14	138.02	83.68

Source : T.P Kunhikannan and K.P. Aravindan (2000)

The morbidity rate in Kerala remained above national average. As per the Sample Registration Scheme during 1974, morbidity in Kerala came to 71 per 1000 people, the highest among all other major states and more than three times the all India average of 23 per 1000 persons. According to the results of KSSP study in 1987 the average morbidity rate worked out to 206.39. A study by Ittiyama proved morbidity at 110.95 and 108.2 in 1998. KSSP study of 1996 estimated morbidity rate at 121.86. A recent study by P. Krishnaswami calculated morbidity rate at 57 for acute ailments and 62 for chronic ailments (P. Krishnaswami; 2004)⁷

The picture emerging from the foregoing discussion of present health status of Kerala is a mixed one. One hand the mortality rate is low and even comparable to the levels obtained in high income countries. On the other hand, morbidity rate is high. As for the pattern of morbidity, the picture is again a mixed one. The dominant disease group resembles that of typical underdeveloped countries. At the same time, the emergence of degenerative diseases as major causes of mortality resembles the situation in developed

countries. In brief, the health status of Kerala represents an interesting picture of a low mortality coexisting with considerable morbidity dominated by acute communicable illnesses, degenerative and chronic diseases, the so called 'diseases of affluence' emerging on a significant scale.

3.2.3 Health Care Transition

Kerala has over the years developed a wide medical care network. At the supply side, the different medical traditions are organised under government and private sector. The three major traditions in Kerala – allopathy, ayurveda and homeopathy are present in both sectors, all having their own parallel organizational structure. Private sector also has a small number of traditional systems. (E.g. unani, sidha, etc.)

From the early times, providing health care facilities to the people was considered a primary duty of the government by the Maharajas of Travancore and Cochin, which formed a part of the present state of Kerala.

Allopathic healthcare took roots in Kerala from the beginning of 19th century. Its introduction by the British simultaneously occurred in Malabar, Cochin and Travancore, but because of extreme differences in the social approach of health care, Malabar soon lagged behind. In Travancore the severe limitations of existing social environment were recognized and modified. The enlightened vision of Maharaja of Travancore contributed extensively to the social awakening of their subjects and to the rise of social reformers like Sree Narayana Gura. Under the ongoing pressure of these

reformers and radical movements they created, Travancore's budgetary allocations for education and health rose in 1900. During this period the state dedicated a substantial part of this money to the education of local male and female paramedical personnel and to obtain medical scholarships at the Madras Medical college. Also the London Missionary society which was operating in Travancore had their own medical schools. The early development of infrastructure characterized the first stage of health transition in Travancore and lasted for about 100 years. Having established access to health for all communities and having trained a good number of medical and paramedical personnel, Travancore was ready to enter the second stage of health transition while continuing these trends and supplemented by public health measures at an accelerated pace. At the time of the creation of federal state of Kerala, Malabar had an estimated infant mortality twice as high as it was in Travancore. Malabar needed only 20 years to catch up. In the late 1980s Kerala as a whole could enter the third stage of health transition. This stage is still continuing and is momentarily characterized by a rapid expansion of private health care system. (M. Kabir and T. N. Krishnan)⁸

3.2.3.1 Organisational Structure of Health Care System under Govt. Sector.

Since the intervention of the state in providing healthcare directly to the people is an important feature of the healthcare system in Kerala, a brief account of the organizational structure shall be examined.

Allopathic System

At the state level the department of health and family welfare is headed by a minister of cabinet rank, an IAS officer who functions as Secretary in charge of administration. Similar to the directorate general of health services at the central government, there are state directorates of health and family welfare headed by a director of health services. Below him are additional, deputy and assistant directors of individual programs. In Kerala there are two directors for health services department. One is in charge of medical and public health services and the other is in charge of family welfare programme. The health organization of the district is under the overall control of District Medical Officer (DMO). He is assisted by two deputy medical officers. Each district has District Malaria Officer and District Leprosy Officer to look after the concerned programs in the district. There is also a District Immunization Officer. The Primary Health Centre is the core institution of the rural health services infrastructure in Kerala. The first PHC was established in October 1952. The VIth plan envisaged the setting of a 30 bedded rural hospital known as Community Health Centre (CHC) covering a population of 1 lakh. The PHC gives coverage to 30,000 rural population of 20,000 in hilly and tribal areas. The PHC has a

network of sub centres each serving a population of 5000. It is manned by one male and female multipurpose health workers. The female health worker provides maternal and child health and family planning services to women. MCH services comprise registration of women for antenatal and post natal care, distribution of iron and folic acid tablets to pregnant women, delivery, advice on diet, immunization of infants with BCG, DPT, measles, polio vaccine etc., treatment of minor ailments. Family planning includes contraception advice, follow up etc. The male health worker undertakes house to house malaria surveillance, immunization, maintain records of viral events etc.

Ayurveda

Ayurvedic system lost importance during the long period of western colonial rule in India. The system survived this hostile atmosphere with the special concern given by princely rulers. The direct state support for Ayurveda Education in the modern period was in the form of establishment of an Ayurveda School in 1892 in Trivandrum. The department of Ayurveda functions under the control of a Director. Every district has a District Hospital. In addition there are six specialize hospitals; two for vishavaidyam, one each for psychiatric maladies, nature cure, panchakarma and marmachikilsa. In addition, the government gives grants – in aid to nearly 205 vaidyasalas.

Homeopathy

Government recognition to homeopathic system of health was given in 1947. But government institution came into existence only in 1958. Since 1973, a separate department of Homeopathy was formed with a Director as its head(P.G.K. Panicker and C.R. Soman)⁴.

Quantitative Dimensions

At the beginning with 538 allopathic institutions under the state government, the average coverage of one institution was 72 square kilometer. By 1980-81 the number of allopathic institutions under the government had increased to 981 which would substantially reduce the average coverage of one institution. By 2003-04 this has increased to 1273 with 132 hospitals, 931 Primary Health Centres and MCHs, 59 dispensaries, 18 T.B clinics, 29 grants-in-aid institutions, 18 leprosy centres, 115 community health centres.

Table 3.22 Growth Rate of Allopathic Institutions in Kerala

Year	Hospitals	Dispensaries	PHC+MCH	TB centres and clinics	Grant-in-aid institutions	Community HCs	Lepracy centres	Total
1980'81-1990'91	-0.58	-25.20	43.48	-0.46	13.47	61.52	10.60	2.17
1991'92-2003'04	-0.50	0.49	0.16	-0.84	-2.12	8.25	0.60	0.28
1980'81-2003'04	-0.25	-12.09	12.35	-0.44	4.10	27.85	5.31	1.43

Source: Computed by Researcher (Statistics for Planning;2004)⁹

It is evident from the table 3.22 that allopathic institutions increased at a rate of 2.17 percent for the period 1980'81-1990'91. But 1991'92-2003'04

showed only .28 percent rate of growth. Negative growth is seen in case of hospitals. A high growth rate is seen for PHC and CHC for 1980'81-1990'91. Yet the number of allopathic institutions recorded only 1.43 percent rate of growth for the whole period of 1980'81-2003'04. Hospitals, dispensaries, T.B centres showed a negative growth for the same period.

Under the traditional system of medicine known as 'Ayurveda', at the end of 1980, there were 85 Ayurvedic Hospitals, 419 dispensaries, 4 Vishavaida Dispensaries, 4 Sidha dispensaries, 228 Grants in aid institutions. The total number of Ayurvedic medical institutions increased from 742 in 1980-81 to 909 in 1999-2000 with 113 Ayurvedic hospitals 679 Ayurveda Dispensaries, 4 Visha Vaida Dispensaries, 7 Sidha Dispensaries, 106 grants in aid institutions. This system of medicine is widely used and its acceptance and popularity are sustained despite expansion of Western system of medicine.

Table 3.23

Growth rate of Ayurvedic institutions

Year	Ayurveda hospitals	Visha vaidya hospitals	Ayurveda dispensaries	Visha vaidya dispensaries	Sidha vaidya dispensaries	Grants in aid institutions	Grand Total
1980'81-1990'91	1.83	0	2.14	0	5.587	-2.38	0.90
1990'91-2003'04	0.11	6.904	2.672	-3.539	-1.329	-5.50	0.09
1980'81-2003'04	1	-0.487	2.538	-0.499	1.161	-4.51	0.59

Source: Computed by Researcher(Statistics for Planning;2004)⁹

The ayurvedic institutions increased at a rate of 0.5 percent for the whole period of 1980'81-2003'04. The growth rate was 0.9 percent for the period 1980'81-1990'91. But for the period 1990'91-2003'04 the growth rate was only 0.09 percent. Ayurvedic dispensaries showed the maximum growth rate followed by sidha vaidya dispensaries and ayurvedic hospitals.

Homeopathic institutions also occupy an important place in the health care sector of Kerala. The number of homeopathic institutions increased from 176 in 1980-81 to 555 in 2003-04. The number of homeopathic institutions increased from 176 in 1980-81 to 555 in 2003-04. The number of homeopathic hospitals increased from 17 in 1980'81 to 31 in 2003-04. Homeopathic dispensaries increased from 159 to 474 for the same period.

Table 3.2 Growth rate of Homeopathic Institutions in Kerala

Year	Homeopathic hospitals	Homeopathic dispensaries	Total
1980'81-1990'91	3.8	6.27	6.04
1990'91-2003'04	0.11	4.22	3.94
1980'81-2003'04	2.15	4.36	5.25

Source : Computed by Researcher(Statistics for Planning;2004)⁹

The homeopathic institutions increased at a rate of 5.25 percent for the period of 1980'81-2003'04. There is also a positive growth for homeopathic hospitals and dispensaries. Yet compared to 1980'81-1990'91, the growth rate of homeopathic institutions declined for the period 1990'91-2003'04.

At the time of formation of the state there was considerable interregional disparities in the distribution of government allopathic institutions. Development of the health care sector in the northern districts, the erstwhile

Malabar district that formed part of the Madras Presidency, lagged behind the princely states of Travancore and Cochin. Distribution of government allopathic institutions in the two broad regions is presented below.

Table 3.25 Inter-regional Distributions of Government Allopathic Institution

Year	1961		1971		1981	
	Travancore Cochin	Malabar	Travancore Cochin	Malabar	Travancore Cochin	Malabar
Total Allopathic Institution	220	101	329	180	529	341
Beds per lakh population	92.7	49.6	109.8	73.2	134.4	85.4

Source : P.G.K. Panicker and C.R. Soman 1984

Of the three types of health care institutions in Kerala, allopathic medical institutions ranks first in number. It is highest in the districts of Thrissur, Malappuram, Ernakulam and Thivananthapuram. Ayurvedic medical institutions is ranked high in the district of Thrissur followed by Thiruvananthapuram and Kannur. Ernakulam, Thiruvananthapuram, Kottayam and Kozhikode stands top in the number of homeopathic medical institutions in Kerala.

The number of beds in all the medical institutions have increased throughout the years.

Table 3.26 Growth rate of Beds in medical Institutions

Year	Allopathy	Ayurveda	Homeopathy
1980'81- 1990'91	2.47	3.14	3.34
1990'91- 2003'04	1.02	1.81	0.42
1980'81- 2003'04	1.42	2.56	2.39

Source: Computed by researcher(Statistics for Planning;2004)⁹

The number of beds in allopathic institutions increased by 2.47 percent , ayurvedic by 3.14 percent and homeopathic by 3.34 percent for the period from 1980'81-1990'91. But it showed a decline over the period 1990'91-2003'04. As a whole highest percentage of increase in beds can be seen in ayurvedic institutions for the period 1980'81-2003'04.

The number of beds is highest in the case of allopathic medical institutions. Greater number of beds is seen at Thiruvananthapuram followed by Kozhikode and Thrissur. Except for 1997-98 and 1998-99 Kozhikode is followed by Ernakulam. The highest number of beds in Ayurvedic medical institutions can be seen at Thiruvananthapuram followed by Ernakulam and Thrissur. For the years 1995-96, 1966-97, 1997-98, 1998-99 Thiruvananthapuram is followed by Thrissur and Ernakulam. The number of beds in homeopathic medical institutions is very low compared to other two medical institutions. It is highest at Thiruvananthapuram and Kottayam.

Table 3.27

Number of Doctors in Medical Institutions in Kerala

	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
Allopathic	2905	2978	3251	3284	3365	3460	3474	3168	3168
Ayurvedic	839	621	814	845	845	892	918	922	997
Homeopathic	396	421	435	445	455	466	506	497	547

Source : Statistics for Planning 2001⁹.

The number of doctors in allopathic medical institutions increased from 2905 to 3168 in 1999-2000. Allopathic institutions have the highest number of doctors. For ayurvedic medical institutions, the number of doctors increased from 839 in 1991-92 to 997 in 1999-2000. For 1991-92 the number of doctors in homeopathic medical institutions was 396 and it increased to 547 in 1999-2000.

3.2.4 Stages of Health Transition in Kerala.

The pace of the health transition was quite different in Travancore Malabar. By the beginning of the second decade of the 20th century health became socially accessible to all castes and classes in Travancore. In Malabar this was achieved only after independence. Active public programmes were undertaken in 1920s which brought down the mortality rates significantly. Thus, Travancore entered the second stage of health transition by the beginning of 1920s. The mortality reductions in the second stage were made possible by the achievements of the first stage of health transition which saw the development of the infrastructure, assured access to health to all communities and trained a good number of medical and paramedical personnel from both sexes. Malabar lagged behind Travancore in all these respects. In Travancore the first phase lasted about hundred years when primary emphasis was on building up the health infrastructure and in curative medicine, followed by a second phase of over 50 years which recognized the importance of preventive measures. Malabar had a much longer first phase lasting over 150 years, but a very brief second phase of about 20 years. It was estimated that the infant mortality in Malabar was

twice as high as it was in Travancore – Cochin at the time of integration but the rates converged in all regions within Kerala in the late 1980s. Thus Malabar joined the other two regions in the third phase of health transition almost together. This third phase in health transition of Kerala, which is still continuing, is characterized by a demand – led expansion of private health care system.

3.2.5 High morbidity and low mortality syndrome

The Kerala experience, although differing in some respects, broadly is in line with theoretical literature on epidemiological transition. The third phase which Kerala has entered now, is characterized by a transition to chronic diseases that are linked to the mass made environment and by a demanded expansion of private health care system. Kerala's government policy laid less emphasis on private and public health measures and a greater concentration on the curative approach. The result is that inspite of all the favourable health indicators used to illustrate Kerala's achievements, a substantial part of the population still suffers from morbidity related to air and water borne infections (Kabir and Krishnan; 1992)⁸.

Panicker and Soman (1984) were among the first to pay attention to this phenomenon. According to them Kerala's health transition is now characterized by 'high morbidity low mortality syndrome'. The often praised decline in mortality rates was caused by an overemphasis on curative interventions. But these interventions did not lead to an improvement of the quality of life in terms of disease free existence.

Kerala may be thus having a dimorphic pattern of morbidity (Kannan et al.; 1991)¹⁰ with poverty and environment related diseases and chronic degenerative diseases on either side. There has been no concomitant reduction in poverty, nor has there be provision for sanitation, drinking water or a better environment on a scale commensurate with the decline in mortality indicators. The impact of land reforms, mass schooling and egalitarian policies has been proportionately more effective in giving people greater access to healthcare and thus reducing mortality, then in the reduction of poverty and environment related diseases as such.

3.3 Educational Transition in Kerala

3.3.1 Kerala's Early Educational Development

The history of education in Kerala goes back to very ancient days. The sangam literature suggest that all people irrespective of sectarian and sex consideration were entitled to get the benefit of full education. The process of Aryanisation and rising hold of the caste system brought about a decline in the levels of education and literacy. Women as well as the low castes were deprived of the right to education. The outcaste such as the Pulayas and Parayas and the lower communities like the Ezhavas were also denied the right of education. Even the vast majority of the Syrian Christians were presumably illiterate at the beginning of the nineteenth century.

Major social intervention efforts since 1870 brought about a development number of schools and pupils in Travancore, Cochin and Malabar during the British period. The number of schools during 1870/71 – 1946/47

increased 21 times in Travancore, 117 times in Cochin and 26 times in Malabar. In respect of enrolment the increase was 108 times in Travancore, 385 times in Cochin and 64 times in Malabar. The literacy rate rose from 5.7 percent to 46.7 percent in Travancore, 4.4 percent to 43.7 percent in Cochin and from 5.3 percent to only 30.9 percent in Malabar. Even though the performance of Malabar looks lackluster in comparison with Travancore and Cochin, it was much better than that of all India (Abdul Aziz. A and P. R. Gopinathan Nair; 2002)¹¹.

3.3.2 Educational Development in Kerala since 1956

At the same time of the formation of Kerala State in 1956, wide disparity existed in the levels of educational development as between Travancore Cochin and the Malabar regions. Since 1956 priority was given to bridge the gap between Malabar and the rest of Kerala. During 1957-58, 49 high schools were started in Malabar and a large number of primary schools under the Malabar District Board were taken over by the government. Out of the 115 lower primary schools started in 1957-58, 43 were in Malabar regions and out of 209 lower primary schools upgraded 147 were in Malabar. In the matter of allocation of seats in professional and technical colleges priority was given to Malabar region since 1960's. Owing to the special attention given to Malabar much of the disparity in education between this region and Travancore- Cochin disappeared. Since 1970 decisive shift took place in the attitude of Muslim community in Malabar towards education. Various Muslim reform movements were instrumental in bringing about this change. Improvement in the general economic

conditions due to gulf migration made education economically accessible to them. The educational backwardness of several backward communities continued to be the main concern of the democratic governments of Kerala. In 1950-51 the government accepted a scheme for the amelioration of the backward community. Accordingly backward communities were classified schedule castes, schedule tribes and other backward communities. Special efforts were made to get the pupils of these sections admitted in schools. The scheme of the free supply of clothes, slates and books for these pupils in primary schools was continued. They were also exempted from the payment of examination fees. From 1950-56 the rates of stipends and lumpsum grants to them were raised. The backward community department conducted a large number of night schools, tribal schools and libraries for these communities. After 1956 vigorous efforts were made for reservation of seats in educational institutions. Travancore-Cochin government reserved 30 percent of the seats of arts and science colleges to SC/ST and OBC students. Further by the order of 1957 and 1963, 35 percent and 305 of the seats respectively in professional and medical colleges were reserved for them. Following complaints on the existing system of reservation the government appointed in 1964 a commission to look into the educational problems of backward communities. The commission prepared a list of socially and economically backward groups and recommended for them reservation of 5 percent of the total number of seats in post-graduate courses in arts and science colleges and in professional colleges and 25 percent of total seats in

polytechnics for a period of 10 years. For SC/ST the then existing reservation of 5 percent of total seats was retained. The government implemented the recommendation and this increased the enrolment of students of other backward communities. In 1980 the government implemented merit scholarships for 2 SC boys and 2 girls, each in every school at the rate of Rs.40/- in upper primary and Rs. 60/- in high school classes. Model residential schools were started in 1990 for the welfare of SC/ST students. Financial assistance was given to SC/ST students who failed in secondary school leaving certificate examination, to help them continue their studies in tutorial institutions. As a result of vigorous efforts by the government the differences in literacy rates among communities started declining and literacy levels within each backward community started improving. Since 1926 special efforts were being made for increasing enrolment of females belonging to educationally backward communities. Other than general scholarships, special scholarships were provided to Muslim, Nadar, SC/ST girls. In 1971, 35 posts of Primary Education Extension officers were created in 7 backward districts for the removal of educational backwardness of girls. These officers were to organize activities to prevent dropouts of girls. In 1971-73 a special programme was arranged to improve the attendance of Muslim girls. In 1986 a cell was established by the state institute of education to co-ordinate programmes towards vocationalization of education of women. In Kerala the male literacy thus increased from 49.8 percent to 80.9 percent during 1951-1991 while female literacy increased from 31.4 percent to 75.4

percent, female literacy rising at a more rapid rate. The gender disparity in literacy rate has almost disappeared in the state. Malabar region lags a little behind; but it is mainly due to the lower literacy rates among the higher age groups in the region. A comparison with other states in India reveals that Kerala's achievement in female literacy is remarkable. The efforts of social intervention both at the government and private levels, since 1817 have led to the transformation of Kerala from a state of affairs in which literacy was limited to the privileged sections of the society, to one of universal mass literacy in 1991. This was achieved due to the total literacy campaign initiated by the government in 1989 and undertaken by the Kerala Saksharata Samiti with the active support of Kerala Sastra Sahitya Parishad and other voluntary organizations and social activists. For the expansion of school enrolment several other measures were introduced by the government. Under the school feeding programme, in assistance with Cooperative for American Relief Everywhere (CARE) a voluntary relief organization, children attending lower primary and nursery classes were entitled to a cooked noon meal at school. Every child who came under the scheme was fed at school for 110 days a year. During 1964/65 - 1970/71 the scheme covered 73 percent of lower primary school of children with the fall in the assistance from CARE since early 1970's a feeding programme with Kanji and pulses was introduced from December 1984. It was first introduced in lower primary schools. Owing to public pressure, the scheme was extended to all government and aided lower, primary schools from December 1985. Later in 1987 government extended the scheme to upper primary schools. The scheme was revised by constituting a midday

meal committee in each school consisting of the Headmaster, President of the PTA, representative of the teachers in the school and a nominee of the local body . In order to facilitate travel of students to and from government had introduced travel concessions in water and road transport vehicles . At present, students in schools and colleges are allowed to travel by buses by paying only 25 percent of the actual fare.

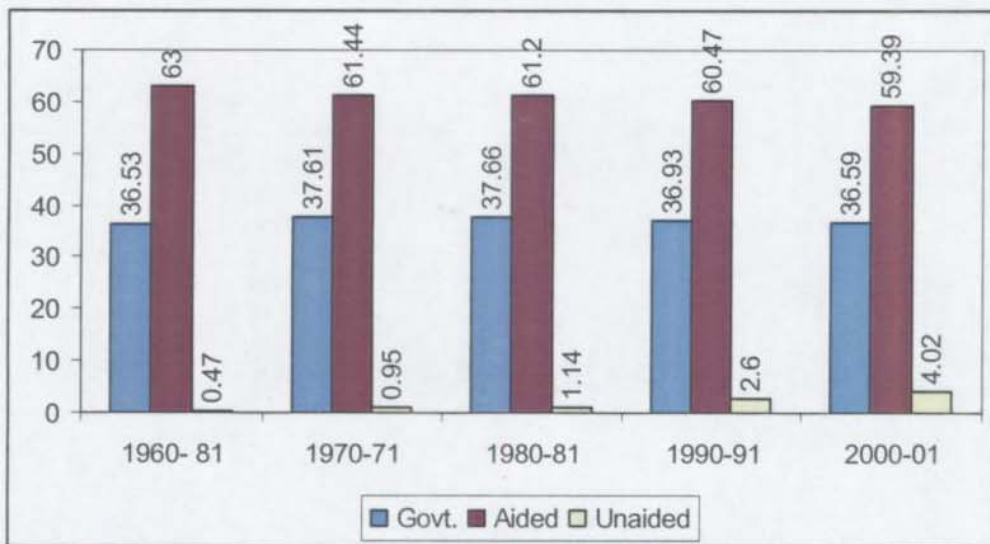
After the formation of the state of Kerala, the Travancore university was renamed as Kerala university. During 1956-68, 76 colleges were established. During 1969-87, 52 more colleges were started. With the increase in the number of colleges and their strength more universities also came into existence . The Calicut University was established in 1968. The University of Cochin was founded in 1971. The Kerala Agricultural University came up in Trichur in 1970's. The Mahatma Gandhi University was established in 1983. In 1996 the Kannur University was started. Apart from these there exists now several professional colleges for higher education. Even after the increase in the number of colleges the demand for seats in higher education institutions could not be fully met. The government on the basis of the recommendation of education commission 1964-66 introduced a method of granting private registration for appearance in the University examination in Arts, Commerce and Mathematics. With this a parallel system of education emerged in the unorganized private sector known as "Parallel Colleges". This system resulted in the emergence of thousands of parallel colleges through out Kerala.

A phenomenal growth of education in terms of number of institutions can be seen in Kerala since independence. As schools are the primary medium for imparting formal education, an attempt is made to analyse the growth of schools, enrollment ratio in schools etc.

During the period from 1956'57 to 2002'03 the number of schools increased by 35.42 percent, i.e from 9137 in 1956'57 to 12373 in 2002.'03. Graphical representation given below portrays the progress in the number of schools in Kerala.

Figure 3.1

Growth of Schools under Government, Aided and Unaided categories



It is very clear from the graph that though the share of government schools increased due to increased government intervention, the private sector still dominates school education in Kerala.

Table 3.2 Growth of Schools at various levels under different management

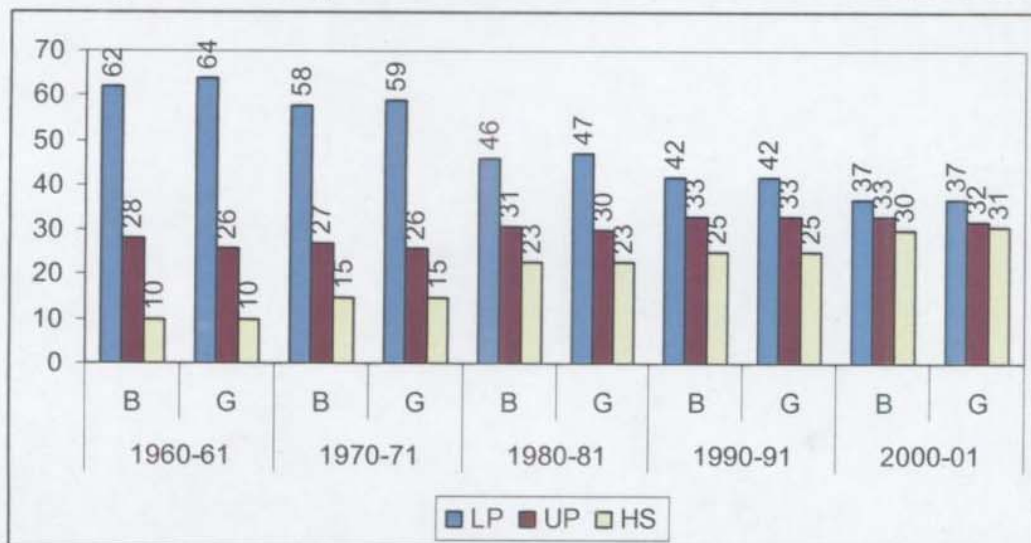
Year	High School				Upper Primary				Lower Primary				Grand Total
	Govt.	Aided	Unaided	Total	Govt.	Aided	Unaided	Total	Govt.	Aided	Unaided	Total	
80'81-90'91	1.26	1.99	7.03	1.88	0.92	0.10	17.12	0.59	-0.40	-0.09	12.94	-0.06	0.46
90'91-02'03	0.21	0.25	6.07	0.61	-0.01	-0.06	4.42	0.12	0.06	-0.10	1.04	-0.01	0.15
80'81-02'03	0.58	0.63	6.32	0.91	0.44	-0.02	8.54	0.31	-0.25	-0.10	4.47	-0.09	0.20

Source: Computed by Researcher (Educational Statistics Since Independence; 2004)¹²

The tabular presentation given above exposes that of the various levels of schools under different managements, the unaided upper primary schools show a highest percentage of growth rate, ie 8.54 percent for the period 1980'81-2002'03. Growth rate of aided schools declined throughout the years at various levels of schools. Negative growth rate can be seen in the case of aided lower primary schools and upper primay schools. The government lower primary schools show a negative growth rate for the period 1980'81-2002'03 and government upper primary schools show a negative growth rate for the period 1990'91-2002'03. The rate of growth of government high schools is also very lower than the high schools under aided and unaided managements. Compared to the schools at lower primary and upper primary levels there is 0.91 percent rate of growth at the high school level for the period 1980'81-2002'03. Yet the total number of schools increased by only 0.20 percent for the whole period of 1980'81-2002'03.

With the regard to the enrolment of students for the period from 1960'61 to 2003'04, the total enrolment increased by 42 percent. A graph on the percentage of students enrolled at different levels of schools is given below.

Figure 3.2 Progress of Educational institutions at various levels



Source: Computed by Researcher (same as above)

It is clearly visible from the graph that enrollment of boys and girls has shrunk to a large extent at the lower primary level. At the Upper Primary level the enrolment kept on rising till 1990's but has come down since. At the secondary stage there is an increase in the proportion of pupil enrolled throughout the years. The enrollment ratios reached saturation points at different time points in the different stages of school. This proves the effect of declining birthrate in the school going age groups at all levels of schools.

Table 3.29**Communitywise Enrollment rate in schools**

Year	All Communities			Scheduled caste			Scheduled Tribes		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1980'81-1990'91	0.40	0.67	0.53	0.33	0.42	0.37	4.62	5.59	5.07
1990'91-2003'04	-1.56	-1.62	-1.59	-2.05	-2.22	-2.13	-0.90	-0.93	-0.91
1980'81-2003'04	-0.59	-0.49	-0.54	-0.91	-0.92	-0.92	1.27	1.67	1.46

Source: Computed by Researcher(same as above)

Though enrollment ratio among boys and girls declined for the period 1980'81-2002'03, the rate of decline is more among the boys than among the girls. Among the Scheduled caste and Scheduled Tribes, the latter shows a better enrollment ratio of 1.46 percent for the same period.

3.3.3 Private Efforts in Educational Development

Significant contributions to education were made by private agencies during the 19th century. The Christian Missionaries were the first to establish girls schools in Kerala. Mrs. Mead started the first female school at Nagercoil in 1819. By the end of 19th century there were 71 schools for females under LMS in south Travancore. The CMS Missionaries also made significant contribution to the education of women. Over a period of 13 years from 1959 the number of Catholic schools increased by 23 percent. Another community association, the Nair Service Society was found by Mannathu Padmanabhan. The first NSS School with 21 students was started at Karukachal on plot of land donated by a local Nair land

lord in 1916. An NSS College was started with a pre university class at Changanacherry . In 1948 the Mahatma Gandhi College was started at Trivandrum. By the 1980's NSS had 23 colleges and hundreds of schools. The Ezhavas also started demanding access to education in all types of schools. A social reformer and spiritual leader, Narayana Guru emerged from among the Ezhavas at this crucial juncture. He founded a school at Aruvippuram and another at Varkala in which medium of instruction was English. By 1954 the Trust had 12 high schools, 18 middle schools and two colleges. By 1968 there were 12 colleges under the Trust. In 1990 the community owns about 1000 schools including those under SN Trust. . Seeing the serious deterioration of Muslims in the field of education , their leaders exhorted the community to send their children to schools and initiated measures to start private schools Seethi Muhammed Sahib with the support of other educated Muslims founded many Mappila managed schools. Vakkam Abdul Khader Maulavi gave the lead to educational efforts in Travancore Cochin. On his initiative , the government approved religious instruction in schools and appointed Arabic teachers . Special fee concession was granted to Muslim children and full salary grants were allowed to Muslim elementary school. The Kerala Muslim Aikya Sangham established the Farook College at Calicut . Institutions under Muslim management increased from 472 in 1962-63 to 1301 in 1993-94. As a result of the social intervention efforts of the private agencies , the number of institutions and enrolment increased several fold in the 20th century. Kerala is the only state in India in which the management of the

majority of the schools is in the hands of community associations and other private agencies.

Table 3.30

Managementwise Enrollment Ratio in schools

Year	Government			Aided			Unaided		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1980'81-1990'91	0.18	0.53	0.35	0.24	0.51	0.37	11.24	10.05	10.67
1990'91-2002'3	-2.62	-2.70	-2.66	-1.26	-1.33	-1.30	5.11	5.74	5.41
1980'81-2002'03	-1.20	-1.02	-1.11	-0.42	-0.34	-0.38	7.07	7.17	7.12

Source: Computed by Researcher(same as above)

An analysis of managementwise enrollment ratio in schools proves that it is high under the unaided category ie, 7.12 percent for the period 1980'81-2002'03. Enrollment ratio in the government and aided schools picturises a negative growth rate for boys as well as girls since 1990-91.

The social intervention efforts of the government and the liberal policy of the government since independence brought about phenomenal growth of expenditure on education. At the same time receipts from the education sector have been continuously declining. All these indicate that Kerala has attained its high percentage of literacy and educational development by committing to it a higher percentage of the states revenue and a higher percapita and per student expenditure than elsewhere in India.

3.4 Conclusion

Health and education should be treated as complementary and they should be developed simultaneously. For health transition it is necessary to promote education and schooling along with development of health infrastructure. Education makes all the difference to one's understanding of the environment. Hence any process of health transition would be incomplete without improvements in education.

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HEALTH STATUS OF HOUSEHOLDS IN KERALA

Rajini R. Menon “Female education and health status of households in Kerala - A case study of Thrissur district” Thesis. Department of Economics, Dr. John Matthai Centre Thrissur, University of Calicut, 2007

CHAPTER - IV

HEALTH STATUS OF HOUSEHOLDS IN KERALA

The Health Status of households in Kerala is studied by analyzing two data bases. One is the District Level Household Survey (2001) and the other is the 52nd Round National Sample Survey (1995-96).

Section 1 of this chapter discusses the results from District Level Household Survey¹ and Section 2 reveals the findings from National Sample Survey².

4.1 Findings from District Level Household Survey (RCH)

District Level Household Survey is undertaken under Reproductive Child Health project in the country in 2001. It has covered 7 districts from the whole of Kerala state. Aspects on maternal health, child health and general health status of household covered by the survey for Kerala and for Thrissur district is considered for our analysis purpose. These variables are examined in the background of certain selected determinants. They are female education, husband's education, place of residence and religion.

From a sample of 1000 households undertaken by the survey 782 married men and women for Thrissur district are categorized by their education levels for more in-depth analysis of our study. Similarly 5484 married men and women are considered for the whole of Kerala state.

The sampling design adopted by the study for the selected determinants is produced in the tables given below.

Table 4.1**Educational Classification of Women**

Education	Frequency		Percentage	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	330	14	6.02	1.79
Lower Primary	472	48	8.61	6.14
Upper Primary	1001	120	18.25	15.35
High School	2422	355	44.16	45.4
Higher Sec.	681	104	12.42	13.3
Above	578	141	10.54	18.03
Total	5484	782	100	100

Source: Compiled from District Level Household Survey Data

Table 4.2**Educational classification of husbands**

Education	Frequency		Percentage	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	9	1	0.16	0.13
Lower Primary	630	76	11.49	9.72
Upper Primary	1160	153	21.15	19.57
High School	2316	369	42.23	47.19
Higher Sec.	492	61	8.97	7.8
Above	518	90	9.45	11.51
NR	359	32	6.55	4.09
Total	5484	782	100	100

Source: Same as table 4.1

Table 4.3**Sectorwise classification of Religion**

<i>Religion</i>	<i>Place of Residence</i>					
	<i>Kerala</i>			<i>Thrissur</i>		
	<i>Rural</i>	<i>Urban</i>	<i>Total</i>	<i>Rural</i>	<i>Urban</i>	<i>Total</i>
Hindu	2165	792	2957	328	149	477
Muslim	1312	453	1765	70	47	117
Christian	556	202	758	152	36	188
Sikh	0	2	2	0	0	0
Jain	0	2	2	0	0	0
Total	4033	1451	5484	550	232	782

Source: Same as table 4.1

For analyzing the influence of these determinants on the health status of women, the following variables are considered by the study. They include mean age of mother at child birth, antenatal care, problems during pregnancy, post delivery complications, family planning, awareness of RTI and HIV and incidence of anemia among adolescent girls and pregnant women. Variables on child health include breast feeding practices, awareness of diarrhea, awareness of pneumonia, immunization details, place of vaccination and incidence of anemia among children. The general health status of household is examined by considering the following aspects covered by the survey. They are – type of salt used for cooking, source of drinking water, type of toilet facility, source of lighting, fuel for cooking and standard of living index and death rate.

4.1.1 Mean Age of Mother at Child Birth

Age at which child bearing begins is a major determinant of fertility as well as health and welfare of mother and child. Teenage mothers suffer

particularly from severe complications during delivery, which results in higher morbidity for both themselves and their children. The mean age of mother at the birth of first child in Kerala is lowest among the lower primary educated category of women, i.e., 17.75 percent. It is high among the higher secondary and above higher secondary educated categories of women. This picture is very obvious from the Table 4.4 given below.

Table 4.4

Education of Women and Mean Age of Mother at Child Birth

Age Group	Education - Women											
	Illiterate		Lower Primary		Upper Primary		High School		Higher Sec.		Above	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
15 - 19	19	0	17.75	0	18.17	0	22.72	0	21.08	0	19	0
20 - 24	20.75	0	21.24	23	20.66	21.63	20.99	20.96	21.58	21.46	22.03	22.1
25 - 29	23.16	23	23.09	22.54	23.62	24.32	23.8	24.62	24.12	24.7	26.25	24.82
30 - 34	23.84	20.5	26.21	22.95	25.57	23.78	26.07	25.92	26.66	26.78	28.79	27.18
35 - 39	28.02	23.99	27.74	23.43	27.3	23.75	27.37	25.59	25.75	26.28	27.52	27.71
40 - 44	29.17	22.49	30.65	25.29	28.69	25.61	26.09	25.78	27.59	28.54	29.37	29.3

Source: Same as in table 4.1

Classification of the same variable on the basis of sector proves that there is no visible rural urban difference in the mean age at child birth in Thrissur district. While for all Kerala it is low in the urban areas. The below given table 4.5 clarifies this fact.

Table 4.5**Mean age of Mother at childbirth with place of Residence**

Age Group	Place of Residence			
	Rural		Urban	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
15 - 19	22.64	0	17.73	0
20 - 24	21.04	21.75	21.01	19.71
25 - 29	23.79	24.13	24.51	24.6
30 - 34	27.01	25.92	25.74	25.06
35 - 39	29.05	26.36	26.29	24.2
40 - 44	30.63	26.05	28.52	26.18
Total	30.6	25.43	28.35	25.07

Source: Same as table 4.1

A religionwise analysis of the mean age of mother at child birth proves that it is high among the women of Christian community in Kerala and Thrissur district. This is portrayed in the table given below.

Table 4.6**Mean age of Mother at childbirth with Religion**

Age Group	Religion					
	Hindu		Muslim		Christian	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
15 - 19	20.93	0	22.48	0	0	0
20 - 24	21.34	21.54	20.75	20.39	22.47	22.03
25 - 29	24.39	24.62	23.17	23.36	25.7	24.69
30 - 34	25.61	24.07	26.4	24.08	26.48	28.12
35 - 39	28.49	26.66	28.23	22.89	28.21	26.41
40 - 44	25.93	25.9	30.22	25.27	26.73	26.34

Source: Same as table 4.1

4.1.2 Pregnancy Care

Pregnancy is often planned event, so that preparation for pregnancy includes a general examination, inquiry as to possible genetic problems, folic acid and iron supplements. Early diagnosis of pregnancy is important in permitting women to attend prenatal care as early as possible. The table on antenatal checkups by different categories of health facility is given below.

Table 4.7
Education of women and ANC Checkups

Education	Govt. Municipal Hospital		Govt. Dispensary		chc/rural Hospital		phc		Private Hospital	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	10.61	0	0	0	0	0	0.61	0	8.79	7.14
Lower Primary	9.53	8.3	0	0	0	0	0	0	7.63	6.25
Upper Primary	10.79	11.6	0.10	0	0.10	.83	0.40	.83	14.59	12.5
High School	12.47	11.26	0.04	.28	0.54	.28	0.29	.56	23.95	18
Higher Sec.	9.10	5.76	0	0	0.88	1.92	0.15	0	33.63	30.70
Above	4.67	2.8	0	0	0.17	0	0.52	.70	34.60	38.29
Total	10.56	8.70	0.04	0.13	0.38	0.51	0.31	0.51	22.25	21.61

Source: Same as table 4.1

Concerning the source of ANC service, the table shows that majority of women had mainly availed the service of private hospitals in Kerala as well as Thrissur district. 11.26 percent who pertain to high school category in Thrissur district and 12.47 percent in the whole of Kerala has taken the service of government hospitals. 38.29 percent of women in Thrissur district and 34.60 percent in all Kerala who availed the service of private hospitals belonged to the education level of higher secondary education and above. Thus it could be concluded that women who received ANC service

through private health facility increased with an increase in education. The type of ANC care taken also shows an improvement with an increase in education levels of women. This can be seen from the table 4.8.

Table 4.8

Education of women and type of ANC care taken

Education	Weight Measured		Height Measured		Blood Pressure Checked		Blood Test		Urine Test	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	14.24	7.14	2.12	0	16.67	7.14	16.06	7.14	17.27	7.14
Lower Primary	13.98	12.5	3.81	0	16.74	12.5	15.68	12.5	16.1	12.5
Upper Primary	22.38	24.17	5.39	3.33	5.37	25	25.57	25	26.07	25
High School	32.29	26.19	10.16	5.35	36.5	28.73	36.66	29.01	36.58	29.01
Higher Sec.	39.65	37.5	11.16	9.61	42.58	37.5	42.29	38.46	42.88	38.46
Above	39.27	39.72	14.01	14.89	40.66	39	40.83	41.13	41	41.13
Total	29.47	28.64	8.79	6.9	32.77	29.79	32.73	30.43	32.99	30.43

Source: Same as table 4.1

Only very few illiterate women got their weight measured and BP checked during pregnancy. While the same was done by about 40 percent of women with higher secondary education and above in all Kerala as well as Thrissur district. The same improvement can be seen in the testing of blood and urine. Majority of pregnant women did their first ANC checkups during the second month of pregnancy. It varied from 6 percent among illiterates to 29.07 percent among women with higher secondary education and above in Kerala. The same trend followed in Thrissur district as well. About 9 ANC checkups was done by 25.43 percent of pregnant women with higher education in Kerala. While only 4 visits of ANC checkups was done by majority of women with low level of education.

Table 4.9

Education of women and intake of iron folic tablets

Education	Given iron folic tablets during Pregnancy			
	Yes		No	
	Kerala	Thrissur	Kerala	Thrissur
Illiterate	18.18	7.14	3.03	0
Lower Primary	15.89	12.5	1.69	0
Upper Primary	24.88	24.17	1.7	1.67
High School	36	28.73	1.49	0.85
Higher Sec.	42	37.5	1.32	0.96
Above	40.88	40.43	1.04	1.42

Source: Same as table 4.1 .

Table 4.9 shows that 40 percent of pregnant women in all Kerala and Thrissur district with higher secondary education and above have taken iron folic tablets during pregnancy. While it was taken only by a minority of illiterate women . Thus every aspect of ANC care shows the positive influence exerted by an improvement in female education.

The type of ANCcare taken also shows an improvement with an increase in the education level of husbands. Only very few women with lower education level got their weight measured, BP checked, blood and urine tested during pregnancy. While the same was done by about 32 percent of women with higher secondary and above educated husbands in Kerala and Thrissur district. Majority of pregnant women did their anccheckups during second month of pregnancy. It centred around 20 percent in Kerala among women with husbands of all education levels. In Thrissur district it varied from 2.63 percent among women with husbands of lower primary education levels of education to 17.78 percent of women with husbands of higher secondary level of education. 40 percent of women in Kerala and 36 percent

of women in Thrissur district with husbands of higher secondary level of education have taken iron folic tablets during pregnancy. While the same was taken by only 22 percent of women with illiterate husbands. This can be proved from the table 4.1 in the Appendix. With regard to place of residence, Appendix 4.2 reveals that ANC care taken by pregnant women does not show much rural urban difference.

More than 20 percent of women opt private hospitals. Only 10 percent of women depend on government hospitals for ANC care. A negligible percentage of women prefer government dispensary in rural as well as urban areas.

There is also no much rural urban variation on the type of ANC care taken. Majority of pregnant women did their first ANC checkup during the second month of pregnancy. For Kerala it seems to be high in urban areas and for Thrissur district it is high in rural areas. 9 ANC checkups was done by a large proportion of women in rural and urban areas. Yet the proportion is high in urban areas. It is evident from Appendix 4.3.

Antenatal visit by health worker at home seems to be high in rural areas. About 12 percent of pregnant women in rural areas were visited by health workers at home. No prominent rural urban difference can be seen even in the intake of iron folic tablets by pregnant women in Kerala and Thrissur district.

Table 4.5 in the Appendix throws light on the fact that majority of households in Kerala and Thrissur district opted private hospitals. Preference for private hospitals is high among the Christian and Muslim community. Only a minority from each caste used the service of government dispensary, CHC etc.

Pregnant women belonging to Christian community in Kerala and Thrissur district outshine their counterparts in taking antenatal care during pregnancy. More than 30 percent of Christian pregnant women got their weight measured, B.P checked and blood and urine tested during pregnancy. The position of Hindu women in taking in various ANC care is not rosy. The first visit of antenatal checkup is done in the second month of pregnancy by a majority of women of Muslim community in Kerala (25.43 percent and Christian community in Thrissur district (11.70 percent). There is no religionwise difference on the number of anc checkups done by pregnant women of Kerala and Thrissur district. Pregnant women of Christian community in Kerala and Thrissur district are more concerned with the intake of iron folic tablets.

4.1.3 Problems during pregnancy

Women of all ages experienced discomfort and problems during antepartum, intrapartum and postpartum periods. An analysis of the problems faced by women during pregnancy proves that paleness was experienced by pregnant women of all education categories. Other prominent discomfort experienced by pregnant women was swelling of hands and feet. But it aggravated with hike in education levels, ie in Kerala

only 3.9 percent and in Thrissur district only 4.16 percent of lower primary educated women had this discomfort. While it was mainly experienced by 12 percent to 15 percent of women with higher education. This is portrayed in Table 4.10.

Table 4.10

Education of Women and Problems during Pregnancy

Education	Swelling of Hands & Feet During Pregnancy		Paleness During Pregnancy		Excessive Bleeding During Pregnancy		Convulsions During Pregnancy		Weak or no Movement of Foetus During Pregnancy		Other Problems During Pregnancy	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	3.9	0	1.8	0	0	0	0.9	0	0.6	0	3.3	0
Lower Primary	3.6	4.16	1.4	4.16	0.84	2	0.63	0	0.84	0	2.3	0
Upper Primary	8.3	5.8	5	5.8	1.29	0.83	2.09	0.83	0.99	1.6	2.4	0
High School	12.4	10.14	8.9	5.63	1.23	0.56	23.86	3.09	1.1	1.97	3.6	1.2
Higher Sec.	14	15.3	7.3	4.8	1.02	2.88	1.48	4.8	1.7	2.88	2.7	0
Above	12.8	13.4	6.5	3.5	0.34	0	1.38	1.41	1.3	0	3.4	0
Total	10.7	10.2	6.72	4.98	1.02	0.89	1.85	2.42	1.16	1.53	3.19	0.51

Source: Same as table 4.1

An association between place of residence and problems faced by women during pregnancy shows that paleness during pregnancy is more prevalent among the pregnant women of rural areas. Compared to all Kerala, the distress of swelling of hands and feet during pregnancy is more among the women of rural areas of Thrissur district.

Pregnancy related problems are seen mostly among the Muslims of Kerala. This is clear from the table 4.11. The major problems faced by them are swelling of hands and feet paleness etc.

Table 4.11

Distribution of Problem During Pregnancy With Religion

Religion	Swelling of Hands & Feet During Pregnancy		Paleness During Pregnancy		Excessive Bleeding During Pregnancy		Weak or no Movement of Foetus During Pregnancy		Other Problems During Pregnancy	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Hindu	9.84	10.9	5.5	5.45	0.77	0.83	1.04	1.25	3.2	0.2
Muslim	12.5	10.2	7.7	4.2	1.64	1.7	1.24	2.5	3.56	1.7
Christian	9.49	8.5	5	4.2	0.52	0.53	1.45	1.5	2.42	0.53

Source: Same as table 4.1

4.1.4 Post Delivery Complications

With respect to post delivery complications by education characteristics of currently married women, the Reproductive Child Health Survey shows that it is more existent among high school and higher secondary categories. 22.7 percent of women reported at least one symptom of postdelivery complication. Table 4.12 proves high fever, lower abdominal pain, severe headache as prominent post delivery complications.

Table 4.12

Education of Women and Post Delivery Complications

Education	High Fever		Lower Abdominal Pain		Foul Smelling Vaginal Discharge		Excessive Bleeding		Convulsion		Severe Headache	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	1.21	0	1.82	0	0.61	0	0.61	0	0.61	0	1.82	0
Lower Primary	1.91	4.16	2.12	2.08	0.21	2.08	0.21	2.08	0.42	2.08	0.85	2.08
Upper Primary	3.40	4.16	2.90	4.16	0.70	0.83	0.7	0.83	0.7	0	1.9	2.5
High School	3.30	3.09	2.56	2.53	1.20	0.84	1.2	0.84	0.41	0.28	2.06	1.6
Higher Sec.	3.52	4.8	3.38	6.7	1.17	0.96	1.17	0.96	0	0.96	2.94	5.76
Above	2.94	4.96	1.04	2.12	0.35	0.70	0.35	0.7	0	0	1.56	4.25
Total	3.06	3.83	2.48	3.19	0.89	0.38	0.89	0.89	0.44	0.38	1.97	2.81

Source: Same as table 4.1

305.42 RACH

Though no much rural urban disparity can be seen in the post delivery complications, it is existent more among the women of rural areas than among the women of urban areas. High fever and severe headache are the prominent post delivery complications seen among them.

Post delivery complications are mostly undergone by the women belonging to the Muslim community of Kerala and Thrissur district. This can be seen from the table given below.

Table 4.13

Distribution of Post Delivery Complications With Religion

Religion	High Fever		Lower Abdominal Pain		Excessive Bleeding		Severe Headache	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Hindu	2.8	3.9	1.85	2.7	0.64	1.25	1.89	2.7
Muslim	4	7.6	3.79	5.9	1.41	0.85	2.6	5.9
Christian	1.71	1	1.84	2.6	0.65	0	0.79	1

Source: Same as table 4.1

4.1.5 Family Planning

Family Planning enables a woman to determine the time, spacing, and frequency of pregnancy. It includes a range of methods for preventing or expelling a conception while maintaining a normal sex life. There are now safe and effective contraceptive methods widely available at reasonable cost. According to RCH data, education exerts a large influence on contraceptive acceptance. Because of their literacy, educated women are better informed about available contraceptive options, correct use etc.



NB 5611

It is evident from the table that women of all education categories are aware of female sterilization, male sterilisation, condoms and use of pills. While the knowledge of modern birth control methods such as tubectomy and laproscopy varies a wide range between illiterates and women with higher education in all Kerala as well as Thrissur district.

Table 4.14

Education of Women and Awareness of Family Planning Methods

Education	Female sterilisation		Laproscopy		Male sterilisation		iud		Pills		Condoms		Withdrawal	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	97.9	100	53.9	57.1	73.3	85.7	61.8	85.7	63.6	85.7	59.4	71.4	36.1	42.8
Lower Primary	99.2	97.9	65.9	60.4	81.4	85.4	83.1	83.3	81.4	79.2	74.6	72.9	46.2	47.9
Upper Primary	99.8	99.2	69.6	68.3	82.4	91.6	88.3	90.8	86.1	87.5	80.3	74.2	54.4	65.8
High School	99.8	98.8	70.9	37.6	84.5	88.2	91.9	92.9	88.9	90.9	86.1	84.5	63.5	61.6
Higher Secondary	99.4	97	80.1	77.8	91.9	89.4	95.9	92.3	95.1	95.1	91.2	83.6	5.31	65.3
Above	99.3	98.5	86	85.8	96.2	96.4	95.7	97.8	97.4	99.2	93.1	90.7	3.98	82.9

Source: Same as table 4.1

Women with husbands of all education categories are aware of female sterilization, male sterilization, condoms and use of pills. The knowledge on laproscopy shows an increase with an increase in the education level of husbands.

In Thrissur district family planning methods are known more to the women of urban areas. While there is no such rural urban difference in the case of Kerala.

The Muslim community lags behind in the awareness of various family planning methods. Though they are aware of female sterilization, pills and condoms it is very negligible compared to the women of other communities.

4.1.6 Awareness of Reproductive Tract Infections

Reproductive Tract Infections are being increasingly recognized as a serious global health problem with impact on individual women and men. RTI refers to three different types of infections which effect the reproductive tract.

1. Endogenous infections are most common RTI worldwide. They result from an overgrowth of organisms normally present in the vagina. These infections can be easily treated and cured.

2. Iatrogenic infections occur when the cause of infection is introduced into the reproductive tract through a medical procedure such as menstrual regulation induced abortion, insertion of IUD or during child birth. This can happen when surgical instruments used during the procedure have not been

properly sterilized or if an infection that was already present in the lower reproductive tract is pushed into the upper reproductive tract.

3 Sexually Transmitted Diseases (STD) are caused by viruses, bacteria or parasitic microorganisms that are transmitted through sexual activity with an infected partner. HIV, the virus that causes AIDS is perhaps the most serious sexually transmitted infection as it eventually leads to death.

According to District Level Household Survey (RCH) a large majority of illiterate women in all Kerala (80.9 percent) are not aware of RTI. While almost 83 percent of women with higher secondary education are aware of RTI in all Kerala as well as Thrissur district. This is obvious from the Table 4.15 given below.

Table 4.15

Education of Women and Awareness of RTI

Education	Ever Heard of RTI/STI			
	Yes		No	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	19.09	57.14	80.91	42.85
Lower Primary	45.13	47.91	54.87	52
Upper Primary	53.55	50.8	46.45	49.16
High School	61.15	64.2	38.85	35.7
Higher Sec.	74.89	80.7	25.11	19.2
Above	82.53	83.6	17.47	16.3
Total	59.81	66.75	40.19	33.25

Source: Same as table 4.1

Only a negligible percentage of illiterates are aware of the surity in curing RTI. While nearly 60 percent higher educated women in Kerala as well as

Thrissur district are sure of curing RTI. This shows the effect of knowledge gained through education. This is given in the Appendix 4.7.

With regard to awareness of the source of RTI, table 4.16 depicts that television is the major medium of communication. Yet only 4 percent of illiterate women in Kerala gather information on RTI through television. But Thrissur district gives a better picture with respect to illiterates. Regarding women with higher secondary education and above, knowledge gained on RTI through television is more or less the same in Kerala and Thrissur district. About 60 percent of women with higher secondary education and above gain information through television. Friends and relatives also share a part of the knowledge. Only a negligible percentage of knowledge is passed through slogans, doctors, health workers, school teacher, community meetings etc. 61.7 percent of women with higher secondary education and above in Thrissur district gain knowledge on this through newspapers. This shows the positive influence of literacy among the women.

Table 4.16

Education of women with awareness of RTI-Source

Education	Radio		Television		Newspapers/ Books/Magazines		Slogans/Pamphlets/ Posters/ Wall hoarding		Doctor		Health Workers		Schools/Teachers		Community Meetings		Friends/Relatives		Other	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	10	21.4	3.63	21.4	3.63	21.4	0	0	0.30	0	0.61	0	0	0	2.12	7.1	13.33	35.7	0.30	0
Lower Primary	23.52	22.9	11.86	10.4	11.44	10.4	1.06	2.00	2.12	4.1	3.60	0	0.21	0	3.39	6.25	30.72	33.3	0.85	0
Upper Primary	27.87	24.2	19.58	20.9	17.78	20	1.60	0.83	2.10	1.6	4.80	4.1	0.90	3.3	5.29	3.3	29.87	26.6	1.10	0.83
High School	33.36	24.7	32.25	30.4	29.77	29.8	1.60	1.40	2.60	2.8	5.20	6.19	1.57	4.7	5.74	4.7	28.16	30.9	0.91	0.56
Higher Sec.	42.73	41.3	48.60	56.7	44.35	55.7	3.18	0.96	7.49	10.5	7.64	13.4	4.99	3.8	8.81	3.8	24.52	26	1.32	0
Above	42.91	35.5	62.28	61.7	60.55	61.7	4.41	2.12	6.23	6.4	7.44	6.4	7.61	8.5	10.21	8.5	25.95	21.2	1.38	0
Total	32.28	28.64	31.66	36.70	29.49	36.18	9.17	1.40	3.32	4.34	5.25	4.34	2.30	6.39	6.09	5.24	27.12	28.13	1.00	

Source: Same as table 4.1

The prominence of education in the awareness of RTI transmission is vividly clear from the table 4.17. Majority of women in Kerala and Thrissur district consider heterosexual intercourse as the main medium of RTI transmission.

Table 4.17

Education of Women and Awareness of RTI Transmission

Education	Heterosexual Intercourse		Lack of Personal Hygiene		Other		Do not Know	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	13.03	28.5	3.93	7.1	0.30	0	4.24	14
Lower Primary	31.14	25	8.05	16.6	0.21	0	10.81	14.5
Upper Primary	37.36	20.8	8.59	12.5	0.90	2.5	11.89	19.1
High School	47.98	38.5	13.91	26.7	0.91	1.1	8.75	11.2
Higher Sec.	63.88	58.6	20.56	40.3	1.76	2.8	6.17	4.8
Above	70.24	58.8	34.60	41.8	1.38	1.4	5.88	7.8
Total	46.81	41.18	14.84	28.13	0.97	1.53	8.61	11.25

Source: Same as table 4.1

It could be inferred from the table that awareness of reproductive tract infections among the women of Kerala and Thrissur district shows an increase with the high standard of level of education of their husbands. With regard to source of awareness on Reproductive tract infections, the knowledge gained by women through radio, television, newspapers, schoolteachers also developed with the rise in the education of husband. Information on RTI is gathered from friends and relatives by more than 30 percent of women with lower primary and upper primary educated husbands in Kerala and Thrissur district. The knowledge on RTI transmission also shows a hike with an improvement in the level of education of husbands. About 58 percent of women in Kerala and 63.3

percent of women Thrissur district with higher secondary and above educated husbands consider RTI as a curable disease.

According to the District Level Household Survey, knowledge on reproductive tract infections is more familiar among the women of rural areas of Thrissur district. ie, (70 percent). While at all Kerala level it is more known to the women of urban areas(66 percent). Figures for all Kerala show that radio is the main medium of communicating information on RTI in rural areas. While in Thrissur district it is the television. Another noticeable feature of health awareness is that about 39 percent of women of rural areas in Thrissur district gather information on RTI through newspapers. Only a negligible part of knowledge on reproductive tract infections is gained through pamphlets, doctors, healthworkers, school teachers, community meetings, friends etc in the rural and urban areas of Kerala and Thrissur district. Awareness on the mode of transmission of RTI is also considered as an important element of health awareness among women. Data proves that more than 50 percent of women belonging to the urban areas of Kerala consider heterosexual intercourse as the main medium of RTI transmission.

RTI is known more to the Christian community in Kerala as well as Thrissur district. With regard to the source of awareness of RTI, newspaper and television form the main source for gathering information on RTI for about 44 percent of Christians of Thrissur district. Majority of Hindus of Thrissur district depend on television for gaining knowledge on RTI. Only a very meagre part of information is gathered by Muslim community from

various sources. More than 50 percent of Christians consider heterosexual intercourse as the main mode of RTI transmission. Muslim community have only a very little knowledge on the mode of RTI transmission.

4.1.7 Awareness of HIV

HIV is human immunodeficiency virus. It is the virus that causes AIDS. A member of a group of viruses called veteroviruses infects human cells and uses energy and nutrients provided by those cells to grow and reproduce.

AIDS stands for Acquired Immunodeficiency Syndrome. It is a disease in which body's immune system breaks down and is unable to fig off infections and other illnesses that take advantage of a weakened immune system. Table 4.18 picturises that 66.06 percent of illiterate women in Kerala have heard of HIV. While awareness of HIV among illiterate women of Thrissur district gives a better picture.ie, 92.8 percent of illiterate women of Thrissur district have heard of it.

Table 4.18
Education of Women and Awareness of HIV/AIDS

Education	Heard of HIV/AIDS			
	Yes		No	
	Kerala	Thrissur	Kerala	Thrissur
Illiterate	66.06	92.8	33.94	7.14
Lower Primary	87.92	89.5	12.08	10.4
Upper Primary	94.4	97.5	5.59	2.5
High School	96.99	98.8	3.01	1.1
Higher.Sec	99.27	99	0.73	0.96
Above	99.65	100	0.35	0
Total	94.44	98.21	5.56	1.79

Source: Same as table 4.1

With regard to source of awareness of HIV, more than 60 percent of women in Kerala as well as Thrissur district gain knowledge on HIV through newspapers. This is evident from the table 4.19 given below.

Table 4.19
Education of women and awareness of HIV -Source

Education	Radio		Television		Newspapers/ Books/Magazines		Slogans/Palmphlets/ Posters/wall hoarding		Doctor		Health Workers		Schools/ Teachers		Community Meetings		Friends/Relatives	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	27.58	57.14	13.33	28.57	7.27	21.43	0.3	0	1.82	0	2.42	0	0.3	0	3.64	7.14	52.73	57.14
Lower Primary	49.58	56.25	28.18	47.92	27.12	31.25	2.33	2.08	2.54	0	8.26	8.33	0	0	5.93	10.42	62.92	56.25
Upper Primary	55.34	69.17	39.66	62.5	42.46	52.5	4.4	2.5	3.5	6.67	6.69	4.17	0.9	0.83	7.79	3.33	58.64	59.17
High School	61.15	61.41	59.91	75.77	70.36	77.75	7.27	2.25	3.63	2.82	8.71	9.3	3.01	2.25	9.66	8.45	50.33	46.2
Higher Sec.	65.93	72.12	75.48	93.27	86.78	89.42	9.84	3.85	8.66	8.65	11.89	11.54	7.05	6.73	15.27	14.42	39.5	42.31
Above	61.42	51.15	89.27	66.15	94.98	63.42	18.34	2.73	8.65	6.14	11.76	8.18	9.1	4.77	16.09	10.23	42.73	30.01
Total	57.7	62.79	55.71	77.37	62.38	75.32	7.39	3.32	4.56	4.35	8.64	8.7	3.52	3.71	10.01	9.46	50.93	46.55

Source: Same as table 4.1

1/12

A person who has HIV carries the virus in certain body fluids including blood, semen, vaginal secretions and breast milk. Table 4.20 shows that a major share of illiterate women considers heterosexual intercourse as the main medium of HIV transmission. While the awareness on mother to child transmission of HIV, transfusion of infected blood, transmission through needles, blades, skin puncture is noteworthy among women upto high school level of education. Women upto upper primary education is not at all familiar on various aspects of avoiding HIV, like the use of condoms during sex, avoiding pregnancy when having HIV, avoiding unsterilised needles etc.

Table 4.20

Education of Women and Awareness of HIV Transmission

Education	Heterosexual Intercourse		Needles/Blades/Skin Puncture		Mother to Child		Transfusion of Infected Blood		Do not Know	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	46.06	64.2	7.88	21.4	0.91	7.14	9.39	21.4	14.55	21.4
Lower Primary	71.61	81.25	20.76	35.4	4.45	8.3	22.8	29.16	10.59	4.16
Upper Primary	84.12	79.16	25.57	45	3	1.6	29.47	47.5	0.79	9.16
High School	90.92	89.5	39.47	52.9	5.41	5.9	48.14	56.9	2.89	1.6
Higher Sec.	13.35	84.6	5.8	75	0.79	17.3	7.07	75.9	0.42	0
Above	95.33	86.5	73.01	70.9	21.63	21.9	81.83	71.63	0.52	0.7
Total	86.27	85.81	39.35	56.27	7.04	9.85	46.61	58.31	4.45	2.94

Source: Same as in table 4.1

There is no cure for AIDS. While new drugs are helping some people who have HIV live longer, there are many problems associated with them. Anti-HIV drugs are highly toxic and can cause serious side effects including heart damage, kidney failure etc. Half of the patients experience treatment

failure within a year or two because the virus develops resistance to existing drugs. About 90 percent of women with higher secondary education and above in Kerala and Thrissur district perceive HIV as not curable. Table 4.8 in the Appendix exposes this fact.

Table 4.21

Education of Husband with Awareness of HIV/AIDS

Education	Ever Heard of hiv/aids			
	Yes		No	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	33.3	0	66.7	10
Lower Primary	50.48	52.72	49.52	47.3
Upper Primary	54.14	56.8	45.86	43.13
High School	62.82	66.9	37.18	79.7
Higher Sec.	71.14	83.6	28.86	16.3
Above	79.34	85.5	20.66	14.4

Source: Same as table 4.1

It is obvious from the table 4.21 that knowledge on HIV among the women with educated husbands shows better results. Newspapers and television are the main medium of communication. Radio also imparts knowledge. But the use of radio by women with educated husbands has greatly increased. More than 50 percent of women with lower primary and upper primary educated husbands gather information on HIV through friends and relatives in Kerala and Thrissur district. Education of husbands also influence in gaining knowledge on the medium of HIV transmission. More than 95 percent of women with higher educated husbands are aware that HIV can be avoided by having only one sex partner. The knowledge on precaution of HIV with the use of condoms, avoiding blood transfusions, avoidance of

unsterilised needles is familiar among women with husbands of higher level of education. 85 percent of women in Kerala and Thrissur District with higher secondary educated husbands consider HIV incurable.

No much rural urban variation exists on the awareness of HIV among the women of all Kerala and Thrissur district. Majority of women in the urban areas of all Kerala consider newspaper as the main source for gaining knowledge on HIV. While nearly 80 percent of women of rural areas of Thrissur district depend on television for gathering information on HIV. With regard to awareness on the mode of transmission of HIV, it could be inferred that 92 percent of women from the urban areas of Kerala consider heterosexual intercourse as the main mode of transmission of HIV.

Women of all three communities have heard of HIV. More than 80 percent of women of all three communities of Kerala as well as Thrissur district consider heterosexual intercourse as the main mode of transmission of HIV. Women of Christian community are aware of various aspects of HIV transmission. Knowledge on the ways of avoiding HIV are also known to women of Christian community. 84 percent of women of Hindu community in Kerala and 85 percent of women of Christian community consider HIV as not curable.

4.1.8 Anemia among Adolescents girls and pregnant women

A minimum level of hemoglobin in the blood is necessary for transfer of oxygen from lungs to different tissues and organs of the body. Low level of hemoglobin in the blood characterizes anemia and it has detrimental effects

on the health of adolescent girls and pregnant women. Adolescent girls do need an optimum level of hemoglobin to prepare themselves to fit for child bearing in the course of time. Anemia among pregnant women results in increased risk of premature delivery and low birth weight. Adolescent girls of 10-19 years of age and pregnant women of 15-44 years of age by collecting blood sample in the field. These samples were sent to National Institute of Nutrition for ascertaining level of hemoglobin. The recommended level of hemoglobin for classifying pregnant women into not anemic, mild, moderate, severe anemic categories are a minimum of 11.0 g/dl (gram per hundred ml), 8.0-10.9 g/dl, 5.0-7.9 g/dl and less than 5.0 g/dl respectively. For adolescent girls hemoglobin levels for same categories are a minimum of 120 g/dl, 10.0-11.9 g/dl, 8.0-9.9 g/dl and less than 8.0 g/dl respectively. An analysis of the data proves that mild anemia is strongly prevalent among adolescents and pregnant women in Kerala as well as Thrissur district. Mild anemia among adolescent girls shows a wide variation among households with illiterate women to households with women of higher secondary and above level of education.

Table 4.22**Education of women and anemia among adolescent girls**

Education	Anemia-Adolescents							
	Mild Anemia		Moderate Anemia		Severe Anemia		Not Anemic	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	10.61	14.29	1.21	0	0.61	0	0.91	0
Lower Primary	10.59	6.25	0.42	0	0.42	0	1.91	4.17
Upper Primary	9.29	8.33	1.4	0.83	0.5	0	2	4.17
High School	9.45	7.6	1.53	0.56	0.21	0.28	1.53	4.17
Higher Sec.	6.46	4.81	1.62	0.96	0.15	0	2.64	1.92
Above	5.19	4.25	0.69	2.13	0	0	2.25	2.12
Total	8.77	6.78	1.31	0.89	0.27	0.13	1.82	1.66

Source: Same as table 4.1

Only about 2 percent of adolescent girls in Kerala and Thrissur district is not anemic. Yet severe anemia is not seen among adolescent girls and pregnant women in Kerala as well as Thrissur district. Mild anemia among pregnant women in Thrissur district ranged from 7.14 percent among households with illiterate women to 4.26 percent among households with higher secondary and above educated women. In the case of all Kerala mild anemia among pregnant women remained almost the same of 3 percent among households with women of all education levels.

Anemia among pregnant women of Kerala showed no much decline with an increase in the education level of husbands. But the picture is different for Thrissur district. 5.26 percent of pregnant women with lower primary educated husbands suffered from mild anemia in Thrissur district. While the same was suffered by only 3 percent of pregnant women with higher educated husbands.

There is no much religionwise difference on the prevalence of mild anemia among the pregnant women of Kerala and Thrissur district. Yet among adolescents, it is mostly seen among the Muslim community. About 10 percent of adolescents of the Muslim community in Kerala and Thrissur district suffer from mild anemia. Among the children ,it is highly prevalent among the Christian community.

4.1.9 Neonatal mortality Rate

Education of mother matters a lot in bringing down the number of neonatal deaths. Mothers with an upper primary level of education and above face the lowest rate of neonatal deaths in Kerala as well as Thrissur district.

Table 4.23

Education of women and Neonatal mortality rate

Education	Neonatal			
	0		1	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	94.55	100	5.45	0
Lower Primary	95.13	95.83	4.87	4.17
Upper Primary	96.40	97.50	3.60	2.50
High School	98.31	97.75	1.69	2.25
Higher Sec.	97.94	98.08	2.06	1.92
Above	98.96	98.58	1.04	1.42
Total	97.48	97.83	2.52	2.17

Source: Same as table 4.1

4.1.10 Breast feeding and weaning practices

Breast feeding practices are important determinants of children's nutritional status. They have beneficial effects on the morbidity and

mortality of young infants. As recommended by World Health Organization breast feeding should be initiated immediately after birth and should be continued exclusively upto 6 months. Breast feeding upto 6 months is done mainly by the women with high school level of education in Kerala and Thrissur district (21 percent). It is portrayed in the table given below.

Table 4.24

Education of women and Breast Feeding practices

Education	Duration in Months									
	Below 3		4 - 6		7 - 9		9-12		More Than 12 Months	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	13.03	0	6.36	0	0	0	0.61	0	0	0
Lower Primary	10.17	8.3	5.51	2.08	0	0	0	0	0	0
Upper Primary	12.4	16.6	11	7.5	0.1	0	0.1	0	0.2	0
High School	15.32	12.95	16.18	12.39	0.21	0	0.29	0.84	0.21	0.28
Higher Sec.	17.47	17.3	21.15	20.1	0.15	0	0.29	0	0.29	0
Above	15.57	18.43	19.03	14.8	0.35	0.7	0.17	0.7	0.17	0
Total	14.49	14.57	14.64	12.27	0.16	0.12	0.23	0.63	0.18	0.12

Source: Same as table 4.1

First breast milk should not be squeezed from breast, but it should be given to child, because it contains colostrum which provides natural immunity to the child. An analysis of the RCH data shows that compared to less educated mothers, women who have above higher secondary level of education in Kerala (33 percent) as well as Thrissur district (more than 20 percent) are less likely to squeeze milk from breast before breast feeding begins.

Education of husband also influences the child care practices of women. Majority women with higher secondary educated husbands in

Kerala as well as Thrissur District breast feed their children upto 6 months. Breast feeding upto 3 months is done by women with husbands upto high school level of education. This is clear from Appenix 4.11.

Importance of breast feeding upto 3 months is familiar more among the Muslim community of Kerala and among the Hindu community of Thrissur district. Breast feeding upto 6 months is given to infants mostly by the women of Christian community of Kerala as well as Thrissur district. Table 4.12 in the Appendix throws light on this fact.

4.1.11 Immunization of children

Immunization of children is a very important component of the expanded programme on immunization started by the Government of India in 1978. To understand the coverage of immunization, RCH has collected data of all those children who were 12 months and above and born since 1999 at the time of survey. Childhood is an important stage where the child is prone to certain illness and faces a group of communicable diseases like polio, diphtheria, whooping cough etc. Yet proper immunization can prevent these among children.

An analysis of the data proves that government hospitals is more preferred to private hospitals for immunisation of children in Kerala as well as Thrissur district. Among different education categories of women immunization coverage is high among children of higher secondary and above educated mothers in Kerala as well as Thrissur district. The table on immunization details of children proves that the proportion of vaccination coverage of children shows an increase with a hike in the education level of mothers.

Table 4.25

Education of Women and Immunisation details of Children

Education	Received Polio 0		Received BCG		Received DPT		Received Measles		Received Hepatitis b	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	19.09	7.14	19.7	7.14	19.7	7.14	14.24	7.14	1.21	7.14
Lower Primary	16.74	10.41	16.74	10.42	16.53	10.42	11.86	10.42	1.91	4.16
Upper Primary	24.18	25	23.88	23.33	23.58	22.5	17.28	20	5.09	10.83
High School	36.37	27.88	36.31	23.73	35.55	27.89	27.21	23.66	10.36	15.21
Higher Sec.	43.02	35.57	43.61	39.42	42.73	38.46	33.92	32.69	19.97	29.8
Above	41.52	41.84	41.18	40.42	39.79	39.72	30.45	28.36	24.74	35.46
Total	32.79	29.54	32.73	29.92	32.11	29.16	24.47	24.04	10.83	19.3

Source: Same as table 4.1

Table 4.26

Education of husband and Immunisation details of Children

Education	Received Polio (OPV '0')		Received BCG		Received DPT		Received Measles		Received Hepatitis b	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	22.22	0	22.22	0	22.22	0	11.11	0	11.11	0
Lower Primary	19.52	19.74	19.37	18.42	19.05	18.42	14.13	17.11	3.33	10.53
Upper Primary	29.14	22.88	29.14	23.53	28.36	22.88	20.26	15.03	6.47	9.8
High School	37.31	33.6	37.31	34.42	36.87	33.88	28.93	30.08	12.39	20.6
Higher Sec.	40.24	32.79	40.45	34.43	39.23	34.43	9.67	26.23	17.89	29.51
Above	37.07	35.56	36.68	34.44	36.1	32.22	27.8	24.44	20.85	33.33

Source: Same as table 4.1

It is clear from the above given table that education of father also positively influences the immunization level of children. With regard to place of vaccination, in Thrissur district 21 per cent of children with higher educated fathers get immunized from private hospitals. While in all Kerala majority of children get vaccinated from government hospitals and CHC. Compared to Thrissur district education of father does not make any influence on the

place of vaccination of children in the whole of Kerala. This can be seen from the table in the Appendix.

4.1.12 Awareness and treatment of diarrhea

Diarrhea is a major killer disease among children under 5 years of age. Deaths from acute diarrhea are mostly due to dehydration resulting from loss of water.

Table 4.27
Education of women and awareness of diarrhea

Education	Give ORS		Salt and Sugar Solution		Continue Normal Food		Continue Breast Feeding		Give Plenty of Fluids		Other		Do Not Know	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	4.55	0	2.42	0	0.61	0	0.3	0	3.03	0	2.12	0	11.82	0
Lower Primary	6.78	6.35	4.24	6.25	1.48	0	1.48	2.08	3.6	0	0.85	0	6.36	4.16
Upper Primary	10.79	18.33	10.39	12.5	2.5	3.3	2.7	0.83	7.29	0.83	1.1	0.83	7.79	4.16
High School	22.67	18.02	19.08	15.77	4.21	4.2	5.33	3.09	12.76	0	1.61	0	7.31	5.35
Higher Sec.	32.45	30.76	26.87	2.4	5.14	7.6	5073	4.8	13.07	0	2.5	0	3.67	2.8
Above	34.95	33.33	28.89	26.95	7.09	6.3	9.17	7.8	17.65	1.41	1.21	1.41	2.6	4.96

Source: Same as table 4.1

It is visible from the table 4.27 that awareness on what to do when child gets diarrhea increases with increase in the education level of mothers. Only 6 percent of women with lower primary level of education have the knowledge of giving ORS and salt and sugar solution to children during diarrhea, while the same is known to more than 33 percent of mothers with higher level of education in Kerala as well as Thrissur district.

The knowledge on giving ORS, salt and sugar solution, continuing normal food, continuing breast feeding, giving plenty of fluids to children is known more to the women of Kerala with husbands of higher secondary

education and above. Table 4.28 vividly picturises this fact. While the same is known to women of Thrissur district with husbands of higher secondary education. Thus in Kerala as well as Thrissur district the awareness on diarrhea shows an increase with a hike in the education level of husbands.

Table 4.28
Awareness of Diarrhea with Education of Husband

Edu_Hus	Give ORS		Salt and Sugar Solution		Continue Normal Food		Continue Breast Feeding		Give Plenty of Fluids		Do Not Know	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	0	0	0	0	11.11	0	11.11	0	11.11	0	11.11	0
Lower Primary	10.32	13.1	6.98	5.2	1.59	1.31	2.54	2.63	5.87	3.9	6.03	5.6
Upper Primary	17.33	16.3	14.31	16.3	3.1	3.9	3.71	2.6	10.17	5.8	6.72	3.26
High School	23.49	19.5	19.73	19.5	4.71	5.14	5.61	3.2	11.79	5.4	7.08	5.6
Higher Sec.	4.77	22.9	4.01	22.9	0.96	9.8	1.14	11.4	2.4	9.8	1.44	3.2
Above	27.03	21	22.2	21	5.41	4.4	6.56	4.4	14.86	7.7	3.86	3.3

Source: Same as table 4.1

With regard to child rearing practices women of rural areas in Kerala have better knowledge on the awareness of diarrhea. While in Thrissur district women of urban areas score better than women of rural areas. This can be seen from the table 4.14 in the Appendix. A religion wise analysis picturises that women of Christian community in Kerala and women of Hindu community in Thrissur district have more knowledge on the ways of dealing with the health aspects of a child suffering from diarrhea.

4.1.13 Awareness and treatment of pneumonia

Pneumonia is a common cause of illness and death in infancy and childhood. Though awareness of pneumonia showed a hike with the level of education, its proportion is very negligible. Only 20.58 percent women in Kerala and 18.43 percent women in Thrissur district belonging to the

category of above higher secondary level of education are aware of the danger signs of pneumonia. The danger signs of pneumonia is also known to the women with husbands of above higher secondary level of education. Women belonging to the Muslim community of Kerala and Hindu community in Thrissur district are not much aware of the danger signs of pneumonia. According to the survey results of RCH, the critical signs of pneumonia are known more to the women of urban areas.

4.1.14 Anemia among children

Anemia among children results in impaired cognitive performance, motor development, language development and besides increasing morbidity from infectious diseases. RCH undertook direct measurement of hemoglobin levels among children under 6 years of age. The recommended level of hemoglobin for classifying children into not anemic, mild, moderate, severe anemic categories are a minimum of 11.0g/dl (gram per hundred ml), 8.0-10.9g/dl, 5.0-7.9g/dl and less than 5.0g/dl respectively. Mild anemia among children varied from 13.33 percent among households with illiterate women to 11.07 percent among households with women of higher education in Kerala. But a reverse trend is seen in Thrissur district. It increased with an increase in the education level of women. Table given below makes clear this fact.

Table 4.29
Education of women and anemia among children

Education	Anemia-Children					
	Mild Anemia		Moderate Anemia		Not Anemic	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	13.33	7.14	1.21	0	2.12	0
Lower Primary	10.17	4.16	1.27	0	2.75	2.08
Upper Primary	10.59	8.33	1	0.83	2.6	3.33
High School	11.73	9.29	0.58	0.56	2.68	2.82
Higher Sec.	11.31	10.58	0.59	0	3.82	4.8
Above	11.07	12.77	0.17	0	2.08	1.42
Total	11.36	9.59	0.71	0.38	2.72	2.81

Source: Same as table 4.1

4.1.15 Iodisation of salt

Consumption of salt fortified with iodine can prevent human beings from iodine deficiency disorders which is mainly responsible for causing miscarriages, brain disorders etc. The minimum iodine content of edible salt is 30 parts per million (ppm). While collecting RCH data it is provided to each interviewer to measure the level of iodine content of salt consumed by selected households. The testiest consists of stabilized starch solution. When a drop of it is put on edible salt it changes colour from light blue through dark violet as iodine level varies. The experimental result indicating the level of iodine content is finally recorded by matching the outcome of colour of salt with that on the cover of the test kit. The percentage distribution of households by degree of iodisation of salt

according to education category of women is shown in the Table 4.30 given below.

Table 4.30

Education of Women and Type of Salt Used for Cooking

<i>Education</i>	type of salt used for cooking					
	iodised 15+ppm		iodised 7ppm		not iodised	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	32.12	71.4	8.48	0	56.36	21.4
Lower primary	36.86	50	8.47	12.5	48.52	31.25
Upper primary	40.06	45.8	8.39	18.3	44.36	30.8
Highschool	49.13	52.9	7.76	9.8	35.67	29.8
Higher.Sec	49.05	56.7	7.05	12.5	34.8	25.9
Above	53.11	58.1	7.79	9.2	28.89	26.9
Total	45.81	53.58	7.9	11.38	38.79	28.9

Source: Same as table 4.1

Differential in the consumption of adequately iodised salt is more pronounced when analysed by education of women. Only a small percentage of households with higher secondary and above educated women used salt with 7 ppm. About 50 percent of women with higher education used salt with 15 ppm. Thus education has a major role in the usage of type of salt.

An association between the education of husband and the type of salt used for cooking proves that households with higher educated husbands use more of salt with 15ppm. Salt with 7ppm is used by households with less educated husbands.

Women of rural areas at all Kerala level (61 percent) used salt with 15ppm. But the same was used by only 53 percent of women in Thrissur district. Also there is not much rural urban variation in Thrissur district.

About 48 percent of households with women belonging Christian community use salt with 15ppm in Kerala. While the same is used for cooking purpose by 57 percent of households with Muslim women in Thrissur district.

4.1.16 Source of drinking water

Women and children suffer most from poor quality of water. Developing world suffers from one or more diseases associated with water supply such diarrhea, trachoma, hookworm etc. Cholera can only be prevented by ensuring that all people have access to safe drinking water. As per table 4.31 only 5 percent of households have taps inside their house in all Kerala and Thrissur district. 41.52 percent of households with illiterate women in Kerala have uncovered wells. The situation in Thrissur district is almost the same. An improvement in education levels show an increase in the percentage level of households with their wells covered. Yet this hike is very insignificant. Nearly 2 percent to 3 percent rely on hand pump bore well and about 15 percent depend on public taps for availing drinking water.

Table 4.31

Education of Women and Source of Drinking Water

Education	source of drinking water													
	tap inside		tap shared public		hand pump-borewell		well covered		well uncovered		river		pond	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	2.12	7.1	15.45	14.2	3.94	0	27.58	35.7	41.52	35.7	0.30	0	3.64	0
Lower primary	5.08	2.08	13.77	14.5	2.75	4.16	28.60	35.4	40.68	39.5	0.21	0	2.75	0
Upper primary	5.00	4.16	12.99	15	3.90	0.83	29.87	35.8	38.06	37.5	0.30	0	1.90	0.83
Highschool	4.62	3.66	12.84	14.36	3.01	2.81	32.95	34.3	36.25	39.46	0.21	0.28	1.78	0.28
Higher.Sec	4.26	2.88	12.04	8.65	2.64	2.88	35.39	46.15	33.63	32.6	0.15	0	1.62	0
Above	6.06	4.96	11.94	12.76	3.63	2.12	35.99	44.68	29.07	27.6	0	0	1.04	0
Total	4.69	3.83	12.91	13.14	3.23	2.42	32.31	38.10	36.20	35.16	0.20	0.12	1.90	0.25

Source: Same as table 4.1

The necessity and importance of covering a well fetching drinking water is more known to households with husbands of higher education categories. Compared to all Kerala this knowledge is more among the households of Thrissur district. Only a minority of households depend on river, pond, hand pump, bore well etc for drinking water. 5 percent of households with husbands of all education categories provide taps inside their houses.

Table 4.32

Place of Residence with Source of Drinking Water

Place of Residence	Source of Drinking Water													
	Tap Inside		Tap Shared Public		Hand Pump Borewell		Well Covered		Well Uncovered		River		Pond	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Rural	3.71	3.2	12.72	13.8	2.87	2	31.34	36.5	38.43	37.8	0.91	0.18	2.25	0.18
Urban	7.37	5.1	13.43	12.5	4.2	3.4	35	41.8	29.97	28.8	0.2	0	0.89	0.43

It is obvious from the table 4.32 that only few households in Kerala as well as Thrissur district have taps inside their house. 13 percent of households

share public taps in rural as well as urban areas of Kerala and Thrissur district. The necessity of covering a well is known more to the households of urban areas. Only a negligible percentage depend on river, pond, hand pump bore well for drinking water.

Compared to the Christians of Kerala the importance of covering a well is known more to Christians of Thrissur district. It is clear the from the table that the Muslim community of Kerala and Thrissur district does not know the importance of covering a well.

4.1.17 Type of Toilet Facility

Table 4.33

Education of Women and Type of Toilet Facility

Education	Type of Toilet Facility							
	Own Flush Toilet		Own Pit Toilet		Shared Toilet		No Toilet	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	57.57	78.5	12.12	7.1	4.24	0	23.03	7.1
Lower Primary	68.64	87.5	7.83	6.25	1.48	2.08	16.1	0
Upper Primary	72.32	75	8.99	10	1.09	2.5	11.18	8.3
High School	74.56	75.7	8	6.1	1.24	1.4	9.62	0.7
Higher Sec.	77.23	79.8	7.34	10.5	1.17	1.92	5.87	2.8
Above	76.47	99.4	5.53	4.96	1.21	0.7	6.92	9.9
Total	73.16	77.6	8.08	7.16	1.4	1.5	10.56	8.4

Source: Same as table 4.1

Table 4.33 cuts a sorry figure of the fact that 23.03 percent of households in Kerala with illiterate women have no toilet facility. 99.4 percent of households with women of higher education in Thrissur district have own flush toilet facility in their houses. But compared to all Kerala, the dependence on own pit toilet is not that familiar among the households

of Thrissur district. 12.12 percent of households with illiterate women in Kerala depend on own pit toilet. As a whole, toilet facilities in the households shows an improvement with a hike in the education levels of women.

More than 70 percent of households in Kerala as well as Thrissur district have flush toilet facility in heir houses. This provision shows an improvement with a rise in the education level of husbands. Dependence on pit toilet decreases with an increase in the education level of husbands. 10 percent of households in Kerala as well as Thrissur district with husbands upto upper primary level of education have no toilet facility.

Table 4.34

Place of Residence with Type of Toilet Facility

Place Of Residence	Type Of Toilet Facility							
	Own Flush Toilet		Own Pit Toilet		Shared Toilet		No Toilet	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Rural	71.23	77.6	8.67	7.2	1.38	1	11.95	8.9
Urban	78.49	77.5	6.4	6.8	1.4	2.5	6.68	7.3

Source: Same as table 4.1

The above given Table 4.34 proves that there is no noticeable difference in the provision of toilet facility among the households of rural and urban areas of Thrissur district. For all Kerala ,it could be seen from the table that 79 percent of households in urban areas have own flush toilet facility while the households of rural areas stands only next to it. Compared

to the urban areas the gravity of the problem of lack of toilet facility is more in the rural areas.

In Kerala, flush toilet facility is seen among 77 percent of households of Muslim community. In Thrissur district 60 percent of households of Christian community have own flush toilet facility. Dependence on pit toilet is seen mostly among the households of Hindu community of Kerala as well as Thrissur district. Compared to Thrissur district 12 percent of households of Hindu community in Kerala face the pathetic situation of having no toilets in their houses.

4.1.18 Source of lighting

Table 4.35

Education of Women and Source of Lighting

Education	Source of Lighting					
	Electricity		Kerosene		Other	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	54.85	64.2	41.21	28.5	1.82	0
Lower Primary	60.38	60.4	33.05	33.3	1.27	2.08
Upper Primary	65.43	65.8	27.67	28.3	0.8	1.6
High School	69.08	71.5	23.74	21.9	0.66	0.5
Higher Sec.	69.9	70.19	20.7	24	1.03	0.96
Above	73.7	79.4	15.22	14.1	1.21	1.41
Total	67.4	71.09	25.04	22.63	0.91	1.02

Source: Same as table 4.1

Table 4.35 explains that only 20 percent of households in all Kerala and Thrissur district depend on kerosene as a source of lighting. While more than 70 percent of households with women of higher secondary

education and above depend on electricity. Here also the influence of education is very dominant.

About 77 percent of households with high school educated husbands depend on electricity for lighting in Thrissur district. While only 71 percent of households with high school educated husbands use electricity in the whole of Kerala.

Table 4.36

Place of Residence with Source of Lighting

Place of Residence	Source of Lighting					
	Electricity		Kerosene		Other	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Rural	65.16	69.4	27.22	24.1	1.07	1.2
Urban	73.6	75	18.95	18.9	0.48	0.43

Source: Same as table 4.1

Table 4.36 throws light on the fact that majority of households in the urban areas of Kerala and Thrissur district use electricity for lighting. Only few households depend on kerosene.

More than 70 percent of households in Kerala as well as Thrissur district belonging to Christian community use electricity for lighting. Kerosene is used for lighting mainly by households of Hindu community.

4.1.19 Type of fuel for cooking

The prominence of wood as a source of fuel for cooking among all households is very distinct from the table 4.37. The use of kerosene is negligible among all education categories of women in Kerala and Thrissur district. Only 30 percent of households with higher secondary and above

educated women depend on lpg-electricity as a source of cooking fuel in Kerala as well as Thrissur district.

Table 4.37

Education of Women and Fuel For Cooking

Education	Type of Fuel for Cooking					
	LPG-Electricity		Kerosene		Wood	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	9.09	28.5	0	0	88.48	64.2
Lower Primary	11.02	8.3	1.27	2.08	82.2	85.4
Upper Primary	16.48	15	0.7	0	76.72	80.8
High School	21.3	18	1.03	0.56	70.77	95.2
Higher Sec.	24.23	23	1.32	0.96	65.93	71.1
Above	33.22	39.5	1.73	2.12	55.02	55.3
Total	20.42	21.36	1.04	0.89	71.64	71.01

Source: Same as table 4.1

The prominence of wood as a source of fuel for cooking shows a decrease with a higher standard of education level of husbands. Households with high school and above educated husbands depend on lpg-electricity for cooking in Kerala as well as Thrissur district. This is clear from Appendix 4.19.

More than 25 percent of households in the urban areas of Kerala and Thrissur district use lpg-electricity for cooking. The use of wood as a source of fuel for cooking is more prominent in the rural areas.

Table 4.38

Place of Residence with Type of Fuel for Cooking

Place of Residence	Type of Fuel for Cooking							
	LPG-Electricity		Kerosene		Wood		Other	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Rural	17.57	19.8	1.01	1.04	74.58	73.6	0.27	0.18
Urban	28.32	25	1.1	0.84	63.47	69.3	0.13	0

Source: Same as table 4.1

Christian community tops in the use of lpg-electricity for cooking purpose. Yet wood forms the main fuel for cooking among the households of all three communities.

4.1.20 Standard of Living Index

In the District Level Household Survey (RCH) questions related to household amenities and possession of some selected household items were asked. In order to develop SLI, the following scores related to response categories for each question were given.

Table 4.39

Standard of Living Index

Sr.No	Variable	Categories	Scores
1	Source of Drinking Water	Tap(Own)	3
		Tapshared	2
		HandPump+Well	1
		Others	0
2	Type of House	Pucca	4
		Semipucca	2
		Kachcha	0
3	Souce of Lighting	Electricity	2
		Kerosene	1
		Others	0
4	Fuel for Cooking	LPG	2
		Kerosene	1
		Others	0
5	Toilet Facility	Own flush toilet	4
		Own pit toilet	2
		Shared toilet	2
		No toilet	0
6	Ownership of Items	Fan	2
		Radio	2
		Sewing machine	2
		Television	3
		Telephone	3
		Bicycle	2
		Motorcycle	3
		Car	4
Tractor	4		

Source: District Level Household Survey (RCH) Report, Thrissur district

The total of the scores may vary from the lowest of 0 to a maximum of 40.

on the basis of total score, the household are divided into three categories.

- Low status if total score is less than or equal to 9.
- Medium status if total score is greater than 9 but less than or equal to 19.

- High status if total score is greater than 19

Table 4.40**Education of Women and Standard of Living Index**

Education	Low		Medium		High	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	46.63	28.57	44.24	50	9.39	21.42
Lower Primary	30.5	18.75	54.87	62.5	14.61	18.75
Upper Primary	27.74	29.16	51.64	56.66	20.87	14.06
High School	25.92	26.76	48.63	48.16	25.43	25
Higher Sec.	23.93	19.23	46.84	45.19	29.22	35.57
Above	24.39	21.27	36.5	37.58	39.1	41.13
Total	27.42	27.42	47.95	47.95	24.61	24.61

Source: Same as table 4.1

Table 4.40 shows that 47 percent of households have a medium standard of living index. 46.23 percent of households with illiterate women in Kerala have a low standard of living index. While Thrissur district gives a better picture. Only 28.57 percent of households with illiterate women have a low SLI in Thrissur district. High SLI is maintained by nearly 40 percent of households with women of higher education in Kerala as well as Thrissur district. Here also education exerts a positive influence.

Though there is no noticeable difference with regard to low and medium standard of living index, improvement in husband's education shows a hike in the high standard of living index of households.

Table 4.41

Education of Husband with Standard of Living Index

Education	Low		Medium		High	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
	Illiterate	22.22	0	55.55	0	22.22
Lower Primary	30.79	23.68	53.8	61.8	15.39	14.4
Upper Primary	29.48	26.14	50	52.28	20.51	21.5
High School	24.26	22.76	48.79	48.78	26.94	28.45
Higher Sec.	25.4	19.6	44.3	42.6	30.28	37.7
Above	24.71	28.8	37.83	32.2	37.45	38.8

Source: Same as table 4.1

Standard of living index (SLI) is also considered another criteria of health status. Table 4.42 proves that 50 percent of women of Muslim community in Kerala and 49 percent of women of Hindu community in Thrissur district have a medium SLI. A high SLI is maintained by around 30 percent of women of Christian community in Kerala as well as Thrissur district.

Table 4.42

Religion with Standard of Living Index

Religion	Std. of Living Index					
	Low		Medium		High	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Hindu	28.98	25.15	46.73	49.2	24.28	25.5
Muslim	25.26	23.9	50.59	47	24.13	29
Christian	26.38	23.9	46.7	45.7	26.91	30.3

Source: Same as table 4.1

4.1.21 Death rate

An analysis of place of residence and death rate shows that death rate is high in the urban areas of Kerala as well as Thrissur district.

Table 4.43

Place of residence and Death rate

Total Death	Place of residence			
	Rural		Urban	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
0	92.34	92.73	91.45	87.50
1	7.49	7.27	8.20	12.50
2	0.17	0.00	0.34	0

Source: Same as table 4.1

As the District Level Household Survey fails to cover the illness and treatment level details of the households, the present study incorporates the information collected by the 52nd round of NSS in this chapter to fill the broad canvass analysing the health status of households in Kerala.

4.2 Findings from National Sample Survey 1995-96

The present study is based on data collected by National Sample Survey Organisation during its 52nd survey on healthcare between July 1995 and June 1996. We analysed information recorded during the survey about whether any member of the household had suffered from any ailment during the last 15 days and about hospitalization of any member of the household during the last year. An ailment ie, illness or injury is defined to be any deviation from the state of physical or mental wellbeing. Cases of visual, hearing, speech and locomotor disabilities are also treated as

ailment. Injury covers all types of damages like cuts, wounds, hemorrhages fractures and burns caused by an accident including bites to any parts of body. A person is regarded as having been hospitalized if he/she has availed of medical services as an indoor patient in any medical institution. However hospitalization of female members for child birth was not considered to be hospitalization for the survey. Ailments reported during the survey were also analysed by classifying them as acute and chronic on the basis of their expected duration. Ailments of short duration(not longer than 30 days)are considered as acute and ailments of long duration (longer than 30 days)are taken as chronic. Most ailments classified as acute were communicable and most ailments classified as chronic were noncommunicable.

4.2.1 Education and Morbidity

The prevalence of any ailment ,or its morbidity is defined as :

$$\text{Morbidity} = \frac{\text{Number of persons who were ailing during the 15 days prior to the survey}}{\text{Total population present in the sample}} \times 100$$

It is also termed as the Proportion of Ailing Persons (PAP) measured as number of persons reporting ailment during a 15 day period per hundred persons.

The complete set of raw data on the hospitalization details collected by the NSS 52nd round is extracted for analysis purpose. The persons coming under the hospitalized data are considered as the samples for our study.

These samples are classified by their education as – illiterates, literates without schooling, below primary, primary (upto STD. IV), middle (upto STD.VII), secondary (upto STD. X), higher secondary (upto STD.XII) and graduate and above. A brief picture of the samples selected for our analysis is given below.

Table 4.44 Distribution of samples with gender and education

Sex	General Education								Total
	Illiterate	Literate without schooling	Below primary	Primary	Middle	Secondary	Highersecondary	Graduate and above	
Male	157	25	90	200	219	97	27	58	873
Female	182	18	128	192	213	118	31	51	933
Total	339	43	218	392	432	215	58	109	1806

Source: Compiled from National Sample Survey data

Table 4.45 Distribution of samples with sector, gender and age group

Sector	Sex	Age								Total
		0-5	6-15	16-25	26-35	36-45	46-55	56-65	Above65	
Rural	Male	55	46	43	64	49	54	87	93	491
	Female	40	54	95	69	65	81	73	4	551
	Total	95	100	138	133	114	135	160	97	1042
Urban	Male	61	26	36	47	38	60	47	67	382
	Female	36	31	48	55	40	57	64	51	382
	Total	97	57	84	102	78	117	111	118	764

Source: Same as in table 4.44

A gender specific analysis of the data from the table 4.46 given below proves that morbidity rate is high among the females ie, 51.66 percent. For acute ailments morbidity rate is high among primary educated males (15.23 percent) and among females it is high among the illiterate category (15.22 percent). Males with middle education level (10.53 percent) and females who are illiterate (8.25 percent) have a high rate of morbidity for chronic ailments. Among both the males and females the morbidity rate shows a decline with an increase in the level of education.

Table 4.46
Distribution of Morbidity Rate with gender and education

Sex	Nature of Ailment	General Education								Total
		Illiterate	Literate Without Schooling	Below Primary	Primary	Middle	Secondary	Higher Secondary	Graduate and above	
Male	Acute Ailments									
	Cases	98	15	64	133	127	65	21	36	560
	Morbidity Rate	11.22	17.18	7.33	15.23	14.54	7.44	2.40	4.12	31
	Chronic Ailments									
	Cases	58	10	26	67	92	32	6	22	313
	Morbidity Rate	6.64	1.14	2.97	7.67	10.53	3.66	.68	2.52	17.33
Female	Acute Ailments									
	Cases	104	11	87	125	142	73	18	25	585
	Morbidity Rate	1.14	1.17	9.32	13.39	15.22	7.82	1.92	2.68	32.39
	Chronic Ailments									
	Cases	77	7	41	67	71	45	13	26	348
	Morbidity Rate	8.25	.75	4.39	7.18	7.61	4.82	1.39	2.78	19.26

Source: Same as in table 4.44

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4.2.1.1 Education and morbidity by type of ailment

The morbidity rate for certain specific ailments shows that apart from other diagnosed ailments, cough and bronchitis (acute ailment) and diseases of heart (chronic ailment) are the main ailments seen among the males. The morbidity rate for males suffering from cough and bronchitis is high among the illiterates (1.82 percent) and that from diseases of heart is high among middle educated group (1.71 percent). Among the females fevers of short duration (acute ailment) and high and low BP (chronic ailment) are the prominent cases of hospitalization. Fevers of short duration dominate among the women with primary education level (3.64 percent) and blood pressure related ailment is seen more among illiterates and middle educated women (1.07 percent).

4.2.1.2 Place of residence, gender, age group and morbidity by type of ailments

A sectorwise classification of the data proves that morbidity rate is high in the rural areas (57.69 percent). For acute ailments morbidity rate is dominant among rural females of 16-25 age group ie, (7.93 percent). For chronic ailments morbidity rate is high among rural males of above 65 age group ie, 6.41 percent. In the urban areas the morbidity rate for acute ailments is prominent among the males of 0-5 age group (6.41 percent) and for chronic ailments it is more viewable among the females of 46-55 age group ie, (3.53 percent). Table 4.47 given below throws light on the relation between morbidity rate with place of residence, gender and age group.

Table 4.47 Distribution of Morbidity rate with Gender, Sector and Age group

Sector	Sex		Age								Total
			0-5	15-Jun	16-25	26-35	36-45	46-55	56-65	Above 65	
Rural	Male	Acute Ailments									
		Cases	49	36	30	45	29	31	48	37	305
		Morbidity Rate	5.61	4.12	3.43	5.15	3.32	3.55	5.49	4.23	34.9
		Chronic Ailments									
		Cases	6	10	13	19	20	23	39	56	186
		Morbidity Rate	.68	1.14	1.48	2.17	2.29	2.63	4.46	6.41	21.26
	Female	Acute Ailments									
		Cases	37	47	74	52	30	37	31	42	350
		Morbidity Rate	3.96	5.03	7.93	5.57	3.21	3.96	3.32	4.50	37.48
		Chronic Ailments									
		Cases	3	7	21	17	35	44	42	32	201
		Morbidity Rate	.03	.07	.22	.18	.37	.47	.45	.33	2.12
		Total Cases	95	100	138	133	114	135	160	167	1042
	Morbidity Rate	5.26	5.53	7.64	7.36	6.31	7.47	8.85	9.24	57.66	
Urban	Male	Acute Ailments									
		Cases	56	23	27	34	31	28	23	33	255
		Morbidity Rate	6.41	2.63	3.09	3.89	3.55	3.20	2.63	3.78	29.18
		Chronic Ailments									
		Cases	5	3	9	13	7	32	24	34	127
		Morbidity Rate	.22	.22	0	.11	.11	.11	0	14.54	15.31
	Female	Acute Ailments									
		Cases	33	18	42	43	23	24	32	20	235
		Morbidity Rate	3.53	1.92	4.50	4.60	2.46	2.57	3.43	2.14	25.15
		Chronic Ailments									
		Cases	3	13	6	12	17	33	32	31	147
Morbidity Rate		.32	1.39	.64	1.28	1.82	3.53	3.43	3.32	15.73	
	Total Cases	97	57	84	102	78	117	111	118	764	
	Morbidity Rate	5.37	3.15	4.65	5.64	4.31	6.47	6.14	6.53	42.26	

Source: Same as in table 4.44

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An analysis of the same data by nature of ailment repeats the fact that diseases of heart are prominent among the males of above 65 age group and 46-65 age group respectively in the rural and urban areas. Among acute ailments, cough and bronchitis and fevers of short duration are seen mainly among the males of 0-5 age group in the rural and urban areas. Among the females in the rural and urban areas, fevers of short duration and high/low BP dominates among 0-5 and 56-65 age group respectively.

4.2.2 Distribution of education and number of ill days

The number of ill days are classified as 1-6 days,7-12 days and 13 and above days. Of these categories ,both males and females remain ill for a maximum of 13 days. It is high among the females.ie,16.22 percent remain ill for more than 13 days. An analysis of females by education categories prove that females with middle level of education (8.86 percent) are more visible in remaining ill. Yet we could see a decline in the number of days ill by an increase in the education standards. This is clear from the table 4.48 given below.

Table 4.48 Education and particulars of ailment - number of days ill

<i>Sex</i>	<i>General education</i>	<i>Ill In days</i>			
		1-6	7-12	13&above	Total
Male	Illiterate	2.87	1.38	1.77	6.06
	Literate without schooling	0.27	0.22	0.77	1.27
	Below primary	1.66	1.05	1.71	4.43
	Primary	3.82	2.10	3.37	9.30
	Middle	3.48	2.16	4.20	9.85
	Secondary	1.49	0.55	1.93	3.98
	Higher secondary	0.38	0.33	0.38	1.10
	Graduate and above	0.88	0.33	1.10	2.32
	Total	14.85	7.79	15.23	38.31
Female	Illiterate	3.65	0.99	3.04	7.69
	Literate without schooling	0.38	0.16	0.27	0.83
	Below primary	2.54	0.83	2.43	5.81
	Primary	3.59	1.38	3.43	8.41
	Middle	3.43	1.99	3.43	8.86
	Secondary	1.77	0.71	2.27	4.76
	Higher secondary	0.55	0	0.66	1.21
	Graduate and above	0.88	0.77	0.66	2.32
	Total	16.79	6.83	16.19	39.89

Source: Same as in table 4.44

4.2.3 Place of Residence, gender, age group and number of ill days

Of the rural and urban areas rural females, 34.84 percent show the maximum days of illness (more than 13 days). It is high among 16-25 age group (5.80 percent). In the urban areas, 6.28 percent males of above 65 age group remain ill for more than 13 days. A detailed table revealing these facts is given in the Appendix 4.20.

4.2.4 Education and particulars of days of restricted activity

A genderwise analysis of the data proves that females show the maximum number of days of restricted activity. It is high among the illiterate and middle educated females ie,5.98 percent females remain 1-6 days of restricted activity. An increase in the education level shows a decline in the number of days of restricted activity among both sex. This is portrayed in the table 4.49 given below.

Table 4.49
Education and particulars of ailment-number of restricted days

	<i>General education</i>	<i>Restricted In days</i>		
		1-6	7-12	13&above
Male	Illiterate	4.06	0.83	1.43
	Literate without schooling	0.83	0.23	0.95
	Below primary	2.51	1.67	1.91
	Primary	5.86	3.11	3.46
	Middle	6.10	2.51	4.42
	Secondary	1.795	0.71	2.03
	Higher secondary	0.71	0.47	0.59
	Graduate and above	0.71	0.47	1.31
	Total	22.57	10	16.14
Female	Illiterate	5.98	0.83	2.99
	Literate without schooling	0.35	0.35	0.23
	Below primary	3.70	1.07	2.39
	Primary	6.10	1.55	2.75
	Middle	5.98	2.39	3.23
	Secondary	2.75	1.07	2.51
	Higher secondary	0.47	0.12	0.83
	Graduate and above	1.79	1.07	0.47
	Total	27.12	8.45	15.43

Source: Same as table 4.44

4.2.5 Place of residence, gender age group and number of days of restricted activity

The table on sectorwise and gender specific classification of the number of days of restricted activity in the Appendix 4.21 proves that rural females show the maximum days of restricted activity, ie, 51.17 percent. It is high among 46-55 age group ie, 9.57 percent remain in restricted activity for 1-6 days. In the urban areas also females dominate the males in this respect. Urban females of 26-35 age group 9.03 percent remain in restricted activity for 1-6 days. Another noticeable fact is that 9.23 percent urban males of above 65 age group remain in restricted activity for more than 13 days.

4.2.6 Education and number of days confined to bed

Males and females with a middle level of education show the maximum number of days confined to bed. Among the both sex, females with middle level of education ie, 10.11 per cent confine to bed for 1-6 days. The below given Table 4.50 shows that with a hike in the education level there is a decline in the number of days confining to bed among both the males and females.

Table 4.50
Education and particulars of number of days confined to bed

<i>Sex</i>	<i>General Education</i>	Confined in days			
		1-6	7-12	13 & above	Total
Male	Illiterate	6.59	0.00	0.71	7.29
	Literate without schooling	1.18	0.24	0.00	1.41
	Below primary	4.94	0.00	1.18	6.12
	Primary	9.18	1.41	1.18	11.77
	Middle	9.41	1.41	2.12	12.94
	Secondary	3.06	0.47	0.47	4.00
	Higher secondary	0.47	0.94	0.24	1.65
	Graduate and above	0.94	0.47	0.94	2.35
	Total	35.77	4.94	6.83	47.53
Female	Illiterate	6.35	1.65	0.94	8.94
	Literate without schooling	0.71	0.00	0.00	0.71
	Below primary	6.35	0.94	1.41	8.71
	Primary	9.88	0.94	1.65	12.47
	Middle	10.12	1.18	1.41	12.71
	Secondary	4.71	0.47	0.94	6.12
	Higher secondary	0.47	0.00	0.00	0.47
	Graduate and above	2.12	0.24	0.00	2.35
	Total	40.71	5.41	6.35	52.47

Source: Same as table 4.44

4.2.7 Place of residence, gender, age group and days confined to bed

Rural females of 56-65 age group show the maximum number of days confined to bed. About 100 per thousand remain in bed for more than 13 days. In the urban areas also females of 56-65 age group confine to bed for atleast 1-3 days. This is evident from the table given in Appendix 4.22.

4.2.8 Education and hospitalized treatment of ailments

The hospitalization of cases were determined with the information from the survey on any person who had fallen ill during the year upto the date of the survey. Table 4.51 gives the estimates of annual hospitalization rate with a genderwise education levels. Annual hospitalization rate is the number of persons who had been hospitalised during the year leading upto the date of the survey per hundred population. It is calculated as

Annual hospitalization rate = Number of persons who had been

$$\frac{\text{Hospitalized During one Year}}{\text{Total population in the sample}} \times 100$$

A gender specific analysis of the data from the below given table 4.51 proves that the rate of hospitalization is high among the male sex ie, 48.33 percent. Yet among both the males and females it is high among the middle educated category. For acute ailments, annual hospitalization rate is high among primary educated males(15.23 percent)and females (13.39 percent). Males with middle education level (10.53 percent)and females who are illiterate (8.25 percent) have a high rate of hospitalization for chronic ailments.

Table 4.51 Distribution of Annual Hospitalisation Rate with Gender and Education

Sex	Nature of Ailment	General Education								
		Illiterate	Literate Without Schooling	Below Primary	Primary	Middle	Secondary	Higher Secondary	Graduate and above	Total
Male	Acute Ailments									
	Cases	98	15	64	133	127	65	21	36	560
	Annual Hospitalisation Rate	11.22	1.71	7.33	15.23	14.54	7.44	2.4	4.12	63.99
	Chronic Ailments									
	Cases	58	10	26	67	92	32	6	22	313
	Annual Hospitalisation Rate	6.64	1.14	2.97	7.67	10.53	3.66	.68	2.52	35.81
Female	Acute Ailments									
	Cases	104	11	87	125	79	73	22	0	585
	Annual Hospitalisation Rate	11.14	1.17	9.32	13.39	8.46	7.82	2.35	0	53.65
	Chronic Ailments									
	Cases	77	7	41	67	39	42	29	0	348
	Annual Hospitalisation Rate	8.25	.75	4.39	7.18	4.18	4.5	3.10	0	32.35

Source: Same as in table 4.44.

4.2.9 Education and hospitalization by type of ailment

The annual rate of hospitalization for certain specific ailments indicates that other diagnosed ailments constitute 22 percent of total hospitalised cases. Apart from that injuries due to accidents and violence(acute ailment)and diseases of heart are the major cases of hospitalization seen among the males. The rate of hospitalization for males subjected to injury from accidents and violence is high among primary educated group (2.86 per cent)and that from diseases of heart is high among middle educated group(1.71 percent). Among the females fevers of short duration (acute ailment)and high and low BP (chronic ailment)are the prominent cases of hospitalization. Fevers of short duration dominate among the women with primary education level (2.78 percent) and blood pressure related ailment is seen more among illiterates and middle educated women(1.07percent).

4.2.10 Place of residence, age group and hospitalized treatment of ailments

A sectorwise classification of the data proves that annual hospitalization rate is high in the rural areas (57.69 percent). For acute ailments annual hospitalization rate is dominant among rural females of 16-25 age group ie,(7.93 percent). For chronic ailments AHR is high among rural females of 46-55 age group ie,4.71 percent in the urban areas the hospitalization rate for acute ailments is prominent among the males of 0-5 age group (6.18 percent) and for chronic ailments it is more visible among the females of 65

and above age group ie,(3.75 percent). Table 4.52 throws light on the relation between annual hospitalization rate with place of residence, gender and age group.

An analysis of the same data by nature of ailment repeats the fact that injuries due to accidents and violence and diseases of heart are seen mainly among the males of 26-35 and 46 and above age group respectively in the rural and urban areas. The rate of hospitalization for fevers of short duration and for high and low BP dominates among the females of 0-5 and 56-65age group respectively in the rural and urban areas.

Table 4.52
Annual Hospitalisation Rate with place of residence, gender and age group

Sector	Sex		Age Code								Total
			0-5	6-15	16-25	26-35	36-45	46-55	56-65	Above 65	
Rural	Male	Acute Ailments									
		Cases	49	35	30	45	29	31	48	37	305
		Annual Hospitalisation Rate	5.61	4	3.43	5.15	3.32	3.55	5.49	4.23	34.63
		Chronic Ailments									
		Cases	6	10	13	19	20	23	39	56	185
		Annual Hospitalisation Rate	.68	1.14	1.48	2.17	2.29	2.63	4.46	6.41	21.26
	Female	Acute Ailments									
		Cases	37	37	74	52	30	37	31	42	350
		Annual Hospitalisation Rate	3.96	3.96	7.93	5.57	3.21	3.96	3.32	4.50	36.41
		Chronic Ailments									
		Cases	3	17	21	17	35	44	42	32	201
		Annual Hospitalisation Rate	.32	1.82	2.25	1.82	3.75	4.71	4.5	3.42	22.59
Total Cases			95	100	138	133	114	135	160	167	1042
Annual Hospitalisation Rate			5.26	5.53	7.64	7.36	6.31	7.47	8.85	9.24	57.66
Urban	Male	Acute Ailments									
		Cases	54	22	27	31	30	24	22	32	242
		Annual Hospitalisation Rate	6.18	2.52	3.09	3.55	3.43	2.74	2.52	3.66	27.69
		Chronic Ailments									
		Cases	7	4	9	16	8	36	25	35	140
		Annual Hospitalisation Rate	.80	.45	1.03	1.83	.91	4.12	2.86	4.00	16
	Female	Acute Ailments									
		Cases	33	17	41	39	23	18	32	16	219
		Annual Hospitalisation Rate	3.53	1.82	4.39	4.18	2.46	1.92	3.43	1.71	23.44
		Chronic Ailments									
		Cases	3	14	7	16	17	39	32	35	163
		Annual Hospitalisation Rate	.32	1.5	.75	1.71	1.82	4.18	3.42	3.75	17.45
Total Cases			97	57	84	102	78	114	111	118	764
Annual Hospitalisation Rate			5.37	3.15	4.65	5.64	4.31	6.31	6.14	6.53	42.1

Source: Same as in table 4.44.

4.2.11 Education and duration of stay in the hospital

Though males and females of various education categories continue in the hospital for different time periods, an analysis of the data makes clear that the duration of stay in the hospital is maximum for a period of one week.

Duration of stay in the hospital for one week is maximum among males

(14.2 percent) and females(12.75 percent) with middle level of education.

4.2.12 Place of residence, gender, age group and duration of stay in the hospital

Duration of stay in the hospital for one week is maximum among the urban males of 0-5 age group (14.14 percent). In the rural areas one week stay in the hospital is maximum among females of 46-65 age group (7.62 percent).

Table given in the Appendix 4.23 shows the distribution of sector, gender, age group by duration of stay in the hospital.

4.2.13 Education and treatment before hospitalization

Females with a middle level of education (10.72 percent) tops among the both sex in availing treatment before getting hospitaliised. Illiterate males (7.10 percent) are more used to availing treatment before getting hospitalized.

Table 4.53**Education and particulars of Treatment availed before hospitalization**

<i>General education</i>	<i>Treatment availed</i>	<i>Sex</i>	
		Male	Female
Illiterate	Yes	7.10	9.11
	No	17.87	19.40
Literate without schooling	Yes	1.60	0.96
	No	2.86	1.93
Below primary	Yes	4.93	5.57
	No	10.31	13.72
Primary	Yes	8.71	9.22
	No	22.91	20.58
Middle	Yes	10.31	10.72
	No	25.09	22.83
Secondary	Yes	5.04	6.43
	No	11.11	12.65
Higher secondary	Yes	1.49	1.71
	No	3.09	3.32
Graduate and above	Yes	2.63	3.00
	No	0.11	0.11

Source: Same as table 4.44

4.2.14 Place of residence, gender, age group and treatment before**Hospitalization**

In most of the hospitalized cases the ailing person generally undergoes treatment before getting admitted in the hospital. An indepth study of the data proved that of the total hospitalized cases ,47.55 percent of rural females of 46-55 age group availed treatment before hospitalization. In the urban areas also the proportion of females who availed treatment before hospitalization is greater (45.5 percent) than that of males. This is clear from the Appendix 4.24.

4.2.15 Education and hospitalization by type of hospital

38.71 percent of females with higher secondary level of education and 36 percent of literate males who have no schooling depend on private hospitals for medical treatment. The services of public hospitals are availed to the maximum by 20 percent of literate males who have no schooling.

4.2.16 Place of residence, gender, age group and hospitalization by type of hospital

Private hospitals are the main providers of inpatient health care. The service of private hospitals is availed maximum by 4.19 percent of urban females coming under 46-55 and 55-65 age groups. In the rural areas also it is availed maximum by 21.42 percent of females belonging to 46-55 age group. Only 14.92 percent of urban females and 12.16 percent of rural females depend on public hospitals.

4.2.17 Education and duration of treatment

Duration of treatment for one week is maximum among the females with middle level of education (4.79 percent). Among males 3.78 percent illiterates stay in the hospital for one week. It is portrayed in the table 4.54 given below.

Table 4.54

Education and duration of treatment

Sex	General education	Duration of treatment (In weeks)				Total
		One week	Two weeks	Four weeks	More than 4 weeks	
Male	Illiterate	3.78	0.63	1.14	2.27	7.82
	Literate without schooling	0.38	0.25	0.13	1.01	1.77
	Below primary	2.77	0.38	0.50	1.77	5.42
	Primary	2.77	1.39	0.88	4.41	9.46
	Middle	3.66	2.14	1.01	4.29	11.10
	Secondary	2.14	0.25	1.01	2.14	5.55
	Higher secondary	0.38	0.38	0.13	0.76	1.64
	Graduate and above	1.14	0.88	0.25	0.63	2.90
	Total	17.02	6.31	5.04	17.28	45.65
Female	Illiterate	4.29	0.50	1.14	4.54	10.47
	Literate without schooling	0.38	0.13	0.25	0.38	1.13
	Below primary	2.77	0.38	1.01	2.40	6.56
	Primary	3.66	0.88	0.63	5.68	10.85
	Middle	4.79	1.01	1.64	4.92	12.36
	Secondary	2.52	1.01	1.01	3.03	7.57
	Higher secondary	0.38	0.13	0.25	1.26	2.02
	Graduate and above	1.00	0.63	0.25	1.51	3.39
	Total	19.79	4.67	6.18	23.70	54.33

Source: Same as table 4.44

4.2.18 Place of residence, gender, age group and duration of treatment

Males and females of 0-5 age group show the maximum of one week duration of treatment. Duration of treatment for one week is maximum among urban males coming under 0-5 age group ie, 7.73 percent. In the rural areas it is slightly less (6.70 percent). Duration of treatment for more than four weeks is maximum among 46 above aged. Urban males of above 65 age group (14.25 percent) continue treatment for more than four weeks.

Conclusion

From the above discussion it is clear that all the variables influencing health status of the households in Kerala as well as Thrissur district showed an improvement with the education level of husband and wife. Rural urban differences can be seen only with respect to physical environment variables which contribute to the health status of the family members. A religion wise analysis proves that Christian community outshine their counterparts in maintaining a better health status.

With regard to the morbidity , we could summarise that it is high among the rural females of Kerala. Cough, bronchitis and diseases of heart are the main ailments among the males. Fevers of short duration and high/ low BP are the main ailments among females. Duration of stay in the hospital and also the duration of treatment seems to be more for the aged category of people. Yet we could find that the morbidity rate showed a decline with the education level of females.

References

- ¹ Reproductive and Child Health (2001):*District Level Household Survey*, International Institute for Population Sciences.
- ² Government of India, (July 1995 – June 1996): *National Sample Survey 52nd Round*, NSSO, Dept. of Statistics.

Determinants of Health Status in Thrissur District - Evidence from Primary Survey

Rajini R. Menon “Female education and health status of households in Kerala - A case study of Thrissur district” Thesis. Department of Economics, Dr. John Matthai Centre Thrissur, University of Calicut, 2007

Chapter -V

Determinants of Health Status in Thrissur District -

Evidence from Primary Survey

5.1 Profile of the study area

Thrissur district is located in the central part of Kerala with an area of 3032 sq.kms. There are 5 taluks, 1 corporation, 6 municipalities, 17 blocks and 92 grama panchayats in Thrissur district. The total population of the district as per 2001 census is 29,75,440 of which 14,22,047 (47.99 percent) are males and 15,53,393 (52.21percent)are females. In the urban areas there are 403666 (48.08 percent) males and 435841 (51.92) females and in the rural areas there are 1018381 (47.68 percent) males and 1117552 (52.32 percent) females. 9.34 percent of the total population of Kerala is residing in Thrissur district. Among the 14 districts of Kerala, Thrissur occupies second place with a sex ratio of 1092 which is above the state average of 1058. The district has a literacy rate of 95.47 for males and 89.94 for females.

5.2 Sampling Design

Considering Thrissur as a representative district of Kerala with respect to all human development indicators, a micro level attempt is made through this study to analyse the health status of households in Kerala. We have examined the health status of households in Thrissur district in comparison with Kerala using District Level Household Survey (RCH) in the previous chapter. But many of the variables determining the health status of households especially respondent's occupation, percapita monthly income, average consumption

expenditure, average health care expenditure, illness and treatment level details of family members were found to be lacking. Hence we have conducted a random sample survey of 100 households to capture the dimensions not covered by District Level Household Survey. Among the 100 households, 75 households were covered from rural areas and 25 households from urban areas. The urban samples were selected from Thrissur Corporation area and rural samples from Adat panchayat and Kadappuram panchayat. The selection of these samples were based on panchayat level statistics which showed semi urban characteristics for Adat panchayat and rural features for Kadappuram panchayat. The study has put forward a hypothesis that female education influences the health status of households. In order to test this hypothesis we have considered only married females living with family members as our respondents.

5.3 Socio- economic status of the samples

The socio economic status of the selected samples is examined on the basis of variables like respondent's education, occupation, age, marital status, religion, caste, size of the family, percapita monthly income, main source of income and possession of household assets.

5.3.1 Education of Respondents

Respondent's are classified on the basis of their education into 10 categories. Of our total sample the proportion of SSLC educated females are higher than any other category. Females with high school level of education stands next to it. In the urban areas females with degree and post graduate level of education

show high proportion. Where as in the rural areas a major proportion is SSLC and high school educated females.

Table 5.1

**Percentage distribution of respondents on the
basis of education**

Education	Sector		Total
	Urban	Rural	
Illiterate	0	10.67	8
LP	12	13.33	13
UP	0	16.00	12
HS	12	17.33	16
SSLC	12	20.00	18
PDC	4	9.33	8
Technical/Computer	0	1.333	1
Degree	28	9.33	14
Degree+B.Ed	8	1.33	3
PG	24	1.33	7
Total	100	100	100

Source: Sample Survey

5.3.2 Age of the respondents

Agewise categorization of respondents shows that 50 percent of our respondents belong to the age group of above 45 and 34 percent belong to the age group of 31-45. The table given below demonstrates that our rural respondents of above 45 age group are mainly lower educated females.

Table 5.2
Percentage Distribution of respondents
by Age, and Education

Education	Below 30		31-45		Above45	
	Urban	Rural	Urban	Rural	Urban	Rural
Illiterate	0	0	0	2	0	6
LP	0	1	1	3	2	6
UP	0	1	0	5	0	6
HS	0	5	0	4	3	4
SSLC	0	1	1	4	2	10
PDC	0	3	0	3	1	1
Technical/Computer	0	0	0	0	0	1
Degree	0	4	3	3	4	0
Degree + B.Ed	0	0	0	1	2	0
PG	1	0	3	1	2	0
Total	1	15	8	26	16	34

Source: Sample Survey

5.3.3 Religion

Classification of samples on the basis of religion proves that half of the total samples are Hindus. Hindu population dominates in the rural areas. While in the urban areas 56 percent are Christians.

Table 5.3**Percentage classification of respondents on the basis of Religion**

Education	Sector								
	Urban			Rural			Total		
	Hindu	Christian	Muslim	Hindu	Christian	Muslim	Hindu	Christian	Muslim
Illiterate	0	0	0	4	0	6.67	3	0	5
LP	0	12	0	12	1.33	0	9	4	0
UP	0	0	0	9.33	1.33	5.33	7	1	4
HS	0	12	0	6.67	1.33	9.33	5	4	7
SSLC	4	8	0	9.33	6.67	4	8	7	3
PDC	0	4	0	5.33	2.67	1.33	4	3	1
Technical/Computer	0	0	0	1.33	0	0	1	0	0
Degree	20	8	0	5.33	4	0	9	5	0
Degree+B.Ed	4	4	0	0	1.33	0	1	2	0
PG	12	8	4	0	1.33	0	3	3	1
Total	40	56	4	53.33	20	26.67	50	29	21

Source: Sample Survey

5.3.4 Caste

Table 5.4 reveals that 45 percent of our them belong to forward caste, 29 percent belong to OBC, 19 percent are from OEC, 6 percent from SC and 1 percent ST. In the urban areas 92 percent are from forward caste. While in the rural areas 37 percent are from OBC, 29 percent from forward caste and 24 percent from OEC. In the rural areas a minority of our sample are from SC and ST.

Of our total sample, respondents with lower education are from backward castes and those above pre-degree level of education are from forward caste.

Table 5.4**Percentage classification of respondents on the basis of Caste**

Education	Sector														
	Urban					Rural					Total				
	Gen	OBC	OEC	SC	ST	Gen	OBC	OEC	SC	ST	Gen	OBC	OEC	SC	ST
Illiterate	0	0	0	0	0	0	8	0	2.67	0	0	6	0	0.00	0
LP	12	0	0	0	0	5.33	2.67	5.33	0	0.00	7.00	2.00	4.00	2.00	0.00
UP	0	0	0	0	0	2.67	5.33	6.67	0	1.33	2.00	4.00	5.00	2.00	1
HS	12	0	0	0	0	1.33	9.33	4.00	2.67	0	4.00	7.00	3.00	2.00	0
SSLC	8	0	4	0	0	10.67	5.33	4.00	0.00	0	10.00	4.00	4.00	0.00	0
PDC	4	0	0	0	0	1.31113	2.67	2.67	2.67	0	2.00	2.00	2.00	0.00	0
Technical/ Computer	0	0	0	0	0	1.33	0	0.00	0	0	1.00	0.00	0.00	0.00	0
Degree	7	0	0	0	0	4.00	4.00	1.33	0.00	0	10.00	3.00	1.00	0.00	0
Degree+B.Ed	8	0	0	0	0	1.33	0	0.00	0	0	3.00	0.00	0.00	0.00	0
PG	20	4	0	0	0	1.33	0	0.00	0	0	6.00	1.00	0.00	0.00	0
Total	92	4	4	0	0	29.33	37.33	24.00	8.01	1.33	45.00	29.00	19.00	6	1.00

Source: Sample Survey

5.3.5 Marital Status

Classification of respondents on the basis of marital status proves that 82.67 percent of our respondents are married, 16 percent are widowed and 1 percent divorced. The table given below depicts the percentage distribution of the samples according to their marital status.

Table 5.5**Percentage classification of respondents on the basis of Marital Status**

Education	Married	Widowed	Divorced/Separated
Illiterate	50	50	0
LP	53.85	46.15	0
UP	75	25	0
HS	93.75	0	6.25
SSLC	100	0	0
PDC	100	0	0
Technical/Computer	100	0	0
Degree	100	0	0
Degree+B.Ed	100	0	0
PG	100	0	0
Total	86	13	1
Urban	96	4	0
Rural	82.67	16	1.33

Source: Sample Survey

5.3.6 Occupation

Occupation plays a vital role in determining the socioeconomic status of a household. It measures the standard of living of a person and his family. It is evident from the table 5.6 that large majority of our respondent's are unemployed ie, of the total sample 73 percent are unemployed. In the urban and rural areas it is 56 and 79 percent respectively. In the urban areas 24 percent are regularly employed while 8 percent are daily wage earners.

Table 5.6
Percentage classification of respondents on
the basis of Occupation

Occupation	Sector		Total
	Urban	Rural	
Unemployed	56	78.67	73
Self employed	0	2.67	2
Regular employed	24	4	9
Retired and earning pension	12	1.33	4
Retired not earning	0	1.33	1
Daily Wages	8	5.33	6
Not in labour force	0	6.67	5
Total	100	100	100

Source: Sample Survey

5.3.7 Percapita monthly income

Monthly percapita income is a best measure to judge the purchasing capacity of the household. Though a family possesses large household income it will be offset by the presence of more family members. So monthly percapita income obtained by dividing total monthly income of a household with the number of household members will provide the true purchasing capacity of the household. The average monthly percapita income of our sample households is around Rs.2000. In the urban areas it is Rs.3300 and in the rural areas it is Rs.1500. The average monthly percapita income of the households increased with the education level of the respondents. This feature is very prominent in the rural areas. It varied from Rs.800 in the households with illiterate respondents to Rs.3000 among households with degree and above educated respondents.

Table- 5.7 Distribution of Respondents education with sector and average PCI (Monthly)

Sector	Education	Average PCI	N	Std. Deviation	
Urban	LP	1811.11	3	455.01	
	HS	1119.05	3	337.56	
	SSLC	1200.00	3	507.44	
	PDC	2000.00	1	.	
	Degree	2578.57	7	1080.84	
	Degree + B.Ed	2750.00	2	1060.66	
	PG	7511.11	6	5679.12	
	Total		3320.29	25	3634.51
Rural	Illiterate	825.56	8	599.45	
	LP	934.72	10	553.87	
	UP	975.76	12	720.38	
	HS	852.91	13	479.86	
	SSLC	1763.96	15	2007.97	
	PDC	3069.11	7	4934.20	
	Technical/Computer	1625.00	1	.	
	Degree	3199.00	7	4969.72	
	Degree + B.Ed	3250.00	1	.	
	PG	2000.00	1	.	
	Total		1546.13	75	2387.16
	Total	Illiterate	825.56	8	599.45
	LP	1136.97	13	642.10	
	UP	975.76	12	720.38	
	HS	902.81	16	459.25	
	SSLC	1669.97	18	1843.23	
	PDC	2935.47	8	4583.80	
	Degree	2888.79	14	3470.15	
	Technical/Computer	1625.00	1	.	
	Degree + B.Ed	2916.67	3	803.64	
	PG	6723.81	7	5587.12	
	Total	1989.67	100	2838.66	

5.3.8 Family size

Classification of households on the basis of family size reveals that, of the total households the average family size is 4 to 5. In the urban areas we have maximum family size of 5 while in the rural areas it is 15. Yet it could be inferred from the table that family size shows a decline with an increase in the level of education of respondent.

Table 5.8**Percentage classification of households on the basis of family size**

Education	No. of members in the family												Total
	2	3	4	5	6	7	8	9	10	12	13	15	
Illiterate	12.5	25	0	37.5	12.5	0	0	12.5	0	0	0	0	100
LP	7.69	23.08	30.77	15.38	15.38	0	0	7.69	0	0	0	0	100
UP	0	16.67	16.67	33.33	8.33	0	8.33	0	8.33	0	0	8.33	100
HS	25	12.5	6.25	6.25	12.5	18.75	6.25	6.25	0	0	6.25	0	100
SSLC	22.22	5.56	27.78	16.67	5.56	11.11	0	0	5.56	0	5.56	0	100
PDC	12.5	12.5	0	25	12.5	0	0	12.5	0	12.5	12.5	0	100
Technical/Computer	0	0	100	0	0	0	0	0	0	0	0	0	100
Degree	14.29	0	42.86	21.43	7.14	7.14	0	7.14	0	0	0	0	100
Degree+B.Ed	0	33.33	66.67	0	0	0	0	0	0	0	0	0	100
PG	0	28.57	42.86	28.57	0	0	0	0	0	0	0	0	100
Total	13	14	24	20	9	6	2	5	2	1	3	1	100
Urban	24	16	40	16	0	0	0	0	0	0	0	0	100
Rural	9.33	13.33	18.67	21.33	12.00	1.33	2.67	6.67	2.67	1.33	4.00	1.33	100.00

Source: Sample Survey

5.3.9 Source of income

The below given table 5.9 pictures that 41 percent of households depend on salary as a main source of income, 26 percent on daily wages, 11 percent on business, 10 percent on pension, 7 percent on agriculture, 4 percent on gulf money and 1 percent on salary and pension. Of our sample households majority depend on salary and daily wages as a major source of income. Agriculture and gulf money forms a main source of income only in the rural areas. Yet it could be seen that agriculture, daily wages and gulf money is a major source of income among households with lower educated respondents.

Table 5.9**Percentage classification of respondents on the basis of source of income**

Education	Source of Income							Total
	Salary	Pension	Business	Agriculture	Dailywages	Gulfmoney	Salary+Pension	
Illiterate	50	0	12.5	0	37.5	0	0	100
LP	38.46	0	7.69	7.69	38.46	7.69	0	100
UP	41.67	8.33	8.33	8.33	25	8.33	0	100
HS	18.75	6.25	12.5	6.25	50	6.25	0	100
SSLC	44.44	11.11	5.56	11.11	22.22	5.56	0	100
PDC	62.5	0	12.5	0	25	0	0	100
Technical/Computer	0	100	0	0	0	0	0	100
Degree	50	14.29	14.29	14.29	7.14	0	0	100
Degree+B.Ed	33.33	66.67	0	0	0	0	0	100
PG	42.86	14.29	28.57	0	0	0	14.29	100
Total	41	10	11	7	26	4	1	100
Urban	36	28	12	0	20	0	4	100
Rural	42.67	4.00	10.67	9.33	28.00	5.33	0.00	100

Source: Sample Survey

5.4 Factors determining health status of households

Health status of a household is influenced by various factors. This section discusses the vital factors which have a direct link in deciding the health status of household.

An aggregate health index is prepared for analyzing the health status of households in Thrissur district. It is a composite index of six indices (Physical environment index, consumption index, maternal health index, child health index, illness and treatment level index and health awareness index) which are constructed by considering the variables which directly or indirectly influence the health status of individuals.

Physical environment index is calculated by taking variables like type of house, number of bedrooms, bathrooms inside the house, separate kitchen,

source of drinking water, electrification, cooking facility, excretion, disposal of waste water, domestic waste, water logging in the surroundings, mosquito menace and place of keeping animals.

Consumption index is calculated by considering variables like consumption of extra milk by any family member, consumption of extra non-veg food by any family member, providing extra milk to children, whether members dine together and use of boiled water.

Construction of **maternal health index** involves variables such as age at marriage of husband and wife, abortions, outcome of pregnancy, ANC checkups, taken tetanus injection, intake of iron folic tablets, consumption of milk and fruits during pregnancy, awareness of family planning methods.

Child health index is prepared on the basis of whether child weighed at birth, children below 2.5kg, breast fed the child, duration of breast feeding, given food supplements, given vaccination, weight measured regularly.

Illness and treatment level index is based on variables like acute and chronic ailments among children, whether consulted doctor, whether recovered completely, acute and chronic ailments among adults, number of bed ridden days, whether consulted doctor, whether sleeping pills are taken by any family member.

Health awareness index is based on variables like awareness of ORS, precautionary measures taken for preventing illness among children, Awareness of AIDS, read articles on health, watching health related programmes, smoking among family members, using alcohol by family members, preference for family doctor, doing regular health checkups etc.

To find the value of an index we find the aggregate score of the variables taken or its calculation.

Health Status of households is determined by a host of factors. Of these respondent's education, respondent's occupation, percapita monthly income of the household, family size, place of residence, religion, caste, age at marriage of husband and age at marriage of wife are considered by the study.

5.4.1 Female education and Health Status

Variation between the groups classified on the basis of female education is given in ANOVA table 5.10 which makes clear that there is significant variation between groups with regard to physical environment index, health awareness index and aggregate health index.

Table 5.10 ANOVA table showing the Health Status among different educational groups of females

		Sum of Squares	df	Mean Square	F	Sig.
Physical Environment Index	Between Groups	1399.571	9	155.508	6.325	0.000
	Within Groups	2212.669	90	24.585		
	Total	3612.240	99			
Consumption Index	Between Groups	7.714	9	0.857	1.169	0.325
	Within Groups	65.996	90	0.733		
	Total	73.710	99			
Maternal Health Index	Between Groups	26.378	9	2.931	0.366	0.948
	Within Groups	719.812	90	7.998		
	Total	746.190	99			
Child Health Index	Between Groups	22.986	9	2.554	0.858	0.565
	Within Groups	267.764	90	2.975		
	Total	290.750	99			
Health Awareness Index	Between Groups	144.664	9	16.074	6.228	0.000
	Within Groups	232.296	90	2.581		
	Total	376.960	99			
Illness and Treatment Level Index	Between Groups	167.277	9	18.586	0.627	0.771
	Within Groups	2668.683	90	29.652		
	Total	2835.960	99			
Aggregate Health Index	Between Groups	3385.699	9	376.189	4.299	0.000
	Within Groups	7875.211	90	87.502		
	Total	11260.910	99			

5.4.2 Respondent's Occupation and Health Status

Similar to the variation between education and health status occupation wise classification shows that variation between the groups is also significant for physical environment index, health awareness index and aggregate health index among different occupation groups.

Table 5.11 ANOVA table showing the Health Status of households among different occupation groups of females

		Sum of Squares	df	Mean Square	F	Sig.
Physical Environment Index	Between Groups	622.32	6	103.72	3.226	0.006
	Within Groups	2989.9	93	32.15		
	Total	3612.2	99			
Consumption Index	Between Groups	0.378	6	0.063	0.08	0.998
	Within Groups	73.332	93	0.789		
	Total	73.71	99			
Maternal Health Index	Between Groups	41.745	6	6.958	0.919	0.485
	Within Groups	704.45	93	7.575		
	Total	746.19	99			
Child Health Index	Between Groups	26.069	6	4.345	1.527	0.178
	Within Groups	264.68	93	2.846		
	Total	290.75	99			
Health Awareness Index	Between Groups	71.102	6	11.85	3.603	0.003
	Within Groups	305.86	93	3.289		
	Total	376.96	99			
Illness and Treatment Level Index	Between Groups	143.8	6	23.967	0.828	0.551
	Within Groups	2692.2	93	28.948		
	Total	2836	99			
Aggregate Health Index	Between Groups	2407	6	401.17	4.214	0.001
	Within Groups	8853.9	93	95.203		
	Total	11261	99			

5.4.3 Monthly Per-Capita Income and Health Status

ANOVA table 5.12 shows that there is considerable variation between the groups only in the case of health awareness index

Table 5.12 ANOVA table showing the Health Status of Households among different income groups

		Sum of Squares	df	Mean Square	F	Sig.
Physical Environment Index	Between Groups	2290.2	59	38.818	1.175	0.298
	Within Groups	1322	40	33.05		
	Total	3612.2	99			
Consumption Index	Between Groups	49.177	59	0.834	1.359	0.153
	Within Groups	24.533	40	0.613		
	Total	73.71	99			
Maternal Health Index	Between Groups	484.66	59	8.215	1.256	0.224
	Within Groups	261.53	40	6.538		
	Total	746.19	99			
Child Health Index	Between Groups	175.3	59	2.971	1.029	0.468
	Within Groups	115.45	40	2.886		
	Total	290.75	99			
Health Awareness Index	Between Groups	263.04	59	4.458	1.565	0.068
	Within Groups	113.92	40	2.848		
	Total	376.96	99			
Illness and Treatment Level Index	Between Groups	1333.5	59	22.601	0.602	0.963
	Within Groups	1502.5	40	37.563		
	Total	2836	99			
Aggregate Health Index	Between Groups	7387	59	125.2	1.293	0.196
	Within Groups	3873.9	40	96.847		
	Total	11261	99			

5.4.4 Family Size and Health Status

It is clear from the ANOVA table 5.13 that significant variation between the groups can be seen only in the case of maternal health index and child health index.

Table 5.13 ANOVA table showing Health Status among households with different family size.

		Sum of Squares	df	Mean Square	F	Sig.
Physical Environment Index	Between Groups	184.45	11	16.768	0.43	0.938
	Within Groups	3427.8	88	38.952		
	Total	3612.2	99			
Consumption Index	Between Groups	3.23	11	0.294	0.367	0.966
	Within Groups	70.48	88	0.801		
	Total	73.71	99			
Maternal Health Index	Between Groups	255.79	11	23.254	4.173	0
	Within Groups	490.4	88	5.573		
	Total	746.19	99			
Child Health Index	Between Groups	51.037	11	4.64	1.703	0.086
	Within Groups	239.71	88	2.724		
	Total	290.75	99			
Health Awareness Index	Between Groups	44.951	11	4.086	1.083	0.384
	Within Groups	332.01	88	3.773		
	Total	376.96	99			
Illness and Treatment Level Index	Between Groups	97.567	11	8.87	0.285	0.987
	Within Groups	2738.4	88	31.118		
	Total	2836	99			
Aggregate Health Index	Between Groups	1086.7	11	98.787	0.854	0.587
	Within Groups	10174	88	115.62		
	Total	11261	99			

5.4.5 Place of Residence and Health Status

Significant variation between the groups can be seen in the case of physical environment index, child health index, health awareness index, illness and treatment level index and aggregate health index with respect to place of residence.

Table 5.14 ANOVA table showing Health Status among Rural and Urban households

		Sum of Squares	df	Mean Square	F	Sig.
Physical Environment Index	Between Groups	292.05	1	292.05	8.62	0.004
	Within Groups	3320.2	98	33.879		
	Total	3612.2	99			
Consumption Index	Between Groups	0.27	1	0.27	0.36	0.55
	Within Groups	73.44	98	0.749		
	Total	73.71	99			
Maternal Health Index	Between Groups	0.75	1	0.75	0.099	0.754
	Within Groups	745.44	98	7.607		
	Total	746.19	99			
Child Health Index	Between Groups	6.163	1	6.163	2.122	0.148
	Within Groups	284.59	98	2.904		
	Total	290.75	99			
Health Awareness Index	Between Groups	28.213	1	28.213	7.928	0.006
	Within Groups	348.75	98	3.559		
	Total	376.96	99			
Illness and Treatment Level Index	Between Groups	182.52	1	182.52	6.741	0.011
	Within Groups	2653.4	98	27.076		
	Total	2836	99			
Aggregate Health Index	Between Groups	1369.6	1	1369.6	13.57	0
	Within Groups	9891.3	98	100.93		
	Total	11261	99			

5.4.6 Religion and Health Status

ANOVA table 5.15 proves that only maternal health index and child health index shows considerable variation between the groups.

Table 5.15 ANOVA table showing Health Status of Households among different Religious Communities

		Sum of Squares	df	Mean Square	F	Sig.
Physical Environment Index	Between Groups	184.45	11	16.768	0.43	0.938
	Within Groups	3427.8	88	38.952		
	Total	3612.2	99			
Consumption Index	Between Groups	3.23	11	0.294	0.367	0.966
	Within Groups	70.48	88	0.801		
	Total	73.71	99			
Maternal Health Index	Between Groups	255.79	11	23.254	4.173	0
	Within Groups	490.4	88	5.573		
	Total	746.19	99			
Child Health Index	Between Groups	51.037	11	4.64	1.703	0.086
	Within Groups	239.71	88	2.724		
	Total	290.75	99			
Health Awareness Index	Between Groups	44.951	11	4.086	1.083	0.384
	Within Groups	332.01	88	3.773		
	Total	376.96	99			
Illness and Treatment Level Index	Between Groups	97.567	11	8.87	0.285	0.987
	Within Groups	2738.4	88	31.118		
	Total	2836	99			
Aggregate Health Index	Between Groups	1086.7	11	98.787	0.854	0.587
	Within Groups	10174	88	115.62		
	Total	11261	99			

5.4.7 Caste and Health Status

ANOVA table 5.16 portrays that there is significant variation between groups in the case of physical environment index, health awareness index and aggregate health index.

Table 5.16 ANOVA table showing the health Status of Households among different Castes

		Sum of Squares	df	Mean Square	F	Sig.
Physical Environment Index	Between Groups	768.34	4	192.09	6.417	0
	Within Groups	2843.9	95	29.936		
	Total	3612.2	99			
Consumption Index	Between Groups	3.512	4	0.878	1.188	0.321
	Within Groups	70.198	95	0.739		
	Total	73.71	99			
Maternal Health Index	Between Groups	14.062	4	3.515	0.456	0.768
	Within Groups	732.13	95	7.707		
	Total	746.19	99			
Child Health Index	Between Groups	1.232	4	0.308	0.101	0.982
	Within Groups	289.52	95	3.048		
	Total	290.75	99			
Health Awareness Index	Between Groups	61.601	4	15.4	4.639	0.002
	Within Groups	315.36	95	3.32		
	Total	376.96	99			
Illness and Treatment Level Index	Between Groups	140.77	4	35.192	1.24	0.299
	Within Groups	2695.2	95	28.37		
	Total	2836	99			
Aggregate Health Index	Between Groups	2248.6	4	562.16	5.926	0
	Within Groups	9012.3	95	94.866		
	Total	11261	99			

5.4.8 Age at marriage of husband and Health Status

Of the seven indices, maternal health index, child health index and aggregate health index shows significant variation between groups. This can be seen from the ANOVA table 5.17 given below.

Table 5.17 ANOVA table showing Health Status of Households with age at marriage of husband

Physical Environment Index	Between Groups	503.04	18	27.946	0.728	0.773
	Within Groups	3109.2	81	38.385		
	Total	3612.2	99			
Consumption Index	Between Groups	12.315	18	0.684	0.903	0.577
	Within Groups	61.395	81	0.758		
	Total	73.71	99			
Maternal Health Index	Between Groups	201.71	18	11.206	1.667	0.063
	Within Groups	544.48	81	6.722		
	Total	746.19	99			
Child Health Index	Between Groups	88.311	18	4.906	1.963	0.022
	Within Groups	202.44	81	2.499		
	Total	290.75	99			
Health Awareness Index	Between Groups	79.167	18	4.398	1.196	0.284
	Within Groups	297.79	81	3.676		
	Total	376.96	99			
Illness and Treatment Level Index	Between Groups	652.41	18	36.245	1.345	0.184
	Within Groups	2183.6	81	26.957		
	Total	2836	99			
Aggregate Health Index	Between Groups	2837.9	18	157.66	1.516	0.106
	Within Groups	8423	81	103.99		
	Total	11261	99			

5.4.9 Age at marriage of Wife and Health Status

It is clear from the table 5.18 that only illness and treatment level index shows significant variation between the groups.

Table 5.18 ANOVA table showing Health Status of Households and Age at marriage of Wife

		Sum of Squares	df	Mean Square	F	Sig.
Physical Environment Index	Between Groups	631.64	17	37.155	1.022	0.444
	Within Groups	2980.6	82	36.349		
	Total	3612.2	99			
Consumption Index	Between Groups	9.608	17	0.565	0.723	0.771
	Within Groups	64.102	82	0.782		
	Total	73.71	99			
Maternal Health Index	Between Groups	135.39	17	7.964	1.069	0.397
	Within Groups	610.8	82	7.449		
	Total	746.19	99			
Child Health Index	Between Groups	52.476	17	3.087	1.062	0.404
	Within Groups	238.27	82	2.906		
	Total	290.75	99			
Health Awareness Index	Between Groups	61.743	17	3.632	0.945	0.526
	Within Groups	315.22	82	3.844		
	Total	376.96	99			
Illness and Treatment Level Index	Between Groups	707.64	17	41.626	1.604	0.082
	Within Groups	2128.3	82	25.955		
	Total	2836	99			
Aggregate Health Index	Between Groups	2484.3	17	146.14	1.365	0.176
	Within Groups	8776.6	82	107.03		
	Total	11261	99			

5.5 Identifying Determinants of Health Status

Linear Regression Model

Using linear regression model, an attempt is made to identify the prominent determinants that influence the health status of households in Thrissur district.

In our model we have more than one variables. So the model used for the study is

$$Z = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 + B_8X_8 + B_9X_9$$

Where Z = Aggregate health Index for the household

X_1 = Female Occupation

X_2 = Female Education

X_3 = Monthly Per Capita Income

X_4 = Family Size

X_5 = Sector

X_6 = Caste

X_7 = Religion

X_8 = Age at marriage of husband

X_9 = Age at marriage of Wife

$B_0, B_1, B_2, B_3, B_4, B_5, B_6, B_7, B_8$ and B_9 are coefficients of X values.

Table 5.19 Result

Coefficients(a)							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
		B	Std. Error	Beta			
1	(Constant)	54.193	1.554		34.864	0	
	Occupation	-0.874	0.577	-0.151	-1.515	0.133	
2	(Constant)	43.575	2.422		17.988	0	
	Occupation	-0.57	0.514	-0.099	-1.109	0.27	
	Education	2.14	0.402	0.473	5.323	0	
3	(Constant)	44.027	2.403		18.325	0	
	Occupation	-0.697	0.511	-0.12	-1.362	0.176	
	Education	1.808	0.434	0.399	4.167	0	
	PCI Monthly	0.001	0	0.181	1.896	0.061	
4	(Constant)	43.141	3.282		13.146	0	
	Occupation	-0.65	0.527	-0.112	-1.233	0.221	
	Education	1.822	0.437	0.403	4.167	0	
	PCI Monthly	0.001	0	0.182	1.898	0.061	
	Family Size	0.142	0.357	0.036	0.398	0.692	
5	(Constant)	53.307	5.691		9.367	0	
	Occupation	-0.756	0.519	-0.131	-1.456	0.149	
	Education	1.476	0.458	0.326	3.225	0.002	
	PCI Monthly	0.001	0	0.159	1.68	0.096	
	Family Size	0.361	0.365	0.091	0.99	0.325	
	Sector	-5.299	2.446	-0.216	-2.167	0.033	
6	(Constant)	56.307	5.705		9.869	0	
	Occupation	-0.991	0.517	-0.171	-1.916	0.058	
	Education	1.265	0.456	0.28	2.774	0.007	
	PCI Monthly	0.001	0	0.14	1.501	0.137	
	Family Size	0.393	0.356	0.099	1.104	0.273	
	Sector	-3.486	2.512	-0.142	-1.388	0.169	
	Caste	-2.51	1.072	-0.231	-2.341	0.021	
7	(Constant)	63.648	6.307		10.091	0	
	Occupation	-1.259	0.515	-0.218	-2.444	0.016	
	Education	0.963	0.461	0.213	2.091	0.039	
	PCI Monthly	0.001	0	0.161	1.765	0.081	
	Family Size	0.637	0.361	0.161	1.766	0.081	
	Sector	-3.265	2.448	-0.133	-1.334	0.186	
	Caste	-3.527	1.123	-0.325	-3.141	0.002	
	Religion	-3.075	1.25	-0.229	-2.46	0.016	
8	(Constant)	75.535	8.255		9.15	0	
	Occupation	-1.246	0.505	-0.215	-2.465	0.016	
	Education	1.135	0.459	0.251	2.474	0.015	
	PCI Monthly	0.001	0	0.147	1.646	0.103	
	Family Size	0.519	0.358	0.131	1.449	0.151	
	Sector	-2.255	2.445	-0.092	-0.922	0.359	
	Caste	-3.595	1.101	-0.332	-3.264	0.002	
	Religion	-3.653	1.254	-0.272	-2.912	0.005	
9	(Constant)	77.363	9.294		8.324	0	
	Occupation	-1.231	0.509	-0.213	-2.42	0.018	
	Age at marriage - Husband	-0.44	0.202	-0.188	-2.173	0.032	

	Education	1.176	0.47	0.26	2.5	0.014
	PCI_Monthly	0.001	0	0.143	1.586	0.116
	Family Size	0.529	0.36	0.134	1.467	0.146
	Sector	-2.449	2.496	-0.1	-0.981	0.329
	Caste	-3.736	1.152	-0.345	-3.242	0.002
	Religion	-3.75	1.279	-0.28	-2.931	0.004
	Age at marriage - Husband	-0.362	0.271	-0.154	-1.334	0.186
	Age at marriage - Wife	-0.168	0.386	-0.055	-0.435	0.664
a	Dependent Variable: Aggregate Health Index					

*Education implies respondent's education(Female Education)

*Occupation implies respondent's occupation

From the table it is clear that in the model (9) which includes all the variables selected by the study only female education, percapita monthly income and family size are positively related to the health status of households. This shows that an improvement in respondent's education, percapita monthly income and an increase in family size positively influence the health status of households. An increase in the age at marriage of husband and wife and also an improvement in respondent's occupation negatively influence the health status of households. Rural residence, backward castes and Muslim population exert negative influence on aggregate health status of households. Yet the model portrays significant relation only for respondent's education, respondent's occupation, caste and religion

Table 5.20**Model Summary**

Model Summary(j)	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.151(a)	0.023	0.013	10.596
2	.494(b)	0.244	0.228	9.37
3	.521(c)	0.271	0.248	9.247
4	.522(d)	0.272	0.242	9.288
5	.554(e)	0.307	0.27	9.112
6	.588(f)	0.345	0.303	8.903
7	.621(g)	0.386	0.339	8.67
8	.645(h)	0.416	0.365	8.5
9	.646(i)	0.417	0.359	8.538

It is clear from the above table 5.20 that 24 percent of the variation in the model is explained by respondent's education. Yet the total variation explained by the model is only 41 percent. This is mainly because of the severe multicollinearity existing in the model. Hence we have made use of **Principal Component Analysis**¹ (See Annexure for more details) for getting better results in identifying the main determinants influencing the health status of households in Thrissur district.

Table 5.21 Correlation Matrix

	Respondent's Occupation	Respondent's Education	PCI_Monthly	Family Size	Sector	Caste	Religion	Age at marriage - Husband	Age at marriage - Wife
Respondent's Occupation	1	-0.11	0.08	-0.22	-0.11	-0.2	-0.14	0.04	0.12
Respondent's Education	-0.11	1	0.39	-0.07	-0.4	-0.35	-0.13	0.14	0.37
PCI_Monthly	0.08	0.39	1	-0.08	-0.27	-0.27	0.04	-0.04	0.07
Family Size	-0.22	-0.07	-0.08	1	0.31	0.19	0.26	-0.17	-0.2
Sector	-0.11	-0.4	-0.27	0.31	1	0.45	0.05	0.08	-0.25
Caste	-0.2	-0.35	-0.27	0.19	0.45	1	-0.22	0.03	-0.29
Religion	-0.14	-0.13	0.04	0.26	0.05	-0.22	1	-0.28	-0.28
Age at marriage - Husband	0.04	0.14	-0.04	-0.17	0.08	0.03	-0.28	1	0.65
Age at marriage - Wife	0.12	0.37	0.07	-0.2	-0.25	-0.29	-0.28	0.65	1

Table 5.22**Total Variance Explained**

Component	Initial Eigenvalues		Cumulative %
	Total	% of Variance	
1	2.528	28.086	28.086
2	1.735	19.279	47.364
3	1.240	13.778	61.142
4	0.961	10.681	71.823
5	0.821	9.124	80.947
6	0.661	7.345	88.293
7	0.445	4.939	93.232
8	0.367	4.081	97.313
9	0.242	2.687	100.000

Table 5.23**Component Matrix**

	Component		
	1	2	3
Respondent's Occupation	0.264	0.068	-0.739
Respondent's Education	0.664	-0.216	0.467
PCI_Monthly	0.446	-0.441	0.136
Family Size	-0.491	-0.160	0.530
Sector	-0.658	0.389	0.137
Caste	-0.607	0.484	0.095
Religion	-0.293	-0.615	0.154
Age at marriage - Husband	0.418	0.711	0.265
Age at marriage - Wife	0.717	0.440	0.233

Extraction Method: Principal Component Analysis.

It is clear from the table 5.22 on total variance explained that 28 percent of the variation is explained by first component, 19 percent by second component and 13 percent by third component. Table on Component Matrix shows that age at marriage of husband and wife and respondent's education(Female Education)

emerged as prominent factors from the three main components in determining the health status of households in Thrissur district.

Hence we could summarise that of the nine factors selected by the study only three major factors significantly determined of the health status of households in Thrissur district.

Annexure

The method of principal components is the construction out of a set of variables X_j 's ($j = 1, 2, \dots, k$) of new variables (P_i) called principal components, which are linear combinations of X 's.

$$P_1 = a_{11}X_1 + a_{12}X_2 + \dots + a_{1k}X_k$$

$$P_2 = a_{21}X_1 + a_{22}X_2 + \dots + a_{2k}X_k$$

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$$P_k = a_{k1}X_1 + a_{k2}X_2 + \dots + a_{kk}X_k.$$

The method of principal components can be applied by using original values of the X_j 's or their deviations from their means. The a 's called the loadings are chosen so that the constructed principal components satisfy two conditions.

- a. The principal components are uncorrelated.
- b. The first principal component P_1 absorbs and accounts for the maximum possible proportion of the total variation in the set of all X 's, the second principal component absorbs the maximum of the remaining variation in the X 's and so on.

Method

The problem is to obtain estimates of the a 's with which we will be able to transform the X 's into orthogonal artificial variables, called principal components. In the first place we have to estimate these coefficients. Next we have to conduct some test of significance to see that the a 's are statistically significant. Finally we must establish some rule of decision to decide the number of principal components to be retained in the analysis.

The maximum number of principal components is equal to the number of X 's. However only a small number of P 's is usually retained in the analysis.

References

¹Koutsoyiannis. A.(1977): "*Theory of Econometrics: An Introductory Exposition of Econometric Methods*", Macmillan Education Ltd, London. pp- 424- 436.

Female Education and Household Health Status

Rajini R. Menon “Female education and health status of households in Kerala - A case study of Thrissur district” Thesis. Department of Economics, Dr. John Matthai Centre Thrissur, University of Calicut, 2007

Chapter VI

Female Education and Household Health Status

In this chapter we have tried to probe more on the influence of female education on the health status of our sample households within the canvas of various health related variables. The chapter is divided into three sections. Section 1 discusses the female education and health status of household members, Section 2 on female education and women health and Section 3 on female education and child health.

6.1 Female Education and Health Status of household members

Health status of members are influenced by various components such as physical environment of the household, consumption, awareness on health, illness and treatment level of the members and so on.

6.1.1 Physical Environment

Physical Environment of sample households is examined on the basis of variables like type of house, number of bed rooms and bathrooms, separate kitchen, electrification, source of drinking water, cooking facility, facility for excretion, disposal of waste water, disposal of domestic waste, water logging and mosquito menace.

6.1.1.1 Type of house

Of the total houses, 40 percent are tiled, 32 percent are RCC. In the urban areas majority of houses are RCC and double storied. In the rural areas 47 percent are tiled houses. Yet around 10 percent are thatched ones. The

proportion of thatched and tiled houses shows a decline with an increase in the level of education of respondents.

Table 6.1

Percentage distribution of households on the basis of Type of House

Education	Type of House				Total
	Thatched	Tiled	RCC	Double Storied	
Illiterate	25	62.5	12.5	0	100
LP	15.38	61.54	23.08	0	100
UP	0	66.67	25	8.33	100
HS	18.75	50	25	6.25	100
SSLC	0	22.22	55.56	22.22	100
PDC	0	37.5	25	37.5	100
Technical/Computer	0	0	100	0	100
Degree	0	21.43	50	28.57	100
Degree+B.Ed	0	0	33.33	66.67	100
PG	0	14.29	0	85.71	100
Total	7	40	32	21	100
Urban	0	20	40	40	100
Rural	9.33	46.67	29.33	14.67	100

Source: Sample Survey

6.1.1.2 Ownership of house

89 percent of the sample households are owned. Only very small proportion are rented and shared.

6.1.1.3 Bedrooms in the House

The number of bedrooms and bathrooms in the house shows an increase with an increase in the education level of respondents. Respondents having more than 2 bed rooms in their houses ranged from 13 percent among illiterates to 86 percent among respondents with post graduate level of education. The proportion of households having no bedrooms or at least 2 bed rooms is high in the rural areas whereas the proportion having more than 2 bedrooms and bathrooms inside the house is high in the urban areas.

Table 6.2**Percentage distribution of houses on the basis of Number of Bedrooms and Bathrooms**

Education	No.of bedrooms				Bathrooms inside the house			
	Nil	1	2	more than 2	Nil	1	2	more than 2
Illiterate	12.5	12.5	62.5	12.5	87.5	0	12.5	0
LP	8	23	31	38	38	62	0	0
UP	0	17	25	58	41.5	41.5	17	0
HS	6	19	38	38	50	38	6	6
SSLC	11	6	28	56	28	44	17	11
PDC	0	25	38	38	0	50	37.5	12.5
Technical/Computer	0	0	100	0	0	0	100	0
Degree	0	0	14	86	7	21	29	43
Degree+B.Ed	0	0	0	100	0	0	33	67
PG	0	0	14	86	0	0	14	86
Total	5	12	30	53	31	34	17	18
Urban	4	8	28	60	12	20	24	44
Rural	5	13	31	51	37	39	15	9

Source: Sample Survey

6.1.1.4 Cooking Fuel, Separate Kitchen and Electrification

Wood forms the main source of cooking fuel in our sample households. 40 percent of our sample households depend on wood burning, 36 percent on gas connection and 1 percent on kerosene. The rest 23 percent depend on either three or either two. Yet the dependence on wood and kerosene shows a decline with the increase in the education level of respondents and that of gas connection shows an increase with the education level of respondents. Households in the urban areas use more of gas while their counterparts in rural areas use more of wood as cooking fuel.

Separate kitchen is necessary for hygienic preparation of food. 88 percent of our sample households have separate kitchen. Yet it is lacking in households with illiterate and high school educated respondents. This shows

that lower educated females are not much bothered of the hygienic ways of caring the health of household members.

With respect to electrification, it could be seen that majority of houses(98 percent) are electrified. Those which lack electricity connection are rural households and they are the ones with lower educated respondents. All these household features are summarized in the following table.

Table 6.3

**Percentage distribution of households on the basis of
Cooking Fuel, Separate kitchen and Electrification**

Education	Cooking Fuel			Separate kitchen		Electrification	
	Wood burning	Kerosene	Gas	Yes	No	Yes	No
Illiterate	75	0	25	75	25	87.5	12.5
LP	53.85	7.69	15.38	92.31	7.69	100	0
UP	58.33	0	25	91.67	8.33	100	0
HS	56.25	0	25	62.5	37.5	93.75	6.25
SSLC	27.78	0	44.44	94.44	5.56	100	0
PDC	37.5	0	25	87.5	12.5	100	0
Technical/Computer	0	0	100	100	0	100	0
Degree	14.29	0	50	100	0	100	0
Degree+B.Ed	33.33	0	33.33	100	0	100	0
PG	0	0	85.71	100	0	100	0
Total	40	1	36	88	12	98	2
Urban	20	0	68	100	0	100	0
Rural	46.67	1.33	25.33	84	16	97.33	2.67

Source: Sample Survey

6.1.1.5 Source of Drinking Water and Disposal of Waste Water

With regard to source of drinking water, 70 percent depend on own tap and 30 percent depend on public tap. In the urban areas majority depend on own tap. While in the rural areas, though 61 percent have own tap 39 percent use

public tap for drinking water. Yet the dependence on public tap shows a decline with a hike in the education level of respondents. It declined from 75 percent among households with illiterate respondents to 16% among households with respondents with SSLC and above level of education.

Among our sample households around 75 percent dispose their waste water to garden. Yet the proportion shows a decline with an increase in the education level of respondents. Only 32 percent dispose it to separate sanitary canal. The proportion using sanitary canal varied from 37.5 percent among illiterate households to 85 percent among households with respondents with post graduate level of education. The proportion of households disposing waste water to sanitary canal is high in the urban areas whereas the proportion disposing it to garden is more in the rural areas.

Table 6.4 Percentage distribution of households on the basis of Source of Drinking Water and Disposal of Waste Water

Education	Drinking water		Disposal of waste water		
	Own tap	Public tap	to garden	sanitary canal	others
Illiterate	25	75	62.5	37.5	0
LP	53.85	46.15	92.31	7.69	0
UP	58.33	41.67	91.67	0	8.33
HS	43.75	56.25	93.75	6.25	0
SSLC	83.33	16.67	77.78	22.22	0
PDC	100	0	62.5	25	12.5
Technical/Computer	100	0	0	100	0
Degree	92.86	7.14	14.29	78.57	7.14
Degree+B.Ed	100	0	0	100	0
PG	100	0	14.29	85.71	0
Total	70	30	65	32	3
Urban	96	4	36	64	0
Rural	61.33	38.67	74.67	21.33	4.00

Source: Sample Survey

6.1.1.6 Facility for Excretion

Table 6.5 proves that 89 percent of our sample households have own flush toilet facility. Yet we cannot avoid the pathetic situation of own pit toilet, shared pit toilet and also no toilet facility which constitute 9 percent, 1.33 percent and 1.33 percent respectively among the households in the rural areas. The dependence on these three is mainly seen among households with lower educated respondents.

Table 6.5

**Percentage distribution of households on the basis
of Facility for Excretion**

Education	Facility for Excretion				
	Own Flush toilet	Shared flush toilet	Own Pit toilet	Shared pit toilet	No facility
Illiterate	62.5	0	25	0	12.5
LP	92.31	0.00	7.69	0.00	0
UP	83.33	0.00	16.67	0.00	0
HS	81.25	6.25	6.25	6.25	0
SSLC	94.44	0.00	5.56	0.00	0
PDC	100	0	0	0	0
Technical/Computer	100	0	0	0	0
Degree	92.85	7.14	0	0	0
Degree+B.Ed	100	0	0	0	0
PG	100	0	0	0	0
Total	89	2	7	1	1
Urban	96	4	0	0	0
Rural	86.67	1.33	9.33	1.33	1.33

Source: Sample Survey

6.1.1.7 Disposal of Domestic Waste

44 percent of our sample households adopt the most hygienic method of disposing waste i.e., burning of domestic waste. Yet the table given below reveals the undeniable fact that 33 percent of households in the rural areas

go for the most unhealthy method of simply throwing out the waste. In the urban areas the proportion is 24. Yet this unhealthy practice shows a fall among the households with better educated respondents.

Table 6.6

Percentage distribution of households on the basis of Disposing Waste

Education	Disposal of domestic waste				
	Simply Throw out	Burns	Deposit in pit	Convert to manure	Others
Illiterate	12.5	37.5	37.5	0	12.5
LP	38.46	46.15	0	15.38	0
UP	58.33	41.67	0	0	0
HS	31.25	50	18.75	0	0
SSLC	44.44	38.89	11.11	5.56	0
PDC	25	62.5	0	12.5	0
Technical/Computer	0	0	0	100	0
Degree	21.43	35.71	42.86	0	0
Degree+B.Ed	0	33.33	33.33	33.33	0
PG	0	57.14	28.57	14.29	0
Total	31	44	17	7	1
Urban	24	44	32	0	0
Rural	33.33	44.00	12.00	9.33	1.33

Source: Sample Survey

6.1.1.8 Water Logging and Mosquito menace

Though water logging is reported only in 23 percent of the households, the proportion reporting water logging is high among households with lower educated respondents. This proves the influence of education in keeping the household surroundings clean. 78 percent of households reported mosquito menace. Yet no significant influence of female education can be seen with regard to this component in our sample.

Table 6.7 Percentage distribution of households on the basis of Water logging and mosquito menace

Education	Water logging		Mosquito menace	
	Yes	No	Yes	No
Illiterate	25	75	75	25
LP	46.15	53.85	76.92	23.08
UP	33.33	66.67	75	25
HS	25	75	87.5	12.5
SSLC	11.11	88.89	66.67	33.33
PDC	37.5	62.5	75	25
Technical/Computer	0	100	0	100
Degree	7.14	92.86	92.86	7.14
Degree+B.Ed	0	100	33.33	66.67
PG	14.29	85.71	100	0
Total	23	77	78	22
Urban	16	84	92	8
Rural	25.33	74.67	73.33	29.33

Source: Sample Survey

6.1.2 Consumption

Consumption is determined by factors such as average monthly food consumption expenditure, use of boiled water for drinking, consumption of extra milk and extra non-vegetarian food by any of the family members.

6.1.2.1 Consumption Expenditure

The average monthly consumption expenditure of the households varied from Rs.1766 among households with illiterate respondents to Rs.3398 among households with graduate respondents. The table 6.8 depicts that urban households spend more on food consumption than the rural households.

Table 6.8 Distribution of average consumption expenditure (monthly)

Total (Rs.)		Mean	N	Std. Deviation	
Sector	Education				
Urban	LP	1936.67	3	812.42	
	HS	2077.33	3	1059.45	
	SSLC	2306.00	3	428.38	
	PDC	1600.00	1	.	
	Degree	2557.14	7	1124.88	
	PG	3466.67	6	1066.61	
	Degree + B.Ed	3650.00	2	1343.50	
	Total	2662.40	25	1100.07	
	Rural	Illiterate	1766.00	8	927.60
LP		2095.80	10	855.75	
UP		2338.17	12	1454.41	
HS		2100.31	13	1336.60	
SSLC		2701.40	15	1549.26	
PDC		3139.00	7	1807.60	
Degree		4239.86	7	1727.70	
PG		1100.00	1	.	
Technical/Computer		7500.00	1	.	
Degree + B.Ed		2750.00	1	.	
Total		2586.28	75	1593.45	
Total		Illiterate	1766.00	8	927.60
		LP	2059.08	13	814.93
	UP	2338.17	12	1454.41	
	HS	2096.00	16	1256.56	
	SSLC	2635.50	18	1421.70	
	PDC	2946.63	8	1759.75	
	Degree	3398.50	14	1650.46	
	PG	3128.57	7	1322.20	
	Technical/Computer	7500.00	1	.	
	Degree + B.Ed	3350.00	3	1082.82	

6.1.2.2 Consumption details

It is evident from the table 6.9 that in 91 percent of households extra milk is not consumed by any of the family members. Only in 11 percent of households extra non - vegetarian food is consumed by family members. This shows that there is almost uniform distribution of food among family members. Only 28 percent of the respondents give extra milk to children. Yet it increased with the education level of mother. Consumption of extra milk by children varied from 25 percent among illiterate mothers to 57 percent among mothers with post graduate level of education. Use of boiled water for drinking purpose is another factor influencing the health status of a person. Only 50 percent of households with illiterate respondents used boiled water while the same was used by 100 percent of households with better educated respondents. This shows the positive influence of female education on the health status of households.

Table 6.9**Percentage Classification of households on the basis of Consumption**

Education	1		2		3		4		5	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Illiterate	0	100	25	75	25	75	50	50	25	75
LP	7.69	92.31	7.69	92.31	15.38	84.62	84.62	15.38	0	100
UP	8.33	91.67	8.33	91.67	41.67	58.33	75	25	25	75
HS	6.25	93.75	0	100	12.5	87.5	75	25	43.75	56.25
SSLC	5.56	94.44	16.67	83.33	27.78	72.22	88.89	11.11	11.11	88.89
PDC	12.5	87.5	12.5	87.5	62.5	37.5	75	25	25	75
Technical/Computer	0	100	0	100	0	100	100	0	0	100
Degree	14.29	85.71	14.29	85.71	64.29	35.71	100	0	35.71	64.29
Degree+B.Ed	33.33	66.67	0	100	33.33	66.67	100	0	0	100
PG	14.29	85.71	14.29	85.71	57.14	42.86	100	0	0	100
Total	9	91	11	89	35	65	83	17	21	79
Urban	8	92	16	84	28	72	84	16	20	80
Rural	9.33	90.67	9.33	90.67	37.33	62.67	82.67	17.33	21.33	78.67

1=extra milk consumed by family members, 2= extra non-veg food consumed by any family member, 3= extra milk given to children, 4= using boiled water for drinking, 5= serving food to male members first.

6.1.3 Health Awareness

Health awareness of respondents is determined on the basis of awareness of ORS and its preparation at home, reading articles on health, watching health related programmes, awareness of AIDS and family planning methods, smoking and drinking by family members, following family doctor system and the practice of going for regular health checkups by family members.

6.1.3.1 Awareness of ORS

Table portrays that about 70 percent of the respondents are aware of ORS and its preparation. Yet this knowledge is more among the respondents of urban areas. Awareness of giving ORS to children while diarrhea, shows an increase with an increase in the education of respondents. Only 37.5 percent of illiterate mothers are aware of ORS and its preparation while the same is

known to all the mothers above higher secondary level of education in our sample.

Table 6.10

**Percentage distribution of respondents on
the basis of Awareness of ORS**

Education	Awareness of ORS		Know to prepare ORS at home	
	Yes	No	Yes	No
Illiterate	37.5	62.5	37.5	62.5
LP	46.15	53.85	53.85	46.15
UP	58.33	41.67	50.00	50.00
HS	68.75	31.25	75	25
SSLC	77.78	22.22	55.56	44.44
PDC	100	0	100	0
Technical/Computer	100	0	100	0
Degree	100	0	100	0
Degree+B.Ed	66.67	33.33	100.00	0.00
PG	100	0	100	0
Total	73	27	71	29
Urban	76	24	80	20
Rural	72	28	68	32

Source: Sample Survey

6.13.2 Awareness on Health

About 64 percent of respondents watch health related programmes. This habit is seen more among the respondents of rural areas. 100 percent of respondents above Pre-degree level of education gain knowledge on health through television. Only 39 percent of respondents read articles on health. Yet this habit showed an increase with the education level of respondents. It ranged from 15 percent among illiterate respondents to 57 percent among respondents with postgraduate level of education.

Table 6.11

**Percentage distribution of respondents
on the basis of Awareness on Health**

Education	Read articles on health		Watch health related programmes	
	Yes	No	Yes	No
Illiterate	0	100	25	75
LP	15.38	84.62	53.85	46.15
UP	16.67	83.33	50.00	50.00
HS	43.8	56.3	43.8	56.3
SSLC	38.89	61.11	72.22	27.78
PDC	62.5	37.5	50	50
Technical/Computer	100	0	100	0
Degree	57.14	42.86	100.00	0.00
Degree+B.Ed	100	0	100	0
PG	57.14	42.86	100.00	0.00
Total	39	61	64	36
Urban	26	49	42	33
Rural	34.67	65.33	56.00	44.00

Source: Sample Survey

6.1.3.3 Awareness of AIDS and Family Planning Methods

92 percent of respondents are aware of AIDS and also of family planning methods. Awareness of AIDS is more in the rural areas and that of family planning methods is more in the urban areas. 100 percent of respondents above SSLC level of education are aware of AIDS and also of family planning methods. This can be seen from table 6.12.

Table 6.12

**Percentage distribution of respondents on the basis of
Awareness of AIDS and Family Planning Methods**

Education	Awareness of AIDS		Awareness of Family Planning Methods	
	Yes	No	Yes	No
Illiterate	62.5	50	87.5	12.5
LP	69.231	0	84.615	15.385
UP	100	0	75	25
HS	93.75	25	93.75	6.25
SSLC	100	0	94.44	5.56
PDC	100	0	100	0
Technical/Computer	100	0	100	0
Degree	100	0	100	0
Degree+B.Ed	100	0	100	0
PG	100	0	100	0
Total	92	8	92	8
Urban	88	12	96	4
Rural	93.33	6.67	90.67	9.33

Source: Sample Survey

6.1.3.4 Smoking and Drinking

Table 6.13 proves that there is no prominent influence of respondent's education in prohibiting smoking and drinking by family members. Yet it shows a slight decline among households with higher educated respondents.

Table 6.13**Smoking and Drinking by family members (%)**

Education	Smoking		Using Alcohol	
	Yes	No	Yes	No
Illiterate	50	50	12.5	87.5
LP	30.77	69.23	15.38	84.62
UP	33.33	66.67	25.00	75.00
HS	31.25	68.75	0	100
SSLC	44.44	55.56	22.22	77.78
PDC	21.43	78.57	21.43	78.57
Technical/Computer	0	100	0	100
Degree	14.29	85.71	0	100
Degree + B.Ed	33	67	15	85
PG	0	100	0	100
Total	33	45	13	62
Urban	12	88	8	92
Rural	40	60	17.33	82.67

Source: Sample Survey

6.1.3.5 Care on health

Of the total sample of 100 households, members of 60 percent of households go for regular health checkups and members of 92 percent of households do not take sleeping pills. These proportions are high in the rural areas. Yet the influence of respondent's education is not very clear in these two aspects.

Family Doctor system is very popular among the countries of the West. Family doctor can correctly diagnose the disease of a family member than any other specialist as he has a knowledge of the health history of the family. In our sample only 34 percent of the households have a family

doctor. It is very clear from the table that the preference for a family doctor is prominently seen among the households with degree and above educated respondents. Only 12.5 percent of households with illiterate respondents showed preference for a family doctor. While the same is preferred by 64 of percent of graduate respondents.

Table 6.14

Percentage distribution of households on the basis of Care on Health

Education	Go for regular health checkups		Have family doctor		sleeping pills taken by members	
	Yes	No	Yes	No	Yes	No
Illiterate	37.5	62.5	12.5	87.5	0	100
LP	61.54	38.46	23.08	76.92	15.38	84.62
UP	50	50	25	75	16.67	83.33
HS	56.3	43.8	31.3	68.8	0	100
SSLC	61.11	38.89	27.78	72.22	0	100
PDC	37.5	62.5	12.5	87.5	0	100
Technical/Computer	100	0	100	0	0	100
Degree	85.71	14.29	64.29	35.71	21.43	78.57
Degree+B.Ed	66.66	33.33	66.66	33.33	0	100
PG	71.43	28.57	57.14	42.86	14.29	85.71
Total	60	4	34	66	8	92
Urban	42	33	21	54	3	72
Rural	56	44	28	72	4	96

Source: Sample Survey

6.1.4 Illness and Treatment level of members

Illness details were collected on the basis of ailments among members since one year preceding the survey for chronic ailments and 3 months preceding the survey for acute ailments. Ailments are classified into acute and chronic on the basis of the categorization made by 52nd round National Sample Survey. Illness details also cover the days suffered, days of restricted activity and the number of bedridden days. Information on

treatment level covered by the survey includes consultation of doctor, type of treatment, agency of treatment and average health care expenditure of the family since one year.

6.1.4.1 Ailments among members

Ailments among members are classified into acute and chronic. 39 percent of our adult household members suffered from chronic ailments. It is high among the rural households. Yet chronic ailments among members showed very low proportion among households with very higher educated respondents. Also it is interesting to note that only 1.52 percent and 2.54 percent of members from the households with illiterate respondents reported acute and chronic ailments respectively. This paradox is due to the difference in the health consciousness among lower educated and higher educated categories of people.

With regard to type of treatment, it is clear from the table that 90 percent of the members preferred allopathic treatment. Preference for allopathic treatment is seen more among the members of urban households. Only very few went for other options.

Table 6.15

Percentage classification of ailments among members and type of treatment according to respondent's education

Education	Ailments among members		Type of Treatment				
	Acute ailments	Chronic ailments	Allopathy	Ayurveda	Homeopathy	Home remedies	Others
Illiterate	1.52	2.54	5.75	0.44	0.00	0.88	0.00
LP	1.02	7.61	13.72	0.00	0.00	1.33	0.00
UP	2.28	5.08	11.06	0.88	0.00	0.00	0.88
HS	1.52	6.85	14.16	0.44	0.00	0.00	0.00
SSLC	3.05	5.84	14.16	0.00	1.33	0.00	0.00
PDC	1.27	2.79	6.19	0.88	0.00	0.00	0.00
Technical/Computer	0.00	0.51	0.88	0.00	0.00	0.00	0.00
Degree	4.31	5.84	16.81	0.44	0.00	0.44	0.00
Degee+B.Ed	0.00	1.02	1.77	0.00	0.00	0.00	0.00
PG	3.30	1.02	5.75	0.44	0.44	0.44	0.44
Total	18.27	39.09	90.27	3.54	1.77	3.10	1.33
Urban	7.36	12.18	96.10	1.30	1.30	0.00	1.30
Rural	10.91	26.90	87.25	4.70	2.01	4.70	1.34

Source: Sample Survey

6.1.4.2 Days suffered, days of restricted activity and bedridden days among members

The ailing members are classified into- those ailing from diseases for less than seven days, more than seven days, less than six months and more than six months. 52 percent of the members reported that they had been ailing from diseases for more than six months. Yet they reported only very few days of restricted activity and bedridden days (Appendix 5.1). Urban members reported the maximum number of ailing days. No significant

decline in ailing days can be seen along with an increase in the education level of respondents.

Table 6.16

Percentage classification of ailing days among family members on the basis of respondent's education

Education	Days suffered			
	Less than 7 days	More than 7 days	Less than 6 months	More than 6 months
Illiterate	1.33	0.88	2.65	2.21
LP	2.21	2.21	0.88	9.73
UP	3.10	1.33	3.10	5.31
HS	1.33	1.33	1.77	10.18
SSLC	3.10	1.77	3.54	7.08
PDC	1.33	0.88	0.88	3.98
Technical/Computer	0.00	0.00	0.00	0.88
Degree	2.65	3.10	2.21	9.73
Degree+B.Ed	0.00	0.00	0.44	1.33
PG	0.88	1.33	3.54	1.77
Total	15.93	12.83	19.03	52.21
Urban	7.79	15.58	22.08	54.55
Rural	20.13	11.41	17.45	51.01

Source: Sample Survey

6.1.4.3 Health care Expenditure

The average health care expenditure of our sample households on hospitalized and non hospitalized medical care is around Rs.800 for one year. The health care expenditure of urban households is more than that of rural households. The table 6.17 demonstrates that the average healthcare expenditure varied from Rs.348 among households with illiterate

respondents to Rs.6060 among households with highly educated respondents.

Table 6.17

Distribution of average health care expenditure among households on the basis of respondent's education

Education	Average	N	Std. Deviation
Illiterate	348.1	16	617.2
LP	280.2	34	456.8
UP	389.6	29	750
HS	270.8	33	272.5
SSLC	445.3	35	886.9
PDC	234.4	16	176.8
Technical/ Computer	300	2	0
Degree	608.8	40	1574
Degree+ B.Ed	262.5	4	75
PG	6060	17	24209
Total	812.8	226	6681
Urban	1532	77	11371
Rural	440.9	149	1020

Source: Sample Survey

6.2 Female Education and Health Status of Women

Health Status of women is analyzed on the basis of variables influencing maternal health as well as illness and treatment level details of women. Variables on maternal health considered by the study are age at marriage of husband and wife, difference between age at first conception and last conception, number of children, abortions, outcome of pregnancy, place of delivery, visit by health workers, month of first ANC checkup, complications in delivery, consumption of nutritious food during

pregnancy, intake of iron folic tablets and tetanus injection as a part of ANC care. Illness and treatment level details of women include acute and chronic ailments among women, days suffered, and on whether the ailing women have consulted doctor.

6.2.1 Age at marriage of husband and wife

The age at marriage of husband and wife contribute much to the maternal health of women. As per social regulations the age at marriage for males is 21 and that of females is 18. The survey results prove that the average age of husband is 29 years and that of wife is 21 years. The average age of husband is more in the rural areas and that of wife is more in the urban areas. The table 6.18 demonstrates that female education exerts an influence on the age at marriage of women ie, the average age at marriage of females showed a very visible increase after degree level of education.

Table 6.18
Distribution of Respondents education with average age at marriage of husband and wife

Education	Age at marriage of husband			Age at marriage of wife		
	Mean	N	Std. Deviation	Mean	N	Std. Deviation
Illiterate	26.38	8	2.45	18.38	8	2
LP	28.69	13	7.03	21.54	13	4.84
UP	29.58	12	5.28	20.08	12	2.47
HS	28.69	16	4.8	21.06	16	3.17
SSLC	28.39	18	4.35	19.83	18	2.55
PDC	28.25	8	2.66	20.13	8	1.13
Technical/Computer	34	1	.	32	1	.
Degree	29.57	14	3.01	22.93	14	2.67
Degree + B.Ed	30.67	3	5.69	22.43	7	2.99
PG	29.14	7	4.1	26	3	4.36
Total	28.79	100	4.55	21.11	100	3.47
Urban	28.16	25	3.8	22.6	25	3.33
Rural	29	75	4.78	20.61	75	3.39

Source: Sample Survey

6.2.2 Pregnancy Care

It is clear from the table 6.19 that 69 percent of the respondents have taken nutritious diet during the time of pregnancy. It varied from 12.5 percent among illiterates to 100 percent among females with pre-degree level of education. Intake of iron folic tablets and tetanus injection is a part of antenatal care. 80 percent of the respondents have taken iron folic tablets during pregnancy and 82 percent of the respondents have taken tetanus injection as a part of a ANC care. Only 25 percent of illiterates have taken iron folic tablets during pregnancy whereas the proportion is 100 percent among females with pre-degree level of education. Tetanus injection is also taken only by 37.5 percent of illiterates while it is taken by 94 percent of females with SSLC and above level of education. The three components given below show high proportion in the urban areas. This is clearly visible from the table given below.

Table 6.19 Pregnancy Care by Respondents (%)

Education	Had milk, fruits		Had iron folic tablets		Taken tetanus injection	
	Yes	No	Yes	No	Yes	No
Illiterate	12.5	87.5	25	75	37.5	62.5
LP	38.46	61.54	61.54	38.46	53.85	46.15
UP	41.67	58.33	83.33	16.67	83.33	16.67
HS	75.00	25.00	81.25	18.75	93.75	6.25
SSLC	77.78	22.22	88.89	11.11	94.44	5.56
PDC	100.00	0.00	100.00	0.00	75.00	25.00
Technical/Computer	0.00	100.00	100.00	0.00	100.00	0.00
Degree	100.00	0.00	92.86	7.14	92.86	7.14
Degree+B.Ed	100	0	0	0	100	0
PG	100	0	100	0	100	0
Total	69	31	80	20	82	18
Urban	84	16	96	4	96	4
Rural	64	36	74.67	25.33	77.33	22.67

6.2.3 ANC Checkups

Antenatal Checkups are a part and parcel of maternal health care. 63 percent of our respondents have done their first ANC checkups during the first trimester of their pregnancy, 14 percent during second trimester and 5 percent during third trimester. 18 percent of our respondents have not gone for any antenatal checkups during their pregnancy period. The proportion of our respondents who have done their first ANC Checkup during the first three months of pregnancy increased with their education levels while those doing in the second trimester, third trimester and not going for any checkups declined with the increase in the education levels. Negligence to ANC checkups is shown mainly by our rural respondents coming from poor educational background.

Table 6.20

Percentage classification of respondents on the basis of first ANC checkup Done

Education	1st trimester	2nd trimester	3ird trimester	No ANC checkups
Illiterate	37.5	0	12.5	50
LP	23.08	23.08	15.38	38.46
UP	66.67	8.33	8.33	16.67
HS	56.25	18.75	0	25
SSLC	77.78	5.56	5.56	11.11
PDC	75	12.5	0	12.5
Technical/Computer	100	0	0	0
Degree	85.71	14.29	0.00	0.00
Degree+B.Ed	100	0	0	0
PG	57.14	42.85	0	0
Total	63	14	5	18
Urban	60	32	4	4
Rural	64	8	5.33	22.67

Source: Sample Survey

6.2.4 Visits by Health workers

Respondents from rural households reported that they were visited by health workers from primary health centres during their pregnancy period

6.2.5 Abortion

It is evident from the table 6.22 that 14 percent of our respondents have undergone spontaneous abortions and 4 percent had induced abortions. Both these proportions show high figures in the urban areas. Table portrays that induced abortions are undergone by lower educated respondents below pre-degree level of education. This shows the positive influence exerted by female education on their own maternal health.

**Table 6.21 Percentage classification of respondents
on the basis of abortions undergone**

Education	Abortion	
	induced	Spontaneous
Illiterate	0	12.5
LP	15.38	7.69
UP	0	0
HS	0	6.25
SSLC	5.56	22.22
PDC	12.5	25
Technical/Computer	0	0
Degree	0	28.57
Degree+B.Ed	0	33.33
PG	0	0
Total	4	14
Urban	8	20
Rural	2.67	12.00

Source: Sample Survey

6.2.6 Outcome of Pregnancy

We have classified pregnancy outcomes as live births, still births and premature births. Still births and premature births showed a decline with the education level of respondents. Still births and premature births are seen among lower educated rural respondents, ie respondents below pre-degree level education.

Table 6.22

**Total cases of outcome of pregnancy on
the basis of respondent's education**

Education	Outcome of pregnancy		
	live birth	Still birth	premature birth
Illiterate	24	1	0
LP	34	1	0
UP	35	1	1
HS	29	1	2
SSLC	38	0	0
PDC	12	0	2
Technical/Computer	2	0	0
Degree	8	0	0
Degree + B.Ed	5	0	0
PG	11	0	0
Total	198	5	5
Urban	44	1	0
Rural	154	4	5

Source: Sample Survey

6.2.7 Place of Delivery

Inspite of the very high cost, private hospitals are the main providers of health care in Kerala. This is mainly because of the better quality of service provided by them. Of our respondents 100 cases of delivery have occurred

in private hospitals, 68 in government hospitals, 38 at home and 2 in PHC. Among the various education groups, the respondents opting private hospitals showed an increase with a hike in the education levels. Home deliveries have occurred only for rural respondents below pre-degree level of education.

Table 6.23

Cases on place of delivery on the basis of respondent's education

Education	Govt.hosp	Privatehosp	PHC	Home
Illiterate	8	2	0	15
LP	17	9	1	8
UP	13	15	0	9
HS	10	21	0	1
SSLC	9	20	0	4
PDC	2	11	1	1
Technical/Computer	1	1	0	0
Degree	3	10	0	0
Degree + B.Ed	2	3	0	0
PG	3	8	0	0
Total	68	100	2	38
Urban	12	23	0	1
Rural	56	77	2	37

Source: Sample Survey

6.2.8 Number of Children

Classification of respondents on the basis of number of children proves that 39 percent of our respondents have two children and 19 percent have three children. The percentage of respondents having more than four children belonged to the education category of below pre-degree level of education. Compared to urban respondents, our rural respondents had more children. This can be seen from the table given below.

Table 6.24

**Percentage distribution of respondents on the
basis of number of children**

Education	No. of children						
	Nil	1	2	3	4	5	6
Illiterate	0	12.5	37.5	12.5	25	0	12.5
LP	0	7.69	53.85	7.69	30.77	0	0
UP	0	8.33	33.33	33.33	16.67	0.00	8.33
HS	37.5	6.25	18.75	18.75	12.5	6.25	0
SSLC	16.67	11.11	33.33	27.78	5.56	5.56	0.00
PDC	25	12.5	25	37.5	12.5	0	0
Technical/Computer	0	0	100	0	0	0	0
Degree	14.29	14.29	50.00	14.29	0.00	0.00	0.00
Degree+B.Ed	0	33.333	66.667	0	0	0	0
PG	0	42.86	57.14	0	0	0	0
Total	13	13	39	19	12	2	2
Urban	8	24	52	52	4	0	0
Rural	14.66	9.33	34.67	21.33	14.67	2.67	2.67

Source: Sample Survey

6.2.9 Difference Between age at first conception and last conception

Of our total sample 10 women reported that they have not conceived yet. Table 6.25 picturises the difference between the age at first and last conception of the rest 90 mothers. 33 mothers showed a difference of 1-4 years between first and last conception. There are 27 cases depicting 5-8 years of difference. The proportion of mothers with 9-12 years and above 12 years of difference between first and last conception is seen mainly in the rural areas. Yet the difference of 9-12 years and above 12 years is seen mainly among mothers below SSLC level of education.

Table 6.25**Cases showing Difference between first conception and last conception**

Education	Difference between first conception and last conception				
	0	1-4	5-8	9-12	above12
Illiterate	1	2	2	2	1
LP	0	5	4	4	1
UP	1	3	5	2	1
HS	1	4	4	2	0
SSLC	2	6	3	2	2
PDC	0	4	3	0	0
Technical/Computer	0	1	0	0	0
Degree	3	5	4	1	0
Degree + B.Ed	1	0	2	0	0
PG	3	3	0	1	0
Total	12	33	27	13	5
Urban	5	11	3	4	0
Rural	7	22	24	9	5

6.2.10 Illness among Women

Of the total males and females surveyed from the hundred households, 35 percent of females and 22 percent of males suffered from some kind of ailments. Classification of ailments is based on the categorization done by 52nd round of National Sample Survey. It is evident from the table 6.27 that majority of our household members aged above 18 years suffered mainly from some kind of chronic ailments. Yet acute ailments and chronic ailments are seen more among the female members than among male members. Table portrays that female education does not exert any influence on the occurrence of diseases among any of the adult members of the family

Table 6.26**Percentage distribution of Illness details Sex wise and Education wise**

Education	Name of disease					
	Acute ailment		Chronic ailment		Total	
	Male	Female	Male	Female	Male	Female
Illiterate	0.76	0.76	0.51	2.03	1.27	2.79
LP	0.25	0.76	2.28	5.33	2.54	6.09
UP	1.27	1.02	2.03	3.05	3.30	4.06
HS	0.51	1.02	2.54	4.31	3.05	5.33
SSLC	2.03	1.02	1.78	4.06	3.81	5.08
PDC	0.51	0.76	1.52	1.27	2.03	2.03
Technical/Computer	0.00	0.00	0.51	0.00	0.51	0.00
Degree	1.02	3.30	2.79	3.05	3.81	6.35
Degree+B.Ed	0.00	0.00	0.51	0.51	0.51	0.51
PG	1.02	2.28	0.51	0.51	1.52	2.79
Total	7.36	10.91	14.97	24.11	22.34	35.03

Source: Sample Survey

6.2.11 Ailing Days Suffered by women

Compared to males, females reported the maximum number of ailing days in our survey. Majority of ailing females were suffering from ailments since more than six months prior to the survey. Respondents education does not show any significance on number of ailing days among females as well as males.

Table 6.27 Percentage distribution of Ailing Days**Sex wise and Education wise**

Education	< 7days		> 7days		< 6months		> 6months	
	Male	Female	Male	Female	Male	Female	Male	Female
Illiterate	0.44	0.88	0.44	0.44	0.88	1.77	0.44	1.77
LP	0.44	1.77	0.88	1.33	0.44	0.44	2.65	7.08
UP	2.21	0.88	0.00	1.33	0.88	2.21	2.65	2.65
HS	0.00	1.33	0.88	0.44	0.88	0.88	3.54	6.64
SSLC	1.33	1.77	1.77	0.00	1.33	2.21	2.21	4.87
PDC	0.44	0.88	0.44	0.44	0.44	0.44	2.21	1.77
Technical/Computer	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.88
Degree	0.44	2.21	1.33	1.77	0.44	1.77	4.42	5.31
Degree+B.Ed	0.00	0.00	0.00	0.00	0.44	0.00	0.44	0.00
PG	0.44	0.44	0.00	1.33	0.88	2.65	1.33	0.44
Total	5.75	10.18	5.75	7.08	6.64	12.39	20.80	31.41

Source: Sample Survey

6.2.12 Consultation of Doctor for ailments

Even though females reported the maximum ailments, the proportion of females who did not consult a doctor seems to be high. The table 6.29 clarifies majority of the ailing females who did not consult a doctor belonged to the households with lower educated respondents, ie respondents below SSLC level of education.

Table 6.28 Consultation of doctor by ailing females(%)

Education	Yes		No	
	Male	Female	Male	Female
Illiterate	0.44	1.33	0.00	4.87
LP	1.33	4.42	0.44	6.19
UP	3.54	3.54	0.00	4.42
HS	2.65	4.42	0.44	4.87
SSLC	3.10	8.85	1.33	4.42
PDC	2.21	3.10	0.00	3.54
Technical/computer	3.10	9.29	0.44	6.64
Degree	0.88	2.21	0.88	4.87
Degree++ B.Ed	0.44	0.44	0.00	0.88
PG	0.44	0.00	0.00	0.00
Total	18.14	37.61	3.54	40.71

Source: Sample Survey

6.3 Female Education and Child Health

Child health is a principal component determining the health status of a household. Child health is examined by variables like measuring weight of the child at birth, children below 2.5kg, breast feeding, reasons for stopping breast feeding, vaccination coverage, provision of food supplements, precautionary measure taken at home for caring child, ailments among children, number of days suffered, consultation of doctor, recovery details, type of treatment etc.

6.3.1 Neonatal Care

As a part of neonatal care it is a must to measure the weight of the baby. Of the total respondents 82 percent have checked the weight of their baby. This proportion is high in the urban areas. It also shows an increase with a hike in the education level of mother. It varied from 50 percent among illiterates to 94 percent among mothers with SSLC and above level of education.

The average weight of a new born baby should be around 2.5kg. 92 percent of our respondents had children above 2.5kg. Only 8 percent had kids below 2.5kg.

Table 6.29**Percentage distribution of respondents on the basis of Neonatal Care**

Education	Child weighed at birth		Children below 2.5kg		
	Yes	No	0	1	2
Illiterate	50	50	100	0	0
LP	69.23	30.77	76.92	15.38	7.69
UP	75	25	100	0	0
HS	68.75	31.25	93.75	6.25	0
SSLC	94.44	5.56	94.44	5.56	0.00
PDC	100	0	87.5	12.5	0
Technical/Computer	100	0	100	0	0
Degree	92.86	7.14	100.00	0.00	0.00
Degree+B.Ed	100	0	100	0	0
PG	100	0	85.71	14.286	0
Total	82	18	93	6	1
Urban	96	4	96	4	0
Rural	90.67	9.33	92.00	6.67	1.33

Source: Sample Survey

6.3.2 Breast Feeding

Of our total respondents, 44 percent of mothers breast feed their children for above 2 years. This proportion is high in the rural areas. 12 percent of mothers breast feed their children for less than 6 months. This proportion is high in the urban areas. Yet mother's education does not show a significant influence in the duration of breast feeding the child.

Table 6.30

**Percentage distribution of respondents on the basis
of Duration of Breast Feeding**

Education	Duration of breast feeding			
	<6months	6-12months	One and half years	2 and above years
Illiterate	0	0	50	50
LP	7.69	23.08	7.69	61.54
UP	8.33	33.33	25.00	33.33
HS	6.25	18.75	25	50
SSLC	34.72	104.17	138.89	277.78
PDC	0	12.5	37.5	50
Technical/Computer	0	0	0	100
Degree	28.57	0.00	42.86	28.57
Degree+B.Ed	0	33.33	66.66	0
PG	0	71.42	0	28.57
Total	12	19	25	44
Urban	16	16	28	40
Rural	10.67	20.00	24.00	45.33

Source: Sample Survey

6.3.3 Reasons for stopping Breast feeding

Main reasons put forward by mothers for stopping breast feeding are insufficient milk, next pregnancy of mother, child became 2 years and that the child started having normal food.

6.3.4 Child Care

Apart from normal diet children are given nutritious food supplements to make them healthy. 60 percent of our respondents give food supplements to their children as a part of caring them. It varied from 30 percent among LP educated mothers to 85 percent among mothers with post graduate level of education. This feature is prominent in the urban areas. Immunization of

children forms another component of child care. 88 percent of our respondents have brought their children under immunization coverage. It varied from 37 percent among illiterate mothers to 100 percent among mothers with SSLC level of education. The influence of mother's education can be seen in both these components.

Apart from immunization, usually mother's take precautionary care of children by giving them tonics, vitamin tablets etc as per doctor's advice. The traditional method of giving home made ayurvedic medicines as a protection cover from severe heat, severe cold, to prevent skin diseases or to prevent gastric problems etc is also practiced by some mothers. All these are various ways of caring the health of their child. Only 38 percent of mothers in our sample take this type of precautionary care and its proportion is high in the rural areas. Table 6.32 proves that there is no significance for mothers education in resorting to this type of precautionary measures for caring children.

Table 6.31

**Percentage distribution of respondents on the basis
of Precautionary care for children**

Education	Given food supplements		Given Vaccination		Precautionary care from diseases	
	Yes	No	Yes	No	Yes	No
Illiterate	50	50	37.5	62.5	25	75
LP	30.77	69.23	76.92	23.08	23.08	76.92
UP	58.33	41.67	91.67	8.33	16.67	83.33
HS	56.25	43.75	93.75	6.25	31.25	68.75
SSLC	66.67	33.33	100.00	0.00	55.56	44.44
PDC	50	50	87.5	12.5	37.5	62.5
Technical/Computer	100	0	100	0	100	0
Degree	71.43	28.57	92.86	7.14	57.14	42.86
Degree+B.Ed	100	0	100	0	66.667	33.333
PG	85.71	14.29	100.00	0.00	28.57	71.43
Total	60	40	88	12	38	62
Urban	76	24	96	4	36	64
Rural	54.67	45.33	85.33	14.67	38.67	61.33

Source: Sample Survey

6.3.5 Ailments among children

Ailments among children are analyzed on the basis of the total child population covered by the sample. Out of the total hundred households, the child population covered by the survey is 98. Of this, 84 cases are from rural areas and 14 cases are from the urban.

Ailments are classified into short duration ailments (acute ailments) and long duration ailments (chronic ailments) according to the classification done by the 52nd round National Sample Survey.

It is evident from the table that, of the total children covered by the survey 80.61 percent suffered from some kind of ailments. 74.49 percent suffered

from acute ailments, whereas only 6.12 percent suffered from chronic ailments. Compared to the urban areas, children of rural areas suffered from various diseases. Fever, cough and diarrhea are the major ailments seen among the children of rural areas. Acute ailments among children are mainly seen among 43.87 percent (cumulative percentage) of children with mothers having an education up to high school level of education. Table 4.63 also picturises that 3.8 percent of ailing children with lower educated mothers are not taken to doctor. The recovery proportion also is depended on mother's level of education.

Though 96 percent of ailing children are taken to doctor and 83 percent show a recovery, there still exists children not getting proper care during illhealth. Thus the exposed reality is that in a representative district of Kerala which enjoys a high position in human development indicators there are mothers from poor educational background not caring much of the health of their children contributing to the high morbidity rate of the state.

Table 6.32**Percentage distribution of Ailments among children with respondent's education**

Education	Ailments among children					
	Acute ailments	Chronic ailments	Consulted Doctor		Recovered Completely	
			Yes	No	Yes	No
Illiterate	5.1	1.02	6.33	1.27	6.33	1.27
LP	9.18	1.02	11.39	1.27	11.39	1.27
UP	5.1	0	6.33	0	5.06	1.27
HS	24.49	1.02	31.65	0	26.58	5.06
SSLC	5.1	2.04	7.59	1.27	6.33	2.53
PDC	7.14	1.02	10.13	0	8.86	1.27
Technical/Computer	0	0	0	0	0	0
Degree	12.24	0	15.19	0	11.39	3.8
Degree+B.Ed	0	0	0	0	0	0
PG	6.12	0	7.59	0	7.59	0
Total	74.49	6.12	96.2	3.8	83.54	16.46
Urban	17.35	0	94.12	5.88	70.59	29.41
Rural	57.14	6.12	96.77	3.23	87.1	12.9

Source: Sample Survey

6.3.6 Type of Treatment

With regard to type of treatment, 91.14 percent of children are given allopathic treatment. Only very few are given ayurvedic and homeopathic treatment.

Table 6.33**Percentage distribution of Consultation of doctor and Recovery among children with Respondent's education**

Education	Type of Treatment		
	Allopathy	Ayurveda	Homeopathy
Illiterate	7.59	0	0
LP	11.39	1.27	0
UP	3.8	1.27	1.27
HS	30.38	0	1.27
SSLC	8.86	0	0
PDC	10.13	0	0
Technical/Computer	0	0	
Degree	11.39	0	3.8
Degree+B.Ed	0	0	0
PG	7.59	0	0
Total	91.14	2.53	6.33
Urban	82.35	0	17.65
Rural	93.55	3.23	3.23

Source: Sample Survey

6.3.7 Number of days suffered

The ailing children covered by the survey are grouped into four categories. Those suffering from ailments since last seven days, more than seven days, less than six months and more than six months. Of these categories 51 percent of children suffered from ailments for more than seven days and 38 percent for less than seven days. The proportion of ailing days among children declined with the education level of their mothers. Yet compared to urban children, rural children showed the maximum percentage of ailing days in our survey.

Table 6.34

**Percentage classification of ailing days among
Children on the basis of respondent's education**

Education	Less than 7 days	More than 7 days	Less than 6 months	More than 6 months
Illiterate	5.06	0.00	2.53	0.00
LP	3.80	7.59	0.00	1.27
UP	2.53	3.80	0.00	0.00
HS	11.39	17.72	2.53	0.00
SSLC	3.80	2.53	1.27	1.27
PDC	3.80	5.06	0.00	1.27
Technical/Computer	0.00	0.00	0.00	0.00
Degree	7.59	7.59	0.00	0.00
Degree+B.Ed	0.00	0.00	0.00	0.00
PG	0.00	7.59	0.00	0.00
Total	37.97	51.90	6.33	3.80
Urban	6.33	15.19	0.00	0.00
Rural	31.65	36.71	6.33	3.80

Source: Sample Survey

6.4 Conclusion

Of our total sample majority are SSLC and high school educated unemployed respondents. 50 percent of our respondents are of above 45 age group. A religion wise and caste wise classification proves that half of the respondents are Hindus and 45 percent belong to forward caste. The average size of the family was found to be around 4 and 5 and average monthly percapita income as Rs. 2000 .

It could be concluded from Section 1 of this chapter that all the variables on physical environment, consumption and many of the variables on health awareness of the respondents are greatly influenced by respondent's level of education. As occurrence of illness is a natural phenomenon the study found

no association between the respondent's education and occurrence of illness among the family members. But the healthcare expenditure among the sample households showed an increase with the education level of respondents.

Section 2 proved a strong relation between female education and maternal health. Though the study could not attach any importance to respondent's education with respect to occurrence of illness among women, it found a positive influence of respondent's education on the consultation of doctor by ailing females members.

The influence of mother's schooling is well proved in the studies reviewed earlier. This same fact is again established through the section 3 of our study. All the variables on child health considered by the study except, the duration of breast feeding by the mother and precautionary care taken by the mother, showed a highly positive influence with respect to respondent's education.

Summary and Conclusion

Rajini R. Menon “Female education and health status of households in Kerala - A case study of Thrissur district” Thesis. Department of Economics, Dr. John Matthai Centre Thrissur, University of Calicut, 2007

Chapter VII

Summary and Conclusion

The major objective of the study was to delineate the determinants of the health status of households in Thrissur district and to probe more into its influence on the latter. Within this broad framework, the study has laid down the following specific objectives: i) To study the health status of households in Kerala ii) To delineate the determinants of Health Status in Thrissur district iii) To analyse the influence of female education on the health status of women in Thrissur district iv) To examine the influence of female education on the health status of children in Thrissur district.

The investigation was based on the information from secondary as well as primary sources. Various publications, journals and reports have been made use of for the study. Economic Review (various years) of State Planning Board, Statistics for Planning, Educational Statistics Since Independence, SRS annual reports, NSS reports are the major publications we have made use of for our analysis.

The raw data of The District Level Household Survey (RCH) and 52nd round National Sample Survey was extracted for analysis purpose.

For supplementing the information from District Level Household Survey we conducted a primary survey of 100 households from the urban and rural areas of Thrissur district.

In order to identify the determinants of the health status of households in Thrissur district we have prepared an aggregate health index for the

household. This index is a composite index of six indices prepared on the basis of various variables influencing the health status of household. A linear regression model and Principal Component Analysis was used in the process of identification of determinants.

Main findings of the study

Main findings of the study is classified as a) findings from district level household survey b) findings from national sample survey c) findings from primary survey.

Findings from District Level Household Survey

Maternal Health

1. The mean age of mother at the birth of first child in Kerala is lowest among the lower primary educated category of women(ie,18 years) and high among higher secondary and above educated categories of women (ie,21 years). There is no visible rural urban difference in the mean age at child birth in Thrissur district. While for all Kerala it is low in the urban areas. A religionwise analysis of the mean age of mother at child birth proves that it is relatively high among the women of Christian community in Kerala and Thrissur district.

2. With regard to the source of ANC care taken, majority of women had mainly availed the service of private hospitals in Kerala as well as Thrissur district. 38.29 percent of women in Thrissur district and 34.60 percent in all Kerala who availed the service of private hospitals belonged to the education level of higher secondary education and above. The type of ANC care taken (measuring weight,checking B.P, blood, urine etc) also shows an

improvement with an increase in education levels of women. Majority of pregnant women did their first ANC checkup during the second month of pregnancy. It varied from 6 percent among illiterates to 29.07 percent among women with higher secondary education and above in Kerala. The same trend followed in Thrissur district as well. About 9 ANC checkups were done by 25.43 percent of pregnant women with higher education in Kerala. While only 4 visits of ANC checkups were done by majority of women with low level of education. ANC care taken by pregnant women does not show much rural urban difference. Antenatal visit by health worker at home seems to be high in rural areas. Women of Christian community seems to have taken more antenatal care during pregnancy.

3. Only very few lower educated women (ie, 3.9 percent in Kerala and 4.16 percent in Thrissur district) reported problems during pregnancy. While it was mainly experienced by 12 percent to 15 percent of women with higher education. Pregnancy related problems were mainly reported from rural areas especially by the women of Muslim community.

4. Post delivery complications were mainly reported by women with high school and higher secondary level of education. The proportions are high among the rural women especially among those of muslim community.

5. Women of all education categories are aware of female sterilization, male sterilisation, condoms and use of pills. While the knowledge of modern birth control methods such as tubectomy, laproscopy and vasectomy varies a wide range between illiterates and women with higher education in all Kerala as well as Thrissur ditrict. The knowledge on laproscope shows an increase with an increase in the education level of husbands. In Thrissur

district family planning methods are known more to the women of urban areas. While there is no such rural urban difference in the case of Kerala. The Muslim community lags behind in the awareness of various family planning methods.

6. 66.06 percent of illiterate women in Kerala have heard of HIV. While it is known to 92.8 percent of illiterate women in Thrissur district. More than 60 percent of women in Kerala as well as Thrissur district gain knowledge on HIV through newspapers. Knowledge on HIV among the women with educated husbands shows better results. No much rural urban variation exists in the awareness of HIV among the women of all Kerala and Thrissur district. Though women of all three communities have heard of HIV, women of Christian community are more aware of various aspects of HIV transmission.

7. Mild anemia among pregnant women in Thrissur district ranged from 7.14 percent among households with illiterate women to 4.26 percent among households with higher secondary and above educated women. In the case of all Kerala mild anemia among pregnant women remained almost the same of 3 percent among households with women of all education levels.

Child Health

8. Breast feeding upto 6 months is done mainly by the women with high school level of education especially those of Christian community in both Kerala and Thrissur district (21 percent). Women who have above higher secondary level of education in Kerala (33 percent) as well as

Thrissur district (more than 20 percent) are less likely to squeeze milk from breast before breast feeding begins. Education of husband also influences the child care practices of women.

9. The proportion of vaccination coverage among children showed an increase with a hike in the education level of mother. Education of father also increased the immunization rate among children.

10. Only 6 percent of women with lower primary level of education have the knowledge of giving ORS and salt and sugar solution to children during diarrhea, while the same is known to more than 33 percent of mothers with higher level of education in Kerala as well as Thrissur district. Women of rural areas in Kerala and women of urban areas in Thrissur district score better in the ways of dealing with the health aspects of a child suffering from diarrhea.

11. Mild anemia among children varied from 13.33 percent among households with illiterate women to 11.07 percent among households with women of higher education in Kerala.

Other factors of household health status

12. About 50 percent of women with higher education used salt with 15 ppm for cooking purpose. There is no much rural urban variation in Kerala as well as Thrissur district.

13. 41.52 percent of households with illiterate women in Kerala and Thrissur district have uncovered wells. An improvement in education level of husband and wife showed an increase in the percentage level of households with their wells covered. 13 percent of households share public

taps in rural as well as urban areas of Kerala and Thrissur district. The importance of covering a well is known more to the Christian households.

14. 23.03 percent of households with illiterate women have no toilet facility in Kerala whereas for Thrissur district it is 7.1 percent. 99.4 percent of households with women of higher education in Thrissur district have own flush toilet facility in their houses. This provision shows an improvement with a rise in the education level of husbands. Almost all Muslim households in Kerala and Christian households in Thrissur district have flush toilet facility. The problem of lack of toilet facility is seen more in the rural areas than in the urban areas of Kerala.

15. Compared to the households with illiterate men and women, more than 70 percent of households with higher level education in Kerala as well as Thrissur district depend on electricity for lighting. Majority of households in the urban areas of Kerala and Thrissur district use electricity for lighting. More than 70 percent of Christian households in Kerala as well as Thrissur district use electricity for lighting.

16. Though wood forms a main source of cooking fuel among the households with women of all education categories, 30 percent of households with higher secondary and above educated women depend on lpg-electricity as a source of cooking fuel in Kerala as well as Thrissur district. The use of wood as a source of fuel for cooking is more prominent in the rural areas. Christian households use more of lpg-electricity for cooking purpose.

17. 46.23 percent of households with illiterate women in Kerala have a low standard of living index. While only 28.57 percent of households with illiterate women have a low SLI in Thrissur district. 40 percent of households in Kerala as well as Thrissur district with above higher secondary level of education maintain a high standard of living index.

18. 50 percent of Muslim households in Kerala and 49 percent of Hindu households in Thrissur district have a medium SLI. A high SLI is maintained by around 30 percent of Christian households in Kerala as well as Thrissur district.

Findings from National Sample Survey

Ailments and Hospitalisation

19. Morbidity rate was found to be high among the females in Kerala ie, 51.66 percent. Whereas for males it is 48.33 percent. Yet it showed a decline with an increase in the level of education.

20. Acute ailments are seen mainly among the primary educated males and illiterate females. Chronic ailments are prominent among illiterate females and males with middle level of education.

21. Cough, Bronchitis and diseases of heart are the main ailments seen among the males. Among the females fevers of short duration, high and low B.P are the prominent cases of hospitalization.

22. A sectorwise analysis proves that morbidity rate is high in the rural areas of Kerala. For acute ailments it is high among the rural females of 16-25 age group (7.93 percent) and for chronic ailments it is high among the rural males of above 65 age group (6.41 percent).

23. Among the both sex it is the rural females who remain ill for maximum number of days. Females of 16-25 age group with middle level of education are more visible in remaining ill ie, 11.79 percent remain ill for more 13 days. 4.06 percent illiterate females of 46-55 age group belonging to rural areas shows the maximum number of days of restricted activity. 9.17 percent middle educated rural females of 56-65 age group show maximum number of days of confined to bed.

24. Compared to the urban areas, Annual rate of hospitalization is high in the rural areas (57.69 percent). Annual rate of hospitalization for acute ailments is high among the rural females of 16-25 age group ie, 7.93 percent and for chronic ailments it is high among the rural females of 46-55 age group ie, 4.71 percent.

25. Duration of stay in the hospital for one week is maximum among the urban males of 0-5 age group. In the rural areas it is maximum among the females of 46-65 age group.

26. 3.87 percent of females with higher secondary level of education and 36 of per thousand literate males who have no schooling depend on private hospitals for medical treatment. The service of private hospitals is availed maximum by 2.14 percent of rural females belonging to 46-55 age group.

27. Duration of treatment for more than four weeks is maximum among those aged above 46. Urban males of above 65 age group (14.25 percent) continue treatment for more than four weeks.

Findings from Primary Survey

28. Of our total sample majority are SSLC educated females (18 percent). In the urban areas females with degree and post graduate level of education show high proportion. Where as in the rural areas majority of our respondents are of SSLC and high school level of education. 50 percent belong age group of above 45 and 34 percent belong to the age group of 31-45. Half of the total samples are Hindus. 45 percent of our respondents belong to forward caste, 29 percent belong to OBC, 19 percent are from OEC, 6 percent from SC and 1 percent ST. 73 percent of our respondents are unemployed. Of the total households the average family size is 4 to 5. The average monthly percapita income of our sample households is around Rs.2000. In the urban areas it is Rs.3300 and in the rural areas it is Rs.1500. The average monthly percapita income of the households increased with the education level of the respondents.

29. Of the total households, 40 percent are tiled, 32 percent are concrete. Around 10 percent are thatched ones. The proportion of thatched and tiled houses shows a decline with an increase in the level of education of respondents.

30. Respondents having more than 2 bed rooms in their houses ranged from 13 percent among illiterates to 86 percent among respondents with post graduate level of education. The proportion of households having no bedrooms or at least 2 bed rooms is high in the rural areas whereas the proportion having more than 2 bedrooms and bathrooms inside the house is high in the urban areas.

31. The dependence on wood and kerosene shows a decline with the increase in the education level of respondents and that of gas connection shows an increase with the education level of respondents. Households in the urban areas use more of gas while their counterparts in rural areas use more of wood as cooking fuel.

32. Separate kitchen is necessary for hygienic preparation of food. Yet it is lacking in households with illiterate and high school educated respondents. The households which lack electricity connection are rural households and they are the ones with lower educated respondents.

33. The dependence on public tap showed a decline with a hike in the education level of respondents. It declined from 75 percent among households with illiterate respondents to 16 percent among households with respondents with SSLC and above level of education. The proportion using sanitary canal for disposal of waste water varied from 37.5 percent among illiterate households to 85 percent among households with respondents of post graduate level of education. The proportion of households disposing waste water to sanitary canal is high in the urban areas whereas the proportion disposing it to garden is more in the rural areas.

34. We cannot avoid the pathetic situation of own pit toilet, shared pit toilet and also no toilet facility which constitute 9 percent, 1.33 percent and 1.33 percent respectively in the households of rural areas. The dependence on these three is mainly seen among households with lower educated respondents.

35. 33 per cent of households in the rural areas go for the most unhealthy method of simply throwing out the waste. In the urban areas the proportion is 24. Yet this unhealthy practice shows a fall among the households with higher educated respondents.

36. The proportion reporting water logging is high among households with lower educated respondents.

37. The average monthly consumption expenditure of the households varied from Rs.1766 among households with illiterate respondents to Rs.3398 among households with graduate respondents.

38. Only 50 percent of households with illiterate respondents used boiled water while the same was used by 100 percent of households with above pre-degree level of education.

39. Only 37.5 per cent of illiterate mothers are aware of ORS and its preparation while the same is known to all the mothers above higher secondary level of education in our sample.

40. 100 percent of respondents above Pre-degree level of education gain awareness on health through television. Only 39 percent of respondents read articles on health. Yet this habit showed an increase with the education level of respondents. It ranged from 15 percent among illiterate respondents to 57 percent among respondents with postgraduate level of education.

41. Awareness of AIDS is more in the rural areas and that of family planning methods is more in the urban areas. 100 percent of respondents above SSLC level of education are aware of AIDS and also of family planning methods.

42. Only 12.5 percent of households with illiterate respondents showed preference for a family doctor. While the same is preferred by 64 percent of respondents with degree level of education.

43. 39 percent of our adult household members suffered from chronic ailments. It is high among the rural households. Yet chronic ailments among members showed very low proportion among households with very high educated respondents. Also it is interesting to note that only around 2 percent of members from the households with illiterate respondents reported acute and chronic ailments respectively. This paradox is due to the difference in the health consciousness among lower educated and higher educated categories of people.

44. 90 percent of the members preferred allopathic treatment. Preference for allopathic treatment is seen more among the members of urban households. Only very few went for other options.

45. The average health care expenditure of our sample households on hospitalized and non hospitalized medical care is around Rs.800 for one year. The health care expenditure of urban households is more than that of rural households. The average healthcare expenditure for a year varied from Rs.348 among households with illiterate respondents to Rs.6060 among households with highly educated respondents.

46. The survey results prove that the average age at marriage of husband is 29 years and that of wife is 21 years. The average age of husband is more in the rural areas and that of wife is more in the urban areas. Female education exerts an influence in the age at marriage of women ie, the

average age at marriage of females showed a very visible increase after degree level of education.

47. 69 percent of the respondents have taken nutritious diet during the time of pregnancy. It varied from 12.5 percent among illiterates to 100 percent among females with pre- degree level of education. Only 25 percent of illiterates have taken iron folic tablets during pregnancy where as the proportion is 100 percent among females with pre- degree level of education. Tetanus injection is also taken only by 37.5 percent of illiterates while it is taken by 94 percent of females with SSLC and above level of education. The three components given above shows high proportion in the urban areas.

48. The proportion of our respondents who have done their first ANC Checkup during the first three months of pregnancy increased with their education levels while those doing in the second trimester, third trimester and not going for any checkups declined with the increase in the education levels.

49. Majority of our rural respondents reported that they were visited by health workers from primary health centres during their pregnancy period

50. 14 percent of our respondents have undergone spontaneous abortions and 4 percent had induced abortions. Both these proportions show high figures in the urban areas. Induced abortions are undergone by lower educated respondents below pre-degree level of education.

51. Still births and premature births among our sample respondents show a decline with their education levels. Still births and premature births are seen among the rural respondents below pre-degree level education.

52. Respondents opting private hospitals for delivery showed an increase with a hike in the education levels. Home deliveries have occurred only for rural respondents below pre-degree level of education.

53. 39 percent of our respondents have two children and 19 percent have three children. The percentage of respondents having more than four children belonged to the education category of below predegree level of education. Compared to urban respondents, our rural respondents had more children.

54. The proportion of mothers with 9-12 years and above 12 years of difference between first and last conception is seen mainly in the rural areas. But this phenomenon is seen mainly among mothers below SSLC level of education.

55. With regard to ailments among females, acute ailments and chronic ailments are seen more among the female members than among male members.

56. Compared to males, females reported the maximum number of ailing days in our survey. Majority of ailing females were suffering from ailments since more than six months prior to the survey. Even though females reported the maximum ailments, the proportion of females who did not consult a doctor is high. Majority of the ailing females who did not consult

a doctor belonged to the households with lower educated respondents, ie respondents below SSLC level of education.

57. 44 percent of mothers breast feed their children for 2 and above years. This proportion is high in the rural areas. Yet mother's education does not show a significant influence in the duration of breast feeding the child. This is mainly because educated mothers are working women.

58. Respondents giving food supplements to their children varied from 30 percent among LP educated mothers to 85 percent among mothers with post graduate level of education. Immunization coverage among children varied from 37 percent among illiterate mothers to 100 percent among mothers with SSLC level of education.

59. Of the total children covered by the survey 80.61 percent suffered from some kind of ailments. 74.49 percent suffered from acute ailments, whereas only 6.12 percent suffered from chronic ailments. Compared to the urban areas, children of rural areas suffered from various diseases. Fever, cough, diarrhea are the major ailments seen among the children of rural areas. Acute ailments among children are mainly seen among 43.87 percent (cumulative percentage) of children with mothers having an education upto high school level of education. 3.8 percent of ailing children with lower educated mothers are not taken to doctor. The proportion of children not recovered from ailments is also high among mothers with a low level of education.

60. 51 percent of children suffered from ailments for more than seven days and 38 percent for less than seven days. The proportion of ailing days

among children declined with the education level of their mothers. Compared to urban children, rural children showed the maximum number of ailing days in our survey.

Policy Implications

The following are the policy implications of the study:

Health Education involves the translation of what is known about health into desirable individual and community behaviour patterns through educational means. The infrastructure for health education is already built up in the state. While it is not sufficient to alter the behavioral patterns of the vast majority with respect to personal hygiene, environmental sanitation etc. In this context the school health education programme appears to hold promise. It can reach a sizeable proportion of the population when they are most receptive and their behaviour pattern gets moulded. Along with strengthening the health content in the general education curriculum, additional inputs needed for translating such health knowledge into practice can be introduced through health education. To make it more effective, teachers with requisite ability and motivation may be identified and given appropriate training.

‘Prevention is better than cure’ is a well recognized concept. However it still remains a myth. Probably this can be achieved by increasing health awareness among women through their education.

Efforts should be made to enhance the education level of women belonging to Muslim community which will act as a catalyst in improving their health awareness.

Areas of Future Research

The present study has confined health to a state of physical wellbeing. While the alarming rates of crimes, suicides, atrocities against women and children in Kerala calls for a research inclusive of the mental aspect of health.

Appendix 4.1

Education of husband and Type of ANC care taken

Education	Weight measured		Height measured		B.P checked		Blood test		Urine test	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	22.22	0	0	0	22.22	0	22.22	0	22.22	0
Lower Primary	16.83	21.05	4.6	3.95	19.84	21.05	19.52	21.05	20.48	21.05
Upper Primary	25.09	21.57	7.07	3.92	29.4	24.18	29.48	24.18	29.14	24.18
High School	34.2	32.79	9.97	8.13	37.56	34.15	37.69	34.96	37.95	34.96
Higher Sec.	37.2	32.79	12.2	6.56	40.45	34.43	40.85	36.07	40.65	36.07
Above	34.56	32.22	12.93	12.22	35.91	31.11	34.94	32.22	35.71	32.22

Source: Same as table 4.1

Appendix 4.2

Distribution of ANC Checkups And Place of Residence

Place of Residence	Govt./Municipal Hospital		Govt. Dispensary		chc/Rural Hospital		Primary Health Centre		Private Hospital Clinic	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Rural	10.68	7.8	0.04	0.18	0.49	0.72	0.37	0.54	21.9	22.18
Urban	10.19	10.7	0	0	0.06	0	0.13	0.43	22.9	20.2

Source: Same as table 4.1

Appendix 4.3

Place of residence and number of ANC visits

Number of Visits	Place of Residence			
	Rural		Urban	
	Kerala	Thrissur	Kerala	Thrissur
1	0.91	0.9	0.27	0
2	0.99	1.09	0.55	0.43
3	1.58	4.54	0.48	0.43
4	1.14	0.18	0.27	0
5	1.68	1.81	1.17	0.86
6	2.23	1.45	1.65	2.58
7	3.39	2.36	3.23	3
8	3.37	6.18	4.34	4.74
9	18.54	12.36	21.57	18.53

Source: Same as table 4.1

Appendix 4.13

Place of residence and visit by health worker

Place of Residence	Antenatal Visit by Health Worker			
	Yes		No	
	Kerala	Thrissur	Kerala	Thrissur
Rural	12.86	12	21.21	19
Urban	9.3	10.34	24.3	20.25

Source: Same as table 4.1

Appendix 4.14

Distribution of ANC Checkups And Religion

Religion	Govt./Municipal Hospital		Govt. Dispensary		chc/Rural Hospital		Primary Health Centre		Private Hospital/Clinic	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Hindu	12.35	11.1	0.06	0.2	0.6	0.62	0.41	0.41	18.3	18.2
Muslim	8.78	5.9	0	0	0.16	0.85	0	0	26.9	26.4
Christian	7.78	4.2	0	0	0	0	1.06	1.06	26.5	27.1

Source: Same as table 4.1

Appendix 4.6

Distribution of Post Delivery Complications With Place of Residence

Place of Residence	High Fever		Lower Abdominal Pain		Excessive Bleeding		Severe Headache	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Rural	3.12	4	2.47	3.6	0.96	1	2.1	3.2
Urban	2.89	3.4	2.48	2.1	0.68	0.43	1.58	1.7

Source: Same as table 4.1

Appendix 4.7

Education of Women and Awareness of Curing RTI

Education	Yes		No		Don't Know	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	8.18	7.14	4.55	14.2	6.36	35.7
Lower Primary	18.64	25	12.71	14.5	13.77	8.3
Upper Primary	23.98	25	15.18	12.5	14.29	12.5
High School	32.62	40.28	17.38	13.5	11.07	10.4
Higher Sec.	49.78	55.7	15.71	19.2	9.25	5.76
Above	61.42	62.4	12.11	14.18	8.48	6.38
Total	33.53	42.46	15.04	14.32	11.11	9.72

Source: Same as table 4.1

Appendix 4.8

Education of Women and Awareness of curing AIDS

Education	HIV/AIDS curable					
	Yes		No		Don't Know	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	4.55	7.1	41.82	71.4	19.7	14.2
Lower Primary	7.84	2	61.65	79.1	18.43	8.3
Upper Primary	7.99	4.16	72.83	80	13.59	13.3
High School	7.56	9	81.54	83.9	7.93	5.9
Higher Sec.	8.37	8.6	87.37	81.5	3.52	2.8
Above	4.84	6.3	92.56	90	2.25	3.5
Total	7.29	7.29	77.74	84.40	9.43	6.52

Source: Same as table 4.1

Appendix 4.9

Education of husband and anemia among adolescents

Education	Anemia-Adolescents							
	Mild Anemia		Moderate Anemia		Severe Anemia		Not Anemic	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	11.11	0	0	0	0	0	0	0
Lower Primary	10.79	9.21	1.9	0	0.95	0	1.59	2.63
Upper Primary	9.74	9.15	1.21	1.31	0.09	0	1.89	1.96
High School	7.94	5.42	0.99	0.81	0.26	0.27	1.86	1.36
Higher Sec.	7.52	4.92	2.24	3.28	0	0	2.03	0
Above	7.52	5.56	0.97	0	0	0	2.32	2.2

Source: Same as table 4.1

Appendix 4.10

Religion and anemia among adolescents

Anemia - Adolescents	Religion					
	Hindu		Muslim		Christian	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Mild Anemia	7.91	6.7	10.82	9.4	7.38	8.54
Moderate Anemia	1.28	0.83	1.64	1.7	0.65	0.53
Severe Anemia	0.33	0.2	0.28	0	0	0
Not Anemic	1.99	2	1.35	0	2.24	1.59

Source: Same as table 4.1

Appendix 4.11

Education of Husband and Duration of Breast Feeding

Edu_Hus	Duration in Months									
	Below 3		4 - 6		7 - 9		10 - 12		More than 12 Months	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	22.22	0	0	0	0	0	0	0	0	0
Lower Primary	11.11	11.8	7.14	6.5	0	0	0.16	0	0	0
Upper Primary	14.48	13	12.5	8.4	0.09	0	0.26	0.65	0.09	0
High School	15.8	17.8	16.93	13.8	0.3	0.27	0.26	0.81	0.39	0.27
Higher Sec.	14.43	11.4	20.12	16.39	0	0	0	0	0	0
Above	14.86	13.3	17.57	15.5	0.19	0	0.19	0	0	0

Source: Same as table 4.1

Appendix 4.12

Religion and Duration of Breast Feeding

Religion	Duration in Months									
	Below 3		4 - 6		7 - 9		10 - 12		More than 12 Months	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Hindu	13.93	15.7	13.35	10.4	0.1	0.2	0.06	0.2	0.2	0.2
Muslim	15.3	17	15.8	10.2	0.22	0	0.39	0	0.11	0
Christian	14.64	10.1	17	18	0.26	0	0.52	2.1	0.26	0

Source: Same as table 4.1

Appendix 4.13

Education of Husband and Place Where Last Vaccination Given

Edu_Hus	Govt. Hospital		chc/phc		Private Hospital	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Illiterate	0	0	11.11	0	0	0
Lower Primary	9.68	9.2	6.51	6.5	2.22	2.63
Upper Primary	14.83	11.1	9.83	8.4	3.28	2.6
High School	17.66	11.3	9.72	12.72	7.69	7
Higher Sec.	13.82	8.1	10.57	9.8	12.8	13.1
Above	13.32	10	6.56	2.22	13.71	21.11

Source: Same as table 4.1

Appendix 4.14

Awareness of Diarrhea with Place of Residence

Place of Residence	Give ORS		Salt and Sugar Solution		Continue Normal Food		Continue Breast Feeding		Give Plenty of Fluids		Other		Do Not Know	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Rural	20.2	22.5	17.3	18.18	4.2	5	4.95	4.18	10.98	6	1.63	0.36	7	4
Urban	21.4	18.96	16.9	15.9	2.82	3.4	3.85	2.5	10.82	5.6	1.3	0.43	5.58	6.4

Source: Same as table 4.1

Appendix 4.15

Awareness of Diarrhea with Religion

Religion	Give ORS		Salt and Sugar Solution		Continue Normal Food		Continue Breast Feeding		Give Plenty of Fluids		Other		Do Not Know	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Hindu	19.68	21.8	16.13	18	3.51	4.4	3.95	3.5	9.6	6.7	1.55	0	6.42	2.9
Muslim	20.56	23	17.45	16.2	4.07	3.4	5.6	2.5	12.35	3.4	4.05	0	7.47	7.6
Christian	23.87	19.6	20.97	17	4.74	5.85	5.27	4.7	12.92	5.3	1.05	1.59	5.54	7.4

Source: Same as table 4.1

Appendix 4.16

Religion With type of Salt used for Cooking

Religion	Type of Salt Used for Cooking					
	Iodized 15+ppm		Iodized 7 ppm		Not Iodized	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Hindu	44.94	53.6	8.28	11.1	39.02	29.3
Muslim	46.45	57.2	7.36	12.8	39.15	20.5
Christian	47.62	51	7.65	11.1	37.07	32.9

Source: Same as table 4.1

Appendix 4.17

Religion with Source of Drinking Water

Religion	Source of Drinking Water													
	Tap Inside		Tap Shared Public		Hand Pump Borewell		Well Covered		Well Uncovered		River		Pond	
	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur	Kerala	Thrissur
Hindu	5.44	5.03	13.79	14.2	3.07	2.7	30.43	38.5	36.32	32.4	0.13	0	2	0.41
Muslim	3.62	3.4	11.61	13.6	3.22	3.4	34.27	31.6	37.84	38.4	0.28	0	1.81	0
Christian	4.22	1.06	12.53	11.1	3.69	1.06	34.96	40.9	32	39.8	0.26	0.53	1.58	0

Source: Same as table 4.1

Appendix 4.18

Education of Husband with Source of Lighting

Education	Source of Lighting					
	Electricity		Kerosene		Other	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	77.77	0	22.22	0	0	0
Lower Primary	60.16	63.15	33.33	31.5	1.11	2.6
Upper Primary	64.31	65.3	29.31	29.4	0.68	1.3
High School	71.28	73.98	21.5	19.5	0.69	0.54
Higher Sec.	70.93	77	18.49	16.3	0.6	0
Above	71.24	74.4	18.72	18.8	1.15	2.2

Source: Same as table 4.1

Appendix 4.19

Education of Husband with Type of Fuel for Cooking

Education	Type of Fuel for Cooking							
	LPG-Electricity		Kerosene		Wood		Other	
	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>	<i>Kerala</i>	<i>Thrissur</i>
Illiterate	22.22	0	0	0	77.77	0	0	0
Lower Primary	13.49	11.84	0.95	0	79.84	85.62	0.32	0
Upper Primary	16.89	17.64	0.86	0.65	76.37	77.77	0.17	0
High School	21.67	21.68	1.2	1.08	70.72	71	0.3	0.27
Higher Sec.	23.98	27.86	0.41	0	65.44	65.57	0.2	0
Above	33.97	31.11	1.93	2.2	55	62.22	0.19	0

Source: Same as table 4.1

Appendix 4.20
Place Of residence,gender,age group and number of days ill(per1000)

Sex	Age	Ill In days			
		1-6	7-12	13&above	Total
Male	0-5	4.48	2.65	3.46	10.59
	6-15	4.89	1.43	1.83	8.15
	16-25	2.85	1.02	3.06	6.93
	26-35	4.48	2.65	4.07	11.20
	36-45	3.26	2.04	2.85	8.15
	46-55	5.30	1.43	3.26	9.98
	56-65	4.69	2.85	7.54	15.07
	Above 65	3.67	3.46	8.35	15.48
Female	Total	33.61	17.52	34.42	85.54
	0-5	2.36	1.09	2.90	6.35
	6-15	2.72	1.82	3.09	7.62
	16-25	6.53	1.45	5.81	13.79
	26-35	2.90	2.90	4.36	10.16
	36-45	4.17	1.45	3.45	9.08
	46-55	5.63	2.18	4.36	12.16
	56-65	4.54	1.27	5.63	11.43
Male	Above 65	4.90	0.91	5.26	11.07
	Total	33.76	13.07	34.85	81.67
	0-5	3.93	3.14	3.67	10.73
	6-15	2.36	1.31	1.83	5.50
	16-25	2.62	1.31	2.88	6.81
	26-35	3.93	1.83	3.67	9.42
	36-45	2.88	2.09	2.36	7.33
	46-55	3.93	2.88	3.40	10.21
Female	56-65	3.93	0.52	3.93	8.38
	Above 65	3.93	2.88	6.28	13.09
	Total	27.49	15.97	28.01	71.47
	0-5	3.14	2.36	1.83	7.33
	6-15	3.14	1.05	2.09	6.28
	16-25	3.14	1.57	3.14	7.85
	26-35	4.97	2.09	2.88	9.95
	36-45	2.88	1.31	3.67	7.85
Male	46-55	3.14	2.09	4.97	10.21
	56-65	5.76	2.36	4.71	12.83
	Above 65	4.71	0.79	3.14	8.64
	Total	30.89	13.61	26.44	70.94

Source: Same as table 4.44

Appendix 4.21

Place of residence, gender, age group and particulars of ailment - number of restricted days

Sector	Sex	Restricted In days				
		Age	1-6	6-12	13&above	Total
Rural	Male	0-5	7.23	2.81	2.81	12.85
		6-15	4.82	2.81	2.41	10.04
		16-25	3.62	2.01	2.81	8.43
		26-35	6.43	4.02	1.21	11.65
		36-45	5.62	2.41	2.81	10.84
		46-55	5.62	1.61	2.41	9.64
		56-65	6.83	3.21	8.43	18.47
		Above 65	5.22	3.62	9.24	18.07
		Total	45.38	22.49	32.13	100.00
	Female	0-5	3.83	2.30	3.07	9.19
		6-15	3.83	2.68	2.30	8.81
		16-25	7.28	3.07	4.22	14.56
		26-35	5.36	3.83	5.36	14.56
		36-45	6.90	1.15	1.92	9.96
		46-55	9.58	1.15	4.60	15.33
		56-65	6.13	2.68	5.75	14.56
		Above 65	7.28	0.77	4.98	13.03
		Total	50.19	17.62	32.19	100.00
		Urban	Male	0-5	8.13	3.13
6-15	4.38			1.25	3.13	8.75
16-25	2.50			0.63	2.50	5.63
26-35	6.25			3.75	3.75	13.75
36-45	4.38			1.88	4.38	10.63
46-55	9.38			3.75	5.00	18.13
56-65	6.25			0.63	3.13	10.00
Above 65	6.88			2.50	8.75	18.13
Total	48.13			17.50	34.38	100.00
Female	0-5		8.43	1.81	3.01	13.25
	6-15		6.02	1.20	1.21	8.43
	16-25		6.63	1.81	3.01	11.45
	26-35		9.04	2.41	1.21	12.65
	36-45		4.82	1.81	5.42	12.05
	46-55		4.82	3.62	6.63	15.06
	56-65		9.64	1.81	4.22	15.66
	Above 65		8.43	0.60	2.41	11.45
	Total		57.83	15.06	27.11	100.00

Source: Same as table 4.44

Appendix 4.22

Place Of residence,gender,age group and particulars of ailment –
confined to bed

Sector	Sex	Age	Confined to bed			
			1-6	7-12	13&above	Total
Rural	Male	0-5	10.92	0.84	0.00	11.76
		6-15	6.72	2.52	0.00	9.24
		16-25	4.20	1.68	3.36	9.24
		26-35	10.92	0.84	1.68	13.45
		36-45	10.08	0.84	0.84	11.76
		46-55	10.08	1.68	0.00	11.76
		56-65	10.08	1.68	3.36	15.13
		Above 65	11.76	2.52	3.36	17.65
		Total	74.79	12.60	12.60	100.00
	Female	0-5	7.19	.92	0	7.08
		6-15	9.72	.92	1.43	10.54
		16-25	10.56	1.76	2.27	13.06
		26-35	6.36	3.33	1.43	10.5
		36-45	9.72	.92	1.43	13.45
		46-55	11.40	.92	2.27	15.97
		56-65	12.24	1.78	3.10	18.49
		Above 65	8.04	0	2.27	10.92
		Total	75.28	10.54	14.18	100
		Urban	Male	0-5	8.40	0.84
6-15	5.88			0.00	0.00	5.88
16-25	4.20			0.00	0.84	5.04
26-35	5.88			0.84	0.84	7.56
36-45	5.88			2.52	0.84	9.24
46-55	11.77			0.84	2.52	15.13
56-65	4.20			0.00	0.84	5.04
Above 65	6.72			0.00	5.04	11.77
Total	52.94			5.04	11.77	69.75
Female	0-5		10.08	0.84	0.84	11.76
	6-15		5.88	0.84	0.84	7.56
	16-25		7.56	0.00	0.84	8.40
	26-35		9.24	0.00	0.84	10.08
	36-45		5.04	1.68	0.84	7.56
	46-55		6.72	0.84	0.00	7.56
	56-65		10.92	0.84	1.68	13.45
	Above 65		10.92	0.00	1.68	12.61
	Total		66.39	5.04	7.56	78.99

Source: Same as in table 4.44

Appendix 4.23 Place of residence, gender, age group and duration of stay in the hospital

<i>Sector</i>		<i>Stay_</i>	<i>Age</i>						<i>Total</i>	
			0 - 5	16-25	26 - 35	36-45	46-55	56 - 65		Above 65
Rural	Male	One week	8.76	5.9	6.92	0	0	6.92	8.76	48.45
		Two weeks	1.63	2.85	3.87	2.85	2.85	4.07	4.48	22.6
		Four weeks	0.81	0.2	1.21	1.22	1.21	4.47	4.26	13.38
		More than 4 weeks	0	0.2	0.81	0.81	0.61	2.24	1.43	6.1
		Total	11.2	9.15	12.81	9.97	10.77	17.7	18.93	90.53
	Female	One week	6.35	6.17	7.25	5.62	7.62	6.71	6.35	39.72
		Two weeks	0.54	1.99	2.9	3.63	3.62	2.72	1.99	15.4
		Four weeks	0.36	1.44	1.45	1.26	2.17	1.81	3.08	8.49
		More than 4 weeks	0	0.18	0.54	1.27	0.98	1.81	0.73	4.78
		Total	7.25	9.78	12.14	11.78	14.39	13.05	12.15	68.39
Urban	Male	One week	14.14	4.97	7.32	4.97	8.64	4.97	8.64	60.47
		Two weeks	0.79	1.04	1.3	1.83	2.88	2.88	4.19	16.49
		Four weeks	0.52	0.26	1.83	1.3	2.88	2.88	2.09	12.3
		More than 4 weeks	0	0.26	0.78	0.78	0.78	0.78	2.09	6.02
		Total	15.45	6.53	11.23	8.88	15.18	11.51	17.01	95.28
	Female	One week	7.59	5.76	8.64	6	8.11	8.9	4.71	58.37
		Two weeks	1.04	1.83	3.4	2.88	3.4	3.66	2.62	21.47
		Four weeks	0.26	0.26	0.79	1.05	0.78	2.09	3.66	9.68
		More than 4 weeks	0.52	0.26	0.52	0.52	1.04	2.09	1.3	6.8
		Total	9.41	8.11	13.35	10.45	13.33	16.74	12.29	96.32

Source: Same as table 4.44

Appendix 4.24 Place of residence,gender, age group and particulars of treatment before hospitalisation

Sector	Sex	Age	Treatment availedbefore	
			Yes	No
Rural	Male	0 - 5	4.28	6.92
		6-15	4.07	5.3
		16 - 25	2.65	6.11
		26 - 35	3.46	9.57
		36 - 45	3.67	6.31
		46 - 55	4.48	6.52
		56 - 65	8.76	8.96
	Above 65	8.35	10.59	
	Total	39.71	60.29	
	Female	0 - 5	3.99	3.27
		6-15	2.72	7.08
		16 - 25	7.99	9.26
		26 - 35	5.81	6.72
		36 - 45	5.81	5.99
46 - 55		10.16	4.54	
56 - 65		5.44	7.8	
Above 65	5.63	7.8		
Total	47.55	52.45		
Urban	Male	0 - 5	6.28	9.69
		6-15	2.09	4.71
		16 - 25	4.19	5.24
		26 - 35	4.71	7.59
		36 - 45	4.45	5.5
		46 - 55	0.654	9.16
		56 - 65	4.97	7.33
	Above 65	11.26	6.28	
	Total	44.5	55.5	
	Female	0 - 5	3.66	5.76
		6-15	4.19	3.93
		16 - 25	6.28	6.28
		26 - 35	6.28	8.12
		36 - 45	4.19	6.28
46 - 55		7.85	7.07	
56 - 65		7.33	9.42	
Above 65	5.76	7.59		
Total	45.55	54.45		

Source: Same as table 4.44

Appendix 4.25 Place of residence,gender,age group and duration of treatment in weeks

Sector	Sex	Duration of treatment (In weeks)	Age								Total
			0 - 5	6-15	16 - 25	26 - 35	36 - 45	46 - 55	56 - 65	Above 65	
Rural	Male	One week	6.70	4.64	3.61	4.64	2.58	4.64	6.19	3.61	36.60
		Four weeks	2.06	1.55	0.00	0.52	3.09	2.06	7.73	4.64	21.65
		More than 4 weeks	2.06	4.12	3.09	3.61	3.61	4.64	7.73	12.89	41.75
		Total	10.82	10.31	6.70	8.76	9.28	11.34	21.65	21.13	100.00
	Female	One week	5.81	4.26	4.26	4.26	3.88	7.36	3.10	2.71	35.66
		Four weeks	1.94	0.78	2.33	3.10	2.33	4.65	1.94	3.10	20.16
		More than 4 weeks	0.78	0.39	10.47	5.04	6.20	9.30	6.20	5.81	44.19
		Total	8.53	5.43	17.05	12.40	12.40	21.32	11.24	11.63	100.00
Urban	Male	One week	7.74	2.98	5.36	4.17	5.36	5.36	0.60	6.55	38.10
		Four weeks	4.17	0.60	1.79	5.36	3.57	2.98	5.36	4.77	28.57
		More than 4 weeks	1.79	1.19	2.38	0.60	1.19	6.55	5.36	14.29	33.33
		Total	13.69	4.76	9.52	10.12	10.12	14.88	11.31	25.60	100.00
	Female	One week	6.36	3.47	5.20	5.78	2.89	5.20	6.36	2.31	37.57
		Four weeks	0.58	4.05	1.16	1.73	3.47	2.31	4.62	1.73	19.65
		More than 4 weeks	1.16	1.73	7.51	6.36	2.89	9.83	5.20	8.09	42.77
		Total	8.09	9.25	13.87	13.87	9.25	17.34	16.18	12.14	100.00

Source: Same as in Appendix 4.1

QUESTIONNAIRE

Female Education and Health Status of Households in Kerala - A Case Study of Thrissur District

Serial No:

I General

[Please put a tick (✓) mark wherever necessary]

1. Name of Panchayat/Corporation
2. Sector 1. Urban 2. Rural
3. Name of respondent
4. Caste 1. General 2..OBC 3. OEC 4. SC 5. ST
5. Religion 1. Hindu 2.Christian 3.Muslim

6. Details of Family Members

Mem No.	Name	Age	Sex	Relationship with HOH	Marital status	Education	Occupation	Monthly Income (Rs.)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Codes: **Sex** 1=Male, 2=Female, **Relation** 1=Head of household, 2=Husband, 3=Wife, 4=Son, 5=Daughter, 6=Daughter-in-law, 7=Son-in-law, 8=Father-in-law 9=Mother-in-law, 10=Sister 11=Brother, 12=Grandson, 13=Granddaughter, 14=Sister-in-law, 15-Niece, 16-Nephew **Marital Status** 1=Married, 2=Unmarried, 3=Divorced/Separated, 4=Widowed **Education** 1=Illiterate, 2=LP, 3=UP, 4=HS, 5=SSLC, 6=PDC, 7=Degree, 8=PG, 9=Technical/Computer, 10=Others, 11-Degree+B.Ed **Occupation** 1=Unemployed 2=Self employed, 3=Regular employed, 4=retired and earning pension, 5=Retired not earning, 6=Not in labour force, 7=Daily wages

7. Main source of income

8. Area of land (in cents)

9. Income yielding assets if any

II Household Details

10. Type of House 1.Thatched 2.Tiled 3.RCC 4.Double Storied

11. No. of Bedrooms 1. Nil 2. One 3. Two 4. More than two

12. Bathrooms inside the house 1. Nil 2. One 3. Two 4. More than two
13. Separate Kitchen 1. Yes 2. No
14. Main source of drinking water 1. Pipe/Ground water within the house or yard 2. Public Tap/Public hand pump 3. Spring/River/Pond 4. Canal 5. Others
15. Electrification 1. Yes 2. No
16. Cooking Facility 1. Wood burning 2. Smokeless choola 3. Keosene
4. Gas 5. Electric
17. Ownership of house 1. Owned 2. Rented 3. Shared 4. Quarters
5. Others

18. Does your household own the following items? If yes number.

Item	No	Item	No	Item	No
1. Land Phone		2. Mobile phone		3. VCR/VCP/DVD player	
4. Mixie/grainder		5. Electric fan		6. Refrigerator	
7. Oven		8. Bicycle		9. Black n white TV	
10. Computer		11. Radio/transistor		12. Color television	
13. Washing machine		14. Sewing machine		15. Two wheeler	
16. Gas connection		17. Three wheeler		18. Car/Jeep/Lorry	

III Sanitation and Hygiene

19. Excretion 1. Own flush toilet 2. Shared flush toilet 3. Own pit toilet 4. Shared pit toilet 5. No facility 6. Field 7. Others
20. Disposal of waste water 1. To garden 2. Sanitary canal separately made for it
3. Others
21. Domestic Waste 1. Simply thrown out 2. Burns 3. Deposit in pit 4. Convert to manure
22. Water logging in the compound or surroundings 1. Yes 2. No
23. Mosquito menace at house 1. Yes 2. No
24. If you have animals at home, where do you keep them at night 1 inside the house
2. Outside the house 3. No animals

IV Consumption

Items (Monthly)	Rice/Wheat/Pulses	Vegetables/Fruits	Fish/Meat/Egg	Milk	Total
Rupees					

26. Do any family member drink extra milk regularly 1. Yes 2. No 3. If yes, specify whom
27. Do any family member need egg/fish/meat regularly other than usually prepared food
1. Yes 2. No 3. If Yes, specify whom
28. Do you give extra milk to children regularly 1. Yes 2. No
29. Use boiled water for drinking purpose 1. Yes 2. No
30. Do all family members dine together 1. Yes 2. No



39. Were there any complications in the delivery 1. Yes 2. No
40. If Yes, what were they? 1. Cesarian 2. Excessive bleeding 3. long period of labour 4. B.P patient 5. High blood sugar
41. Had milk, fruits etc when you were pregnant 1. Yes 2. No
42. Used to have iron folic tablets regularly when you were pregnant 1. Yes 2. No

VI Child Health

43. Was the child weighed at birth 1. Yes 2. No
44. How many children below 2.5 kg
- 45_1. Did you ever breast feed the child 1. Yes 2. No
- 45_2 Did the mother squeeze out the first milk from breast 1. Yes 2. No
46. How many months did you breast feed 1. less than 6 months 2. 6-12 months 3. one and a half years 4. 2 years and above
47. Why did you stop breast feeding
 1. Mother ill 2. Child weak 3. Nipple/breast problem 4. Insufficient milk 5. Mother working 6. Child refused 7. Became pregnant 8. Child became 2 years
48. How many months old was the child when you started giving regular food
49. Do you give any food supplements 1. Yes 2. No
50. If Yes, what are they? 1. Horlicks/Boost/Complan 2. Vitamin tablets 3. Iron tablets
51. Has the child received any vaccinations 1. Yes 2. No
52. Is the weight of the child measured regularly 1. Yes 2. No
53. Do you take any precautionary measure at home for caring the child from the occurrence of any disease
 1. Yes 2. No
54. Illness and Treatment Level Details of children since last 3 months

Mem_No.	Name of disease	No. of days suffered	Consulted doctor	Type of treatment	Recovered completely

Code: Name of Disease 1=Acute ailment 2=Chronic ailment
 Days suffered 1=less than seven days 2=more than seven days
 Months suffered 3=less than 6 months 4=more than 6 months

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