

# HOUSEHOLD HEALTH EXPENDITURE DURING COVID19 PERIOD IN KERALA AN ECONOMIC ANALYSIS

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## Abstract

### Introduction-

Catastrophic health expenditure during COVID-19 hospitalization has altered the economic picture of households especially in low resource settings with high rates of COVID-19 infection. This study aimed to estimate the Out of Pocket (OOP) expenditure and proportion of households that incurred catastrophic health expenditure due to COVID-19 hospitalisation in Kerala.

### Materials and Methods-

A Primary data collected study was conducted among a representative sample of 100 COVID-19 hospitalised patients in Thrissur district over four months, using a pretested interview schedule. The direct medical and nonmedical costs incurred by the study participants during hospitalization and the total monthly household expenditure were obtained from the respective COVID-19 affected households. Catastrophic health expenditure was defined as direct medical expenditure exceeding 40% of effective household income.

### Results –

The study revealed that 49.7% of households had catastrophic health expenditure, with 32.9% having incurred Distress financing. Multivariate analysis revealed being below poverty line, hospitalization in private healthcare facility and presence of co-morbid conditions as significant determinants of catastrophic health expenditure.

### Conclusion-

High levels of Catastrophic health expenditure and distress financing revealed by the study unveils major unaddressed challenges in the road to Universal health coverage.

## 1. Introduction

The role of health in human capital formation is immense to enhance the productivity of population of a nation. Spending on health is a

significant variable in determining the health capital. Reasons behind on health are differ from person to person. The motive behind spending on health may be preventive health care, promotive health care and tertiary health care. Both microeconomic and macroeconomic aspect of spending on health is crucial for economic analysis of expenditure on health. In microeconomic perspective health is considered as an input to generate income which in turn to buy goods and services. Government involvement in health spending and its effect on individual decision constitutes the macroeconomic perspective of spending on health.

Health is multidimensional. As per the Constitution of World Health Organisation (WHO) "Health is a state of complete Physical, mental and social wellbeing, and not merely the absence of disease or infirmity" (WHO, 1948), WHO definition captures physical, mental and social dimensions. An Individual's demand for medical services is irregular and unpredictable. There are many factors contributed to good health such as nutritious food, pure drinking water, pollution free environment, opportunity for work and mental peace. Health status will never be the same for medical services is irregular and unpredictable. There are many factors contributed to good health such as nutritious food, pure drinking water, pollution free environment, opportunity for work and mental peace. Health status will never be the same for all. Different people need different treatments. Different treatments entail different costs. Their illness and their cures will not impose the same economic burden. Every system of risk pooling must face up to the

challenge of heterogeneity. Heterogeneity makes health care a thing apart. The risk and uncertainty are crucial elements in medical care (Akerlof, 1970).

Corona Virus Disease Known as Covid-19 (previously Known as “2019 novel corona Virus”). The name of Virus is announced by World Health Organization (WHO) in 11th February 2020. The coronavirus outbreak was originated from Wuhan, Hubei province, china in late December 2019. The virus spread all over the World from Wuhan within days through people with Covid-19 positive through their small droplets from nose or mouth. It spread like a wild fire from people to people and from one country to another rapidly. The virus spread to Thailand, Japan, U.S, South Korea, India, Spain, Italy, France, Germany, Iran, Netherland, Switzerland, United Kingdom, Singapore etc. The virus hit so many people very hardest around the World Several Countries made an announcement of lockdown to avoid the spreading of the virus. So many cases were reported daily in the world almost 184 countries and above 1.5 lakh deaths. Due to the immense impact of the virus in worldwide. The World Health Organization (WHO) declared Covid-19 as pandemic in 11 March 2020. Kerala Health Department take certain proactive measures by ensuring special medical attention to those people who are in quarantine and those who are unwilling to take medical attention having symptoms. The Government Issue strict instructions to hospital staffs, health workers, other government and non-government officers including public by revealing up-to-date information about the current situation of the state in the case of vaccine-less virus. It helps to prevent the spreading of virus. In order to monitor and avail necessary services to ordinary people from local body level, government ensure the help of health workers (ASHAWORKERS).

Stay home and stay safe- a sounding manthra during these days in the nook and corner of the world, especially in India in the wake of Covid-19 spread, everybody is obligated to stay at home in the midst of uncertainties. As a coin has two sides, one group of people are enjoying the situation. Corona Virus has given time them to play with their children, recalling the golden days of childhood, challenging the cooking capacity of the men, testing new dishes and they are enjoying their family life with their savings in the past. But on the other side, a group of people undertone that they have no job, no money and no food. The daily works across different avenues are badly hit by the spread of Covid-19 and followed by the lock down. On March 28th The Hindu reported that livelihood of around five lakh domestic helpers are in jeopardy and future is uncertain for women work force in Kochi. No one is allowing outsiders to enter their homes for fear of contracting the virus. If it is five lakhs in Kerala, we can guess the situation of India and all over the world. Farmers are worried after the announcement of the national lockdown and demand for milk and milk products are diminished. Online supplier Milk basket had stopped delivery services and reported that the shutdown is resulting dumping of 15,000 liters of milk and throwing over 10,000 kg of fruits and vegetables.

### **Covid-19: Crisis of Households**

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In this extraordinary and unprecedented situation, Covid-19 has effectively brought normal life to a halt of families and it will affect the economic wellbeing of a large number of people. Lottery workers, private security guards and BSNL contract employees are also facing loss of wages. Micro, medium and small enterprises (MSMEs) in the state of Kerala have sought a helping had from the employee's state insurance Corporation in the wake of the nearly a month-long lockdown across India to fight the Covid-19 pandemic. The deep financial trouble of MSMEs will lead to a

financial crisis in lakhs of families in India. Migrant workers are the other subject of thought for the Governments. With twenty-four hours they lost their jobs and income. Since there is no gurantee for their wages and shelter, they also want to move to their home town. Business today estimated that about 300 million informal workers could be vulnerable and seeking help. According to the most recent labour statistics, 25 percent of rural households and 12 percent of urban households rely on casual labour as their main source of income and they have no fixed flow of income for running their daily life. Fall in employment causes large losses for workers. The covid-19 outbreak has caused a mass travel ban and strict tourist restrictions as governments across the globe are trying to combat the spread of novel corona virus. Because of this, many airlines were forced to cancel their flights, resulting in mounting lissess.5.5.crs. People are working in tourism and hospitality fields. Corona virus may leave 70 percent of them jobless. The strain on income resulting from the decline in economic activity will devastate workers close to below the poverty line and the shocks of pandemic can easily push them into poverty. The following diagram figures out the percentage share of all workers in India. Labour Force Participation Rate (LFPR) in usual status (ps+ss) for persons of age 15 years and above.

**All- India.**

Survey period	Rural		Urban			Rural + Urban			
	Male	Female	Person	Male	Female	person	Male	Female	person
2022-23	80.2	41.5	60.8	74.5	25.4	50.4	78.5	37.0	57.9
2021-22	78.2	36.6	57.5	74.7	23.8	49.7	77.2	32.8	55.2
2020-21	78.1	36.5	57.4	74.6	23.2	49.1	77.0	32.5	54.9
2019-20	77.9	33.0	55.5	74.6	23.3	49.3	76.8	30.0	53.5
2018-19	76.4	26.4	51.5	73.7	20.4	47.5	75.5	24.5	50.2
2017-18	76.4	24.6	50.7	74.5	20.4	47.6	75.8	23.3	49.8

Source: - Periodic Labour Force Survey 2017-2023)

In rural areas, LFPR Increased from 50.7% in 2017- 18 to 60 .8% in 2022-23 while for urban areas it increased from 47.6% to 50.4%. LFPR for male in India increased from 75.8% in 2017-2018 to 78.5% in 2022-23 and corresponding increase in LFPR for female was from 23.3% to 37.0%.

The agonies in the each and every field of the country are the signboard to the economic crisis of the families. The effects will be far – reaching, pushing millions of people into unemployment, underemployment and working poverty. As revenue streams of firm get impacted, employment, particularly of daily wagers and temporary workers, will be in the firing line. The economic and psychological consequences for families have been severe. As family is the basic unit of the society.

**State Clocks 6.6% growth in 2022-23**

Kerala’s economy recorded “steady growth” in 2022-2023 with the Gross State Domestic Product (GSDP) Clocking 6.6% growth at constant prices; compared with 2021-2022 when Kerala recorded the highest growth in a decade in a post-COVID-19 recovery spurt, the growth rate appears to have settled in 2022-23. The GSDP had clocked 12.97% growth in 2021-2022. But the two years cannot be realistically compared. This is because the higher growth rate in 2021-22 was from a pandemic- induced low base of -8.43% the previous year, senior planning Board officials said.

REVENUE RECEIPTS 2022-2023	
Rise 13.79%	,1,32,724,65 cr.
State’ Own Tax Revenue 54.22%	71,968.16 cr.
State’s Own Non-Tax Revenue 11.39%	15,117.96 cr.
Share of Central Taxes, grants 34.39%	45,638.54 cr.

In 2022-2023, Kerala’s economy posted positive growth for the second consecutive year after the pandemic. The economic review noted that this has been achieved in the face of “financial constraints and adversities”.

**Per capita income**

Per capita income in Kerala has risen by 6.06% to 1, 74,214 compared to 1, 64,261 in 2021-22, according to the Economic Review tabled in the House by Finance Minister. K.N. Balagopal. Sector – wise, the primary sector at current prices grew by 4.96% compared to 6.96% compared to 6.91% the previous year, the secondary sector by 14.19% compared to 20.79%, and the tertiary sector 11.53% against 24.08% the previous year. The Economic Review observed that in 2021-2022,in Kerala registered a relatively higher growth rate in GSDP on account of the post-pandemic recovery trend which was propped up by stimulus packages. Fiscal deficit reduced to2.44% and revenue deficit to 0.88% of the GSDP.

The Economic Review observed that a series of Union government policies have resulted in a drastic decline in Central transfers to Kerala. “Today, the state economy faces unprecedented financial difficulties because of unfairness and inequality in Centre –State financial relations and failure by the Government of India to implement policies of genuine federalism”, it said. Revenue expenditure decreased to1, 41, 950.94 crore in 2022-2023, compared to 1, 46,176.51 crore the previous year. The ratio of revenue expenditure to GSDP dipped to 13.57% from 15.64%.

**Public debt**

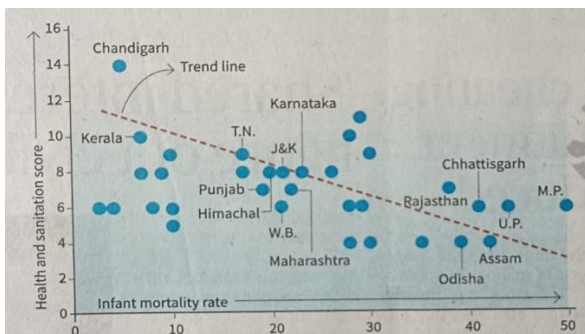
The outstanding public debt of the State has been pegged at2,38,000.96 crore, and the growth rate of public debt is down to8.19% the public debt-GSDP ratio also decreased from 23.54% 2021-22 to 22.75%in 2022-23.

**Higher autonomy of panchayats leads to better health outcomes**

The reserve bank of India study, based on which the report was written, had called for greater autonomy for panchayats and empowerment of local leaders. This data point aims to show that greater autonomy of panchayats results in better governance and leads to superior outcomes.

Panchayats collaborate with health departments to maintain clinics and dispensaries in rural areas. By encouraging institutional deliveries and ensuring prenatal and postnatal checkups, they help reduce maternal and infant mortality rates (IMR). They also provide clean water and sanitation facilities. All these helps improve health outcomes. The RBI study uses two datasets to show that panchayats which scored high on the health, nutrition, and sanitation parameters also had lower rural IMRs

**Chart 1:-** The shows the state/ UT-wise avg. of panchayat-level health, nutrition and sanitation scores(vertical axis) and infant mortality rate(horizontal axis)

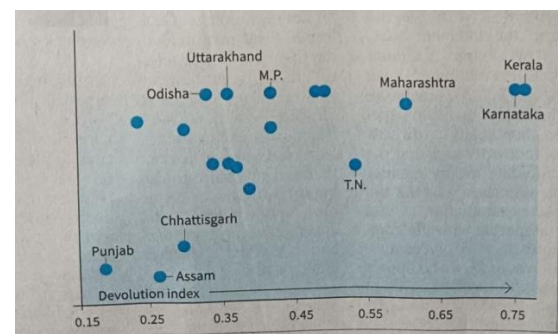


**Source: - Secondary Data**

Chart 1 shows the state- wise average of panchayat- level health, nutrition, and sanitation scores calculated by the Ministry of panchayati Raj (MoPR) on the vertical axis. The scores of all the panchayats in a state were averaged to present the state’s overall score on these parameters. On the horizontal axis, the IMR of the state is presented. Both data were for 2018-19. In general, as shown by the trend line, the higher the score on health, nutrition, sanitation parameters, the lower the IMR. Major states including Kerala, Tamil Nadu,

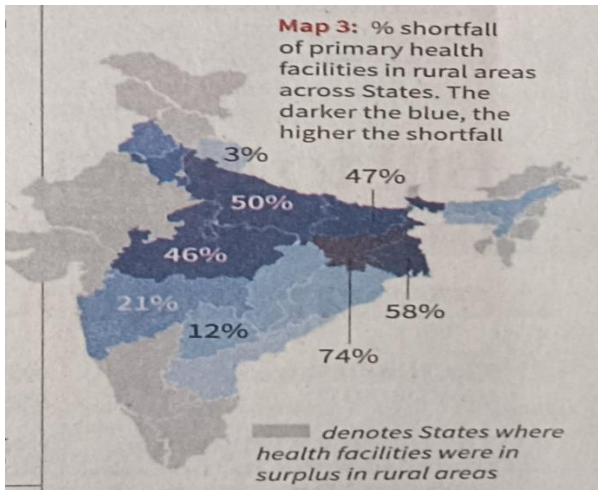
Himachal Pradesh, Punjab, Jammu and Kashmir, Karnataka, Maharashtra, and West Bengal all feature on the top left. That is, they have a high score and a low IMR. Madhya Pradesh, Uttar Pradesh, Assam, Rajasthan, Odisha, and Chhattisgarh can be seen on the bottom right- they have a high score and a high IMR. Given that panchayats play a vital role in health management and as chart 1 shows that some states outperform others,

**Chart2:-** The chart shoes the devolution index calculated by the Ministry of Panchayat Raj, across States



Source: - Secondary data

Chart 2 checks whether these better-performing states also have greater autonomy at the panchayat level. For this, the RBI study uses the devolution index prepared by MoPR using independent agencies. The devolution index rates a state based on three parameters. Plots the state’s devolution index on the horizontal axis. The states on the right- Kerala, Karnataka, Maharashtra, and Tamil Nadu- have higher devolution scores. The states on the left – Assam, Odisha, Chhattisgarh, Madhya Pradesh and Uttarakhand have lower devolution scores. Chart 1 and 2 when read together shows that panchayat autonomy plays a vital role in better health outcomes in rural areas.



Source: - Secondary Data

Which shows the percentage shortfall of primary health facilities in rural areas also concurs with this conclusion as states which perform better on the index have a surplus, with a few exceptions. Uttar Pradesh, Bihar, Jharkhand, Madhya Pradesh and west Bengal have very high levels of shortage. On the other hand, Kerala, Tamil Nadu, Karnataka and Himachal have none.

## 2. Objectives of the Study

The trend and tendencies of government and household expenditure on health at the national and state level is the core of the present study. The deviation of expenditure on health both by the government and the household and the corresponding burden are considered. The financing of health spending is a major concern for the government and the households. The study focuses the factors that related to the household health expenditure during covid-19 period in Kerala an economic analysis. The study analyses the economics of spending on health. The specific objectives of the study are;

1. To analyse the public expenditure on health in India and Kerala during Covid-19 period.
2. To compare the disparity of household expenditure on health in India and Kerala.

3. To identify the major determinants of household health expenditure in Kerala during Covid-19 period.

4. To examine the major disparity of household health expenditure in Thrissur district of Kerala.

## 3. Review of Literature

Various aspects of health and expenditure on health are considered for literature review. It helps to examine the various concepts of health expenditure and pattern of expenditure on health between countries and within the country. It throws light on significance of expenditure on health both by the government and households.

Dey et al. (2013) remarked that social health issues, natural calamities and disasters, nutritional aspects have accumulative effect on the wide disparities in the existing health infrastructure. Lack of proper infrastructure facilities has limited the ability of the facilities to drive the health care standards in the majority of the people in the country. The high morbidity and mortality levels in the country indicates the unsatisfactory health indices which in turn indicates the limited success of the public health system in meeting the preventive and curative requirements of the general population in India.

Rajesh Kumar and Nalraj (2014) examined the causal relationship between health care expenditure and economic growth in Kerala, Orissa, Tamil Nadu and Madhya Pradesh during 1991-2010. The study considered that good health is a decisive factor in the reduction of poverty and promotion of sustainable development. The study finds that there exists a unidirectional causality from health expenditure to economic growth. The increase in demand for better health care leads the private health providers to supply such goods and services. This shift from public to private health care utilisation reduced economic

growth contribution on public health care expenditure.

Joe (2015) examined the incidence and correlates of health care financing in India by using cross sectional data from the Morbidity and Healthcare Survey 2004 conducted by NSSO. With the help of multivariate logistic regression the study found that there exist significant socio-economic gradient in the distribution of distressed health care financing for marginalised sections of the society. The financial burden of non-communicable diseases is high among backward social groups. The treatment cost of elderly and female members can be financed mainly by the contribution from friends and relatives.

Kulkarni (2016) examined the relationship between health expenditure and health outcomes in BRICS nations from 1995-2010. This study is based on panel data regression with fixed effects model using data from the World Health Organisation and World Bank databases. The study found a positive association between health outcome and the per-capita GDP, adult literacy rate and out-of-pocket expenditure. The study found that higher the public health expenditure lower the health outcomes in terms of IMR. The study also found that a negative relationship between age dependency relation and health production. Here health can be categorized as a quasi-public good. The study points out that the increase in public health expenditure is not sufficient to achieve the desired improvements in health economics.

Barenberg et.al. (2017) studied the impact of public health expenditure on infant mortality rate employing a pane dataset of Indian states between 1983-84 and 2011-12. The study finds out that there is a negative relationship between public health expenditure and infant mortality rate in India. The study shows that one percent increase in public health expenditure by state level net domestic products is associated with a

reduction in the infant deaths per 1000 live births. Other relevant covariates like political competition, urbanisation and female literacy reduce the infant mortality rate.

Rahman (2018) examined the nexus between health care expenditure and health outcomes in SAARC and ASEAN region by using World Bank datasets of 15 countries between 1995 and 2014. The study used fixed and random effects model to find out the effects of health care on health outcomes in relation to life expectancy at birth, crude death rate and infant mortality rate. The study found that private health care expenditure had a significant effect in reducing the crude death rate but public health expenditure exhibited the opposite result. Total health expenditure had a significant effect in reducing in infant mortality rate and extent of effect of private health expenditure was greater than that of public health expenditure. The study emphasized transparency, accountability and efficient utilization of public sector health funds.

Harapan Harapan et al (2019) in early December 2019, an outbreak of coronavirus disease 2019, an outbreak of coronavirus disease 2019(COVID-19), caused by a novel severe acute respiratory syndrome coronavirus2 (SARS-Co-2), occurred in Wuhan city, Hubei Province, China. On January 30, 2020 the World Health Organization declared the outbreak as a Public Health Emergency of International Concern. As of February 14,2020,49,053 laboratory-confirmed and 1,382 deaths have been reported globally. Perceived risk of acquiring disease has led many governments to institute a variety of control measures. We conducted a literature review of public available information to summarize knowledge about the pathogen and the current epidemic. In this literature review, the causative agent, pathogenesis and immune responses, epidemiology, diagnosis, treatment

and management of the disease, control and preventions strategies are all reviewed.

Elumalai Rajalakshmi, Akhil Sasidharan..K Parthipan (2023) the coronavirus disease 2019(COVID19) Pandemic increased the utilization of healthcare services. Such utilization could lead to higher out-of-pocket expenditure (OOPE) and catastrophic health expenditure (CHE). We estimated OOPE and the proportion of households that experienced CHE by conducting a cross- Sectional survey of 1200 randomly selected confirmed COVID-19 cases.

**4. Methodology**

The study is both analytical and theoretical in nature. The present study collected data both from primary and secondary sources. The secondary data were collected from Economic Reviews of the state Planning Board, Census Reports, Reports of the Directorate of Economics and Statistics, RBI Database, Economic Surveys, Human Development Reports, Sample Registration System Reports, National Family Health Survey Reports and Reports of the Directorate of Health Service Trivandrum. Electronic Database such as INFLIBNET and Google Scholar were also used. Relevant websites also forms source of secondary information.

In the primary data, both quantitative aspects are considered for identifying the determinants of household health expenditure. Hence household is considered as the basic unit of ananalysis for analyzing the determinants of annual household expenditure. The primary data analysis is based on cross section data collected through a household survey conducted among 100 households from rural and urban areas with the support of a structured questionnaire. The present study has been conducted in Chalakudy Municipality, Irinjalakuda Municipality. These selected areas are chosen for the study considering the health parameter’s such as birth rate, maternal

mortality rate, institutional delivery, immunization. The criteria for selecting this setting were geographical proximity, feasibility of conducting the study, availability of the samples and familiarity of the investigator with the settings.

**5. Observation and Result**

Health expenditure during COVID-19 hospitalization has altered the economic picture of households specially in low resources settings with high rates of COVID-19 infection. This study aimed proportion of households that incurred household health expenditures due to COVID-19.

**Table: - 5.1.** Demographic Characteristics and demographic distribution of COVID-19 Patients in Kerala, 2020-2021.

Characte ristics	Category	n	(%)
Total cases		5,247,177	
<b>Gender</b>			
	Female	2,422,378	(46.1)
	Male	2,708,870	(51.7)
	Transgender	115,929	(2.2)
<b>Age group in years</b>			
	0-5	157,628	(3.0)
	6-20	772,793	(14.7)
	21-40	1,824,510	(34.8)
	41-60	1,557,464	(29.7)
	>60	818,853	(15.6)
<b>Districts</b>			
	Ernakulam	645,467	(12.3)
	Malappura m	578,930	(11)
	Kozhikode	559,458	(10.7)
	Thrissur	550,280	(10.5)
	Thiruvanan thapuram	508,240	(9.7)
	Kollam	412,782	(7.9)
	Palakkad	384,038	(7.3)



	Kottayam	345,063	(6.6)
	Alappuzha	326,260	(6.2)
	Kannur	292,502	(5.6)
	Pathanamthitta	206,322	(3.9)
	Idukki	158,616	(3)
	Kasaragod	143,703	(2.7)
	Wayanad	135,516	(2.6)

	Rural	Urban	Total	
Actual population	1020537	2089790	3110327	2974232
Male	485875	988790	1474665	1422052
Female	534662	1101000	1635662	1552180
Sex Ratio(per100)	1100	1113	1109	1092
Child Sex Ratio (6-6 Age)	955	944	948	958
Child Percentage (%)	9.43	9.23	9.30	11.18
Male Child Percentage (%)	10.13	10.03	10.07	11.94
Female Child Percentage (%)	8.79	8.51	8.60	10.48
Average Literacy (%)	93.99	95.97	95.32	92.27
Male Literacy (%)	96.09	97.41	96.98	95.11
Female Literacy (%)	92.11	94.70	93.85	89.71
Population Growth (%)			4.58	8.66
Proportation to Kerala Population (%)			9.32	9.34
Area Sq.Km			3032	3032
Density/Km2			1026	981

Demographic characteristics and demographic distribution of COVID-19 patients in Kerala, 2020-2021

There were slightly more males than females. The most common age group affected was between 20-40 years, with 3% of children aged up to 5 years and 16% of adults over 60 years also affected. There were five districts (Ernakulam, Malappuram, Kozhikode, Thrissur, and Thiruvananthapuram) that each reported over 500,000 COVID19 cases, comprising between them over half (54%) of the total number of cases in the state.

Table: - 5.2. Demographic Profile of Thrissur District

Description	2011	2001
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Source: - Census of India 2011



Thrissur district, the Cultural capital of Kerala, is the Center of health care in the central Kerala since it covers the health care needs of the people in Thrissur, Palakkad, Malappuram, and northern part of Ernakulam district, Thrissur district is the fastest becoming educational capital of Kerala due to the existence of various medical, engineering, Ayurvedic, veterinary and art and science Colleges. Kerala University of Medical and Allied Sciences is located at Thrissur. There are four medical Colleges in Thrissur district. The three allopathic medical colleges in Thrissur district are Government Medical College, Thrissur, Jubilee Mission Medical College and Research Institute, and Amala Institute of Medical Sciences. Thrissur district is also well known for its Ayurvedic treatment. There are two Ayurveda Colleges, Vaidhyaratnam Ayurveda College, Ollur and Poomully Neelakandan Namboothiripad Memorial Ayurveda medical College, Cheruthurthy. Thrissur district has 7 Taluks (Thalappilly, Chavakkad, Kodungalur, Thrissur, Mukundapuram, Chalakudy and

kunnamkulam) and 255 villages. There are 88 Grama panchayaths, 16 Block Panchayath in the three-tier system of rural local bodies. There are 7 urban local bodies consist of 6 Municipalities and 1 Corporation.

**Table: - 5.3. Distribution of Households by Type of Treatment.**

Types of Treatment	Rural	Urban
Specialty	15	10
General	25	20
Specialty + General	10	15
<b>Total</b>	<b>50</b>	<b>50</b>

Source: - Survey Data.

Health care treatment may be general Treatment or Specialty Treatment. It is noticed that 25 of rural areas and 20 urban households utilize general treatment and 15 of rural and 10 of urban households utilize specialty treatment. Further there are 10 of rural and 15 of urban households utilize both specialty and general treatment.

**Table 5.4:- Religion**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hinduism	45	45.0	45.0	45.0
	Islam	24	24.0	24.0	69.0
	Christianity	31	31.0	31.0	100.0
	<b>Total</b>	<b>100</b>	<b>100.0</b>	<b>100.0</b>	

Source: - survey Data

Table 5.4. Religion wise distribution of rural and urban households in Thrissur district

constitutes 45 percent of Hinduism followed by 24 percent Islam and 31 percent of Christianity.

**Table 5.5 :- Household Income status**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BPL	53	53.0	53.0	53.0
	APL	47	47.0	47.0	100.0
	<b>Total</b>	<b>100</b>	<b>100.0</b>	<b>100.0</b>	

Source: - Survey Data

Household expenditure is mainly dependent upon the household income. Hence the

occupational background of the head of the household is considered under study to

examine the determinants of household health expenditure. Generally income is one of the major determinants of consumption expenditure of households. It is evident that household health expenditure is low for poor income households both in rural and urban

area. Household health expenditure is substantially high for high income households both in rural and urban area. Household income status frequency household health expenditure is BPL 53 percent and APL 47 percent based on income of the households

**Table 5.6:- Catastrophic and non-catastrophic households**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Catastrophic	59	59.0	59.0	59.0
	Non-Catastrophic	41	41.0	41.0	100.0
	Total	100	100.0	100.0	

Source: - survey Data.

The Covid-19 pandemic had catastrophic impact on various governments globally, be it developed or less developed. One of the major challenges faced by the governments was with regard to the lack of facilities. i.e., both the manpower and infrastructure needed to combat the pandemic and to manage the escalating number of cases, especially those at high risk like old and those with serious illness. Even the developed economics have struggled to cope with this huge demand. Same is the case with a

country like India. Kerala is a bit different due to the unique model of development with better education and healthcare indices connected in the beginning with the remittance income. Among the 100 households surveyed, it is seen from Table 5.6 that 59 percent Catastrophic and 41 percent non- Catastrophic expenditure. Catastrophic expenditure is a serious issue existing in the context of healthcare system in Kerala.

**Table 5.7 :- Positive performance of health care services system During Covid-19**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Home visit	30	30.0	30.0	30.0
	PHC Medicine	42	42.0	42.0	72.0
	Food Provide	28	28.0	28.0	100.0
	Total	100	100.0	100.0	

Source: - survey Data.

Table 5.7 shows the Frequency of positive performance of health care services system during Covid-19. About 42 percent PHC medicine that they have health care services

system. It shows that 30 percent Home visit and 28 percent Food provide positive performance of health care services system during covid-19.

**Table 5.8:- Cross tabulation of Type of locality \* Health insurance scheme**

Count	Health insurance scheme	Total

		Government funded	Arranged households	Employer (not govt) supported	Health protection	others	
Type of locality	Rural	4	19	15	13	0	51
	urban	3	17	20	7	2	49
Total		7	36	35	20	2	100

Source: - Survey Data

Table 5.8 shows the cross tabulation of health insurance scheme. Rural area 51 percent health insurance scheme and 49 percent urban area health insurance scheme. Most of the non-institutional expenditure is not covered under voluntary prepayment. This would enhance the

health expenditure of households. The expenditure for government funded scheme of health insurance is low both in rural and urban area compared to the other type of insurance scheme.

**Table 5.9:- Problems of Households in Relation to Expenditure**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	inadequate saving	9	9.0	9.0	9.0
	insignificant cooperation of the head of household	10	10.0	10.0	19.0
	inadequate of health consciousness	15	15.0	15.0	34.0
	inadequate insurance participation	18	18.0	18.0	52.0
	insufficient information health care facilities	15	15.0	15.0	67.0
	inadequate support from the government	16	16.0	16.0	83.0
	infrastructure in government hospitals	9	9.0	9.0	92.0
	inadequate-financing	5	5.0	5.0	97.0
	sub-optimum debt position	3	3.0	3.0	100.0
	Total	100	100.0	100.0	

Source: - Survey Data

Lack of medicines and lack of manpower are the main problems faced by the rural households in relation to government hospitals. Government implemented new programmes on health care. But lack of information about these programmes causes hurdles in the health care

of common people. Information asymmetry is highest in health care. The complexity of health care system aggravate the problems of households in relation to expenditure. Poor condition of hospitals and poor behavior of employees are the problems faced by the urban

households in relation to government hospitals. While in the case of inadequate saving 9 percent and inadequate of health consciousness 15 percent are the main problems to tackle high problems of inadequate insurance participation. The least affected the problem is the sub-optimum debt position. Lack of health consciousness and poor information on health care are the other problems faced by the households in relation to expenditure on health.

## **6. CONCLUSION**

Public expenditure on health is the first and foremost variable in determining the human capital formation through improvement in health- capital. However, optimum- mixture of public and household expenditure on health is inevitable to improve the productivity of the population in an equitable and sustainable manner. The public health expenditure on health is comparatively low when compared to household expenditure on health. Among major states in India, Kerala is far ahead both in terms of expenditure on health and parameters of health. In this context, the present study attempts to analyze the determinants of household expenditure on health in Kerala.

The average annual household health expenditure of rural households is significantly different from that of urban households. The average annual household health expenditure of rural households is lower than that of urban household. The annual household health expenditure of represents corresponding to the categories of cast is not significantly different from that of the reference category. The household expenditure of poor families is low in the district. Similarly, the nature of diseases have substantially influenced on the household expenditure on health. The percentage of household budget allocated to health expenditure is also substantially influenced by the nature of diseases and income.

The study shows that even though the household health expenditure goes through a

lot of stress and struggles. Household health expenditure were whole heartedly ready to work during covid-19 outbreak. Even with coverage of medical expenses and life insurance which is provided by the central government, the risk they take when they interact with patients is immense. Health workers along with a hike in remuneration, provisions for incorporating risk allowance for their field activities during epidemics and pandemics should be done

Expenditure on health comprises of two aspects: what the government spends on health and what is spent privately by citizens on looking after their health. The government spends on investing in and running hospitals, clinics, medical schools, and laboratories; it also spends on medical research. In many countries it pays the salaries of doctors and other health professionals directly. It may also procure drugs for free disbursement through clinics or pharmacies. Citizens in their private capacity spend money for consultations, for buying drugs, paying hospitals for treatment, for investigative procedures and such, often in less developed countries, they have to pay this out of their savings or 'out-of-pocket'. In advanced countries either the government provides most or all health benefits to everyone through a system of national health services, in which case this is financed primarily from taxes, or most of the population is covered by health insurance. In either case out-of-pocket expenditure for the citizen is minimum. Thus in poorer countries people actually have a higher burden of spending on health.

## **7. Recommendations and Policy Implications**

The analysis revealed major determinants and constraints of the public and household spending on health. The study put forward the following policy implications.

1. The role of voluntary prepayment in expenditure on health is immense.

Therefore, government should allocate more funds to the health insurance scheme of the poor families.

2. Government should make some urgent measures to improve the quality and quantity of infrastructure in government hospitals in Kerala especially in the context of COVID-19.
3. Government expenditure is very important in determining the household expenditure on health.
4. The Central government dexterously intervened during the COVID period and passed an ordinance to protect them. But, it cannot make them stress free. Proper support and counseling should be provided to them.
5. Health- card to the poor in the private hospitals will be a viable option to converge the services of government and private medical institutions in the state.

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