Response to Covid-19 in Kerala:
A Health System Analysis

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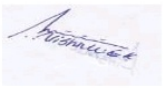
DECLARATION

I declare that the dissertation entitled **"Response to Covid-19 in Kerala: A Health System Analysis"**, submitted by me for the award of the degree of **Master of Philosophy** at Jawaharlal Nehru University, is my own work. The dissertation has not been submitted for any other degree of this university or any other university.



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CERTIFICATE

We recommend that this dissertation be placed before the examiners for evaluation.

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Abbreviations

Abbreviations	Full forms
ADS	Area Development Society
APL	Above Poverty Line
ARI	Acute Respiratory Infections
ASHA	Accredited Social Health Activist
AWW	Anganwadi Worker
AYUSH	Ayurveda Yoga Naturopathy Unani Siddha and Homeopathy
BCC	Behaviour Change Communication
BJP	Bharatiya Janata Party
BPL	Below Poverty Line
CBHI	Central Bureau of Health Intelligence
CCC	Covid Care Centres
CFLTC	Covid First Line Treatment Centres
CFR	Case Fatality Rate
CH	Covid Hospital
CHC	Community Health Centres
CM	Chief Minister
COPD	Chronic Obstructive Pulmonary Diseases
COVID-19	Corona Virus Disease 2019
SCLTC	Second Covid Line Treatment Centres
DDMA	Districts Disaster Management Authority
DG	Director General
DHS	Directorate of Health Services
DISHA	Direct Intervention System for Health Awareness
DMO	District Medical Officer
FHC	Family Health Centres
GDP	Gross Domestic Product
GMC	Government Medical College
GOK	Government of Kerala
GOK DHFW	Department of Health and Family Welfare
H.S.	Health Supervisor

HI	Health Inspector
HIV	Human Immunodeficiency Virus
H.R.	Human Resource
ICD	International Classification of Diseases
ICDS	Integrated Child Development Scheme
ICMR	Indian Council of Medical Research
ICU	Intensive Care Unit
IEC	Information Education Communication
IHR	International Health Regulations
IMST	Incidence Management Support Team
JHI	Junior Health Inspector
JPHN	Junior Public Health Nurse
KIIFB	Kerala Infrastructure Investment Fund Board
KUHOS	Kerala University of Health Sciences
LDF	Left Democratic Front
LDMS	Lab Diagnosis and Management System
LIFE Mission	Livelihood Inclusion Financial Empowerment Mission
LRRT	Local Rapid Response Team
LSGD	Local Self Government Departments
LSGI	Local Self Government Institutions
MO	Medical Officer
MoHFW	Ministry of Health and Family Welfare
NCD	Non Communicable Diseases
NDMA	National Disaster Management Authority
NGO	Non-Governmental Organisations
NHG	Neighbourhood Groups
NHM	National Health Mission
NHP	National Health Profile
NIV	National Institute of Virology
NRHM	National Rural Health Mission
NSSO	National Sample Survey Office
NUHM	National Urban Health Mission

OBC	Other Backward Classes
OOPE	Out of Pocket Expenditure
OPD	Out Patient Department
PCR	Polymerase Chain Reaction
PDS	Public Distribution System
PHC	Primary Health Centres
PHN	Public Health Nurse
PM CARES FUND	Prime Minister's Citizen Assistance and Relief in Emergency Situation Fund
PPE	Personal Protective Equipment
RD	Regional Director
RTPCR	Real Time Polymerase Chain Reaction
RT-LAMP	Reverse Transcription Loop-Mediated Isothermal Amplification
RRT	Rapid Response Teams
SARS-Cov-2	Severe Acute Respiratory Syndrome Coronavirus 2
S.C.	Scheduled Caste
SDG	Sustainable Development Goals
SDRF	State Disaster Relief Fund
SOP	Standard Operating Protocols
S.T.	Scheduled Tribe
STEP	Screening, Testing, Education and Prevention
T.B.	Tuberculosis
THS	Tehsil Head Quarter
TOR	Terms of Reference
TPR	Test Positivity Rate
T.T.	Tetanus Toxoid
UAE	United Arab Emirates
UDF	United Democratic Front
UIP	Universal Immunisation Program
UPHC	Urban Primary Health Centres
USD	United States Dollar
WHO	World Health Organisation

Chapter-1
Introduction

1.1.Overview of the Covid-19 Pandemic

The Coronavirus disease 2019 has created a situation that has been disastrous for the whole world. This virus that emerged from Wuhan, China, spread over 200 countries worldwide, including India. Consequently, the number of laboratory-confirmed virus cases has increased in different parts of the world with varying trends and intensity. It has led to a tremendous increase in the Case Fatality Rates (CFR) of the virus in various nations and states, and they have adopted varied response strategies. The virus has affected a large segment of the population and some of the population unevenly in the world as the diversity in terms of social, economic, political, geographic, demographic and epidemiologic characteristics. The role of the World Health Organisation (WHO) in taking the lead in responding to the unusual situation at the international level was enormous.

The history and evolution of the spread and severity of Covid-19 started when the country office of WHO in China take up a media statement on cases of increasing pneumonia in the same area released by the Wuhan Municipal Health Commission. Immediately the country office informed the International Health Regulations (IHR) central spot in the WHO Western Pacific Regional Office. Since then, several health authorities worldwide have contacted WHO for additional information. On the 1st of January 2020, the WHO asked reports about the mentioned group of peculiar pneumonia cases in Wuhan from the concerned jurisdiction. Later, as part of its emergency response framework, they enabled Incident Management Support Team (IMST). It guarantees synergy of and response across levels of WHO for public health emergencies. On 5th of January 2020, WHO issued its primary Disease Outbreak News document. Through the IHR of 2005, it also provided exact facts on a cases of pneumonia of unknown cause groups. It furnished data on the cases and cautioned member states to get hold of safety measures to lessen the risk of ARI. On the 9th of January 2020, the WHO reported that the authorities in Chinese had confirmed a novel coronavirus caused the outbreak. Later, on 11th of January, novel Coronavirus fatality reported by the Chinese media. On the 12th of January 2020, the WHO published a comprehensive package of guidance documents for countries.

Meanwhile, the Ministry of Public Health in Thailand reported imported cases of a laboratory-confirmed Covid-19. It was the first reported infection out of China. On the 15th of January 2020, the Japanese Ministry of Health, Labour and Welfare informed WHO about a confirmed case of a Covid-19 in a person who travelled to Wuhan. It has been treated as the second confirmed case outside the China. On the 16th of January 2020, the first epidemiological alert on the Covid-19 released by the WHO Regional Office for the Americans. It consists of suggestions emphasised on international travellers, infection prevention and control measures and laboratory testing. Finally, the WHO held the first analysis and modelling working group meeting for the novel Coronavirus on the 17th of January 2020, on the 20th of January 2020 they held a meeting with Wuhan public health bureaucrats to study about the response to the group of Covid-19 cases.

The first confirmed case of the novel Coronavirus reported by the United States of America on 21st of January 2020. It was the first case in the WHO Regions of the Americas. On 22nd of January 2020, an IHR Emergency Committee gathered on the outbreak of the novel Coronavirus by the WHO Director-General (DG). The committee could not reach a conclusion on the same day as on the available information was limited. Hence they met again on the 23rd of January, and members were equally divided as to whether the event constituted a public health emergency of international concern. There was a diverse in opinions; the committee could not advise the DG that the meeting included a public health emergency of global concern. Finally, the DG put confidence in the committee's direction and in response to the outbreak, the WHO held a second media briefing stating the committee's recommendation. On the 24th of January, France confirmed three infections of the virus and informed WHO. Three who had back from Wuhan were the first verified cases in the WHO European Region. Hence on 25th of January, a public statement explaining the importance of being ready at the national and local levels the issued by the WHO Regional Director (RD) for Europe. Since then, on 27th of January, a press document issued by the WHO RD for South East Asia that urged countries to focus on their readiness to rapidly detect imported cases and prevent further spread. On 30th of January 2020, declared Covid-19 outbreak a public health emergency of international concern by the WHO. While, there were 98 cases and no fatalities in 18 countries outside China, and 4 countries had proof of a total of 8 cases through human-to-human transmission in Germany, Japan, USA and Vietnam.

Since then, a Member State briefing held by the WHO to provide more information on the outbreak. On 3rd of February 2020, WHO finalised its Strategic Preparedness and Response Plan. The contents of the said plan are structured the ways in which to form international synergy rapidly, strengthen preparedness and response activities for countries and expedite research and innovation; finally, during the 146th Executive Board, WHO held a technical briefing on the novel Coronavirus. The DG urged members to prepare themselves by response activities, saying the world has a window of opportunity as the more than 97% of infections were in China. Only 176 cases have been reported in the world outside China. As a result, a daily media briefing on the novel Coronavirus began holding by the WHO's headquarters. This was the earliest time which has held daily briefings by the DG of WHO Health Emergencies Programme (WHO, 2021).

The actions and direction at the international level and the WHO have influenced the member countries to respond effectively and timely. It has taken around two years since the crisis began, and the essential interventions to manage the situation were known; however, the various governments and leaderships acted differently in response to the outbreak of novel coronavirus globally. It concurrently determines the most viable strategies and health system responses. Even though the developing nations have responded with a varied response, sometimes spontaneously consisting no longer just of the public health system but also of non-public sector, and non-governmental organizations. At the same time, effective supply-side responses required innovative preparations to bring together uncustomary delivery agencies to take suitable responses (Khan & Roy, n.d.). Similarly, in most nations, such system have come out to support the health service systems (Khan et al., 2021). The various responses from different parts of the world are recognizing of the errors in the initial response of China had shown leadership in tackling the spread inside its borders by means of enforcing stringent measures. China had successfully slowed the spread by around the 19th of March 2020 through widespread testing, use of robot cleaners and artificial face recognition for contact mapping (Tobog, 2020).

On the other hand, nations consisting of South Korea have accompanied strategies regarding different levels of social distancing and economic lockdowns. They have additionally been pretty a success in controlling the spread. The leaders in governments in nations along with New Zealand, Germany, Finland, Iceland and Taiwan have received reward for their decisive action and potential to speak the intent of their regulations. It was interesting to note

that they are all women leaders (Eleaner Roy, 2020). There was little proof of worldwide coordination since nations had to close borders and look inwards. Therefore, the WHO has advised nations to put into effect a complete response to the Covid-19 by means of locating, setting apart, testing, and treating each case to break the chains of transmission (WHO, 2020). The idea of strict lockdown measures was taken from China and South Korea in the early phase of the outbreak, and it was adopted in almost all nations worldwide. The caseload became uncontrolled whenever the leadership and the system had a soft response. It led to the selection of intense measures to guard the health system from collapsing (Anderson et al., 2020).

Like every infectious agent, the Coronavirus ignores geopolitical boundaries and language and attacks human beings irrespective of nationality. It's also important to notice that it has affected people differently, especially the vulnerable. As nations have been lifting those measures, they must have consulted each other and avoided making choices in isolation and the governments need to have taken into consideration their home cultures and contexts earlier than in the end defining a new ordinary (McKee, 2020). During the preliminary phase, with inadequacies and unsure statistics, the WHO had the duty of informing people about spread and severity of the infection. It has cautiously changed the nomenclature of the virus to outbreak, epidemic, and pandemic based totally on the available proof (Forman et al., 2020). The South Asian nations faced great challenges with the outbreak of the Covid-19. Therefore, the socioeconomic context of eight countries was no longer conducive to any lengthy-time, period of lockdown. Moreover, lockdown and other measures had been not as powerful in curbing the exponential boom of the of a novel coronavirus in Afghanistan, Pakistan, India, Nepal and, Bangladesh. The response mechanism incorporated a four-tier governance method to weave community-led local bodies with state, national and global governance actors to enhance the country's response system. The poorer regions in South Asia could not cope with the instantaneous call for a trained healthcare workforce for the duration of the pandemic (Sarkar et al., 2020).

The Indian scenario was somewhat different as the subcontinent has been characterised by the diversity of various socio-economic, cultural, political, demographic and geographic factors and son. On the 30th of January 2020, the first confirmed case of the virus was reported from Kerala. One of the critical milestones in the evolution of the Covid-19 pandemic in India was when the first case of the virus was registered on the 30th of January 2020, quickly various scientists and the WHO Regional Office of South East Asia has been working together to assess

some possible responses to the new pandemic. Consequently, by last week of February, they'd prepare a set of papers for a special issue of the Indian journal of medical research. It suggested a way that needs to be centered on community led quarantine and tracking as the immediate response to the crisis (Abrol, 2020). On the other hand, it was unfortunate that the studies-based caution of the possible spread of infection was neglected. The failure of the central government's side to respond to the crisis took over a month to act on warning from its experts to start getting ready for the pandemic. On the 22nd of March 2020, the central government imposed a Janata curfew on short notice to make the people aware of the impending crisis where only critical services were allowed to function in districts with Covid cases. The concentration was on closing most activities leaving vital services such as hospitals, tele-communication, and medicine shops (Hebbar, 2020). The pandemic has been global, but the response was local considering the diverse characteristics of social, economic, geographic, cultural, demographic, and so on. As a result, on the 24th of March, an unprepared government imposed a lockdown with less than four hours of notice (Abrol, 2020).

The Indian government had to follow a mechanism used in Wuhan to control the infectivity of the virus, which was a stringent lockdown. It controlled mobility, economic, social and political. It is also significant to note that around one-third of the population lives in congested conditions. Therefore, the use of ''Stay at home'' strategy in such contexts was illogical. Thereby the so-called physical distancing norms could not be effectively practical (Ghosh, 2020). The quick announcement of a 21-day nationwide lockdown created fear and did not announce concrete measures on social protection when they declared the lockdown (Yasir & Abi-Habib, 2020). The stated rationale of the lockdown was to prepare the system. But the system was not ready even in the last week of April 2020 to ramp up testing, quarantine, arranging enough protective gear for health workers and doctors, and establishing sentinel and community surveillance mechanisms (Abrol, 2020). The centralisation of power by the Union Government was expeditious and has resulted in varied responses to the virus in different ways with relative success and failure. The lockdown was imposed by entreating the Disaster Management Act of 2005 and the centre did not apply potential to increase coordination. Rather it resulted in further counterproductive outcomes (Ghosh, 2020). While the epidemic curve did no longer flatten by way of early April, the prime minister began asking states to indicate plans for a better lockdown. Therefore, the situations, in turn, had all started demanding funds for coping with the crisis and were hesitant to suggest withdrawal. (Qadeer & Ghosh, 2020).

The pandemic stirred India's massive healthcare network into action and sharply highlighted its intense shortcomings. In line with the National Health Profile (NHP), 2019, launched by means of the Central Bureau of Health Intelligence (CBHI), India has 713986 beds throughout 25778 government hospitals. The railways run 122 hospitals throughout the country with a cumulative 13355 beds, whilst the employees stat, insurance corporation has 155 hospitals with 21931 beds. Doctors serving in different public sector hospitals additionally took to social media to complain approximately the shortage of personal protection equipment, N-95 mask for themselves and para-medical staff included in treating the growing number of Covid-19 patients (Kulkarni, 2020). Many hospitals in the country were overcrowded, understaffed and lacking resources. The testing was another primary concern which was very low during the initial period, and there were huge differences among the states (Changoiwala, 2020). There were continuous, disturbing reports about the denial of care, including in medical emergencies, which had resulted in adverse outcomes for many such infected people. The private hospitals are exploiting patients by hugely overcharging for treatment in terms of repeated testing of admitted non-Covid-19 patients, pushing into costlier wards, and charging the total price of PPE (Ganguly, 2020). The private sector healthcare story shows that it accounts for two-thirds of hospitals in India, and almost 80 per cent of available ventilators handle less than 10 per cent of the critical load (Raghavan et al., 2020). The migrant workers carried their children, dragged their belongings or balanced them on their heads. Whereas, the unwell and the injured walk with limp alongside for so long as possible, a few drop lifeless of exhaustion or illness both on the way or, unfortunately, after reaching home (Halankar, 2020,).

In the initial phase, peoples' mobility was restricted, so the migrant workers could not return to their native place (Ghosh, 2020). No trains or buses were organised for workers who wanted to return home and the first train departed after forty days if inaction. To understand what works the union government needed to look Kerala, which reported a higher number of cases initially and later flattened the curve (Halankar, 2020). Since the pandemic was unprecedented, the nation has decided to receive foreign donations to the PM CARES fund. Individuals and organisations could contribute to the faith in India and abroad. The paucity of ventilators and personal protective equipment was terrible, which bring about Indian diplomatic teams to look for authentic providers from various parts of the globe (Correspondent, 2020). The government's obtrusive marketing of a USD 273 billion economic stimulus package, failed to keep out of sight that it amounted to only 1% of the GDP. The finance minister attributed India's financial woes to the ''Act of God'' only exacerbated

economic anxieties. Government authorities did little to address the existing deficiencies of the public health system (Saha, 2020).

The central government's actions on the health system preparedness and response were limited and highly inadequate. Minimal funds, well below 0.04% of GDP were made available for immediate public health pending, and less than half of that was shared among states somewhat arbitrarily. Total additional public expenses guaranteed by all the relief measure declared by the end of May amounted to only 1% of GDP, and most of this had not yet reached society (CBGA, 2020). One of the cruelties from the union government was the initial financial packages of Rs.15000 crores to ramp up the overall healthcare infrastructure. The government said an amount of Rs 7774 crore out of the package would be utilised for immediate response to the pandemic, while the rest of it had planned to be spent in the medium term under a mission mode approach (Special Correspondent, 2020). ''Fiscal centralisation had even worse consequences because state governments were made responsible for essential public health measures and dealing with the economic effects of the lockdown, but they were completely strapped for cash. The central government provided almost nothing through additional resources and imposed many conditions on their ability to spend and effectiveness in dealing with the disease and economic distress''(Ghosh, 2020,p.523). The economic package announced in May 2020 amounted to around Rs 20 lakh crore, about 10% of India's GDP. Moreover, the economists said nothing was on offer (Bose & Rohit, 2020).

In the first week of April 2020, there were attempts to communalise the spread of the virus by targeting Muslims in India. As a result, several Muslims in different parts of the country got attacked by hate speech from the Hindutva ruling party. Interestingly in the same week, the Indian Scientists' response to Covid-19 Group said the available information does not validate the speculation that the blame for the Covid-19 in the country lies primarily with Tablighi Jamaat. Therefore the scientists highlighted that when testing for Covid-19 was shallow all over the nation, a disproportionate number had been of people of Tablighi Jamaat, as per the public order and thereby highly skewed figures at that time (Petersen, 2020). The unprecedented character of the pandemic has raise havoc all over the world, and this nature cannot let off the government's heartless response, which turned the pandemic into a local humanitarian disaster. Tiny was done to provide the downtrodden amidst the crisis (Saha, 2020).

1.2 Statement of the Problem

Kerala's response to the Covid-19 has been lauded globally in the initial phases of the first wave and later. However, the state has witnessed a dramatic shift in its response and, thereby, in the outcomes due to the lifting of the lockdown at different points as the government at the centre issued guidelines concerning the evolving situation. Apart from those effective strategies and response measures in the state, many factors helped the state perform well during the pandemic compared to other states. Kerala's achievements in the health and social development field, its indicators have been equated to that of developed countries. It is known as the Kerala Model of Development among academic scholars and the international community (Chathukulam & Tharamangalam, 2021). The historical evolution of the strengthening of the public health system in the state is considered a significant contribution coupled with progressive socio-economic and political movements. The role of various social reform movements and the presence of progressive governments, which were influenced by left ideology, had a positive bearing on the well-being of its people.

The state's social, economic, political, demographic and epidemiological characteristics have to be seen in connection with the whole response strategy. It is also crucial to note that these dimensions have influenced policy formulation on time to save the people. The health system analysis of the response can bring new insights and perspectives to the current research study and produce a holistic understanding of socio-economic, cultural and political factors' examination of the Covid-19 response in the state. One of the crucial elements in the response mechanism was the decentralisation of the healthcare system, and the community engagement in health promotion and disease prevention is of great importance without neglecting the role of Kudumbasree in the grass root level empowerment. The state has been actively introducing innovative methods of containing the spread of the virus by adopting locally developed technologies and systems. Therefore, it is vital to study Kerala's model of controlling the spread of the pandemic in the initial phases and what happened in the state after all the lifting lockdown done over periods. It also tries to explore the health system components of the response in the state to make a detailed and comprehensive study to make valuable information for future studies. The study would look into the history of developments in the health service system, policies framed over the years and past experiences handling epidemics in the state. These components would form a basic understanding of the health system's preparedness to control outbreaks in the state, thereby responding to Covid-19 effectively.

To understand these developments from an interdisciplinary perspective, the study needs to incorporate social, economic, political, institutional, epidemiological, and demographic characteristics of the state and the locality. The unfolding of the Covid-19 response can only be seen through the different building blocks of the health system when we apply health system analysis. This part would comprise health service delivery, medical products, health financing, health technologies, information and research, governance and leadership and involvement of communities in the Covid-19 response. The resilience of a health system is rooted in the intersectoral coordination of activities to attain larger social goals. The prominent actors in the intersectoral coordination were the health services departments, local self-governance and social justice. In Kerala, all activities were done with the coordination of different sectors: local self-governments, revenue, police, labour, fiancé, education, civil supplies, agriculture, general administration, information and public relations, tourism, social justice, and so on. It is crucial to decipher the role played by these sectors in containing the infectivity of Covid-19. It is also inevitable to emphasise the state's humanitarian and social welfare policies to curb the hardship faced by the poor.

The present study is based on the selected wards of Manjeri Municipality of Malappuram district, as it is highly populated. Historically, health and healthcare significantly showed slower growth in the Malabar region, and the Malappuram district was among the most resource crunch in the area. The Manjeri municipality has a Medical College Hospital, a few Urban Primary Health Centres, Sub Centres, and some institutions under the AYUSH department. The medical college hospital faces a lack of infrastructure and therefore depends on Kozhikode medical college for most tertiary and complicated cases. This contributes to the difficulty in access for the people in the district. It is significant to conduct the study in the Manjeri Municipality to produce the lived experiences of the actors in the Covid-19 response. Malappuram district’s unique demography and the social, economic, and political characteristics in terms of higher population size, religious composition, economic backwardness, presence of a single political party’s rule etc. A large number of expatriates and internal migrants and a considerable ageing population are making the location more significant. Manjeri is the district's commercial capital, where most health, judicial and educational institutions exist and provide an opportunity to examine the extent of intersectoral coordination. The research study is going to take a look at the organisational structure of the Covid-19 response at the Manjeri Municipality and its actual functioning in the selected wards.

1.3 Significance of the Study

The coronavirus pandemic was new to the world when it caused social, economic, political and global health challenges to the international community. Countries and regions have responded to the virus differently according to their local conditions. However, the kind of response mechanisms that are followed by most nations has seriously made an adverse impact on the lives of people. Some countries or states within a nation had performed efficiently in response to the virus to protect the people's lives. It is interesting to see that the strategies followed by each country that responded to the virus effectively had a unique response strategy by considering the local knowledge. The protection of human lives and reduction in human suffering during a public health crisis is regarded as one of the fundamental responses of a state. This can significantly influence social action and policy in preventing social murders in unprecedented times.

Furthermore, the response mechanism and the strategies within a nation vary based on the power and governance structure. It, therefore, can be seen that the locally adaptable process was the most successful one, so it is imperative to look at the strategies that were locally framed and applied; this has been lauded all over the world. This would further strengthen the response strategies of different countries and states to act effectively and efficiently, thereby saving many people's lives and minimising the adverse effects of the public health challenge of future times. Hence the unique characteristics of India and its states in various fields could be a crucial rationale to see the varied response to the virus. It is also a vital example of a response strategy that failed as the nation was unprepared for the virus when the early warning WHO received was due to the internal political dynamics. Moreover, the centralisation of the country's response strategies worsened the situation, making the public health crisis a human-made disaster.

Management of Covid-19 first wave at the national level was utterly a human disaster based on the available literature on pandemic management and its various response measures. It was evident how the leadership at the centre level has played an irresponsible stand on a public health challenge. This has led to an internal collapse of governance at the time of the outbreak of an unknown virus which was highly contagious. Various factors contributed to the central government's incompetence in dealing with the pandemic effectively. However, some states have done comparatively well in containing the pandemic, reducing human suffering, and saving the health service system from collapsing amidst the crisis. The reasons that made

the states perform well in response to the virus have to be looked at to guide the remaining states to learn from the success stories of whom it made. Even though it is also seen that the states that performed well in the pandemic had a robust health system that has been strengthening at different points. Apart from this core element of the successful response strategies, the other socio-economic factors that contributed to the better outcomes have also to be examined. The other significant aspects of the states' response are the institutional structures and the political economy. In the Indian scenario, the nation's federal structure has made the response strategies even more complex as the central government made the decisions regarding the measures taken to restrain the infectivity. The central government has been ineffectively looking at the pandemic situation in the initial phase. But some states prepared for the pandemic well before the government at the centre initiated something. Therefore, it is indisputable that the willpower of the governments in the country has played a major role in the management of the response. This has resulted in diverse outcomes in the response measures among the states, how well prepared the states were, the response, and the outcomes associated with it became a by-product of it. Therefore, it is incredibly relevant to evaluate the preparedness and response strategies of the Indian states in response to the coronavirus outbreak in the first wave, as this could lay the foundations of fundamental public health management in each locality and region. So that the study will be going to look at this from the experiences of the state Kerala by incorporating the preparedness and response strategies that adopted and put into effect at a Municipal level.

1.3 Limitations of the Study

Kerala’s response to Covid-19 can be classified into different waves and phases within a wave. Therefore, the continuity of each wave's response mechanism would be missing as the study will only look at the first wave. Since the current study can look at the Covid-19 response at a Municipal level, the generalisability of the state's activities cannot be impossible as the socio-economic, political and epidemiological demographic characteristics vary from place to place and time to time. One of the study's drawbacks is the extent to which the ground realities deciphered in this study are not subject to the epidemiological data of the Covid-19 cases as the municipal officials did not provide to carry out the current research. Therefore, it is considered one of the gaps in the study of the Covid-19 response at Manjeri Municipality.

Chapter-2

Response to Covid-19 Pandemic in Kerala

The current study will look at Kerala's response to the Covid-19 pandemic through a systems approach. An extensive review of the literature of available published studies in journals, magazines, newspapers, books, reports, etc., has been included. Since the pandemic is new to the world and the ongoing investigations, the need to include the latest ones is critical. The researcher has identified the problem and collated available literature on various aspects of the Covid-19 response in Kerala. The structure of the literature review has been classified into three parts: health and development in Kerala, the development of the health service system of Kerala and the covid-19 response in the state. The study divided the developments in Kerala's health sector from post-independence. It has described the history of health and health care, associated programmes, policies, reforms, laws, and other developments in the state's health system. The research and studies on Coronavirus and its preparedness and response strategies are in the evolutionary stage as the pandemic developments continue.

Therefore, the literature covered in this section is from 2020 and 2021, which exclusively discusses the first wave of the pandemic in Kerala. This review will examine the history of public health care strengthening in the state since independence in brief and will focus on the developments in the health service system during Covid-19. And the final section of this chapter would be dealing with the Covid-19 response in the state concerning rural-urban differences, social determinants of health, and innovations in the Covid-19 response strategies regarding community participation, health service delivery, financing of health, social welfare policies, medical products and technologies, leadership and governance and human resources. Moreover, a detailed document exploration has been performed to show the developments in the health service system in which most intersectoral coordinated activities have been suggested. Therefore, it is exceptionally significant to critically examine the available studies on the Covid-19 response in Kerala concerning the local context of health and health services, socio-economic, cultural, demographic, epidemiological, political and institutional characteristics that shaped the Covid-19 response in the state. The upcoming section will include a detailed and analytical examination of these studies in detail and formulate the research questions drawn by doing the literature review.

2.1 Health and Development in Kerala

The improvements in health status and the public provisioning of health services are considered indicators of social and human development in Kerala. The health development in the state has been characterised as social mediation, which has evolved through various social reform movements, the upliftment of socially marginalised sections by providing them education and health for free, and the introduction of public health care institutions. However, there are regional imbalances between the north and south as the social relationships among the communities and classes were different in these areas. The Malabar region was left behind in the development process because the socio-economic and cultural characteristics differed from the Travancore and Kochi. Therefore, it is reflected in the socio-economic and health development outcomes (Kabir & Krishnan, 1973). British rule introduced Western medicine to the state in 1790, in which indigenous healthcare systems of Ayurveda and Siddha have been practiced. The Missionaries of that point have established hospitals and schools in backward regions, focused on Dalits and Adivasis, contributing to a steadily growing expectation of service provision for all. Southern areas in Kerala have become the primary one in India to make vaccination obligatory for public servants, prisoners and students (V Ramankutty, 2000). The history of Kerala's development model can be traced back to the significant increase in investment in public health and health care which decreased infant deaths, longer life expectancy and reduced fertility even there wasn't much increase in incomes. Furthermore, sanitation, drinking water, housing, and frequently staffed and reachable healthcare centres played a significant function in the reduction of the occurrence of diseases. The state proved there may be no need to look for monetary growth prior introducing these critical services. Therefore, ultimately meeting these fundamental needs and creating a population which could use other development programs has favourably stepped forward social welfare (Franke, Richard ; Chasin, 1989).

Kerala has made tremendous improvements in all three additives of health transition: demographic, epidemiological and healthcare transitions. Therefore, the State has entered the final phase of demographic transition as it is witnessing low death and infant mortality rates compared to the developed nations. It has resulted in ageing in the State and has impacted the rise of non-communicable diseases as part of the epidemiological transition (Panikar, 1999). The spending on the health sector continued even after 1980 when the fiscal deficit in Kerala was on the rise, and the government become searching out methods to reduce expenditure. But, there has been a decline in the growth of the number of beds and government hospitals in the

mid-1980s. It led to the growth of non-public sector hospitals from 1986 to 1996 and surpassed that of the public sector by a wide margin. The expansion of private healthcare facilities has been connected with changes in the public healthcare sector. These government bodies play a significant role in training personnel and sensitising community to the need for timely health interventions and thus help to generate demand (V Ramankutty, 2000). The decentralisation of healthcare in the state has witnessed some issues of different kinds. Some of them are spillover effects, the role and significance of a pre-existing body, and the basic healthcare services that healthcare institutions provide. It was evident that the spillover problem is quite serious regarding the secondary health care services obtained from the Taluk Head Quarters Hospitals. It has been taking under the Municipal Councils. The problem emerged from the congregation of hospital beds in cities. It introduces a new trouble due to the inequality in the distribution of hospital beds throughout the taluks (Narayana & Kurup, 2000). The public health facilities in Kerala were considered superior to those in most other states in the country, and they were overcrowded and had longer waiting times (Peters et al., 2002). It also faced medicine shortages which led to the expansion of the private sector in health. It has resulted in the rise of out-of-pocket health expenditure, and during mid-1990s, the state had the country's highest government and non-government per capita health spending (Dilip, 2010). One of two liberal political coalitions, one communist and one centre left, governed the state for years that followed and adequately prioritised spending on human development. Therefore, public scrutiny of these public schools and public healthcare facilities increased over time (Bollini et al., 2004). Kerala people's campaign for decentralized plans in the course of 1996 and 2001 has furnished lots new facts about the capability of decentralizing public health and health care services. The goals of the campaign had been the response of a purposeful division amongst government levels suitable to the health tasks each level can function. The generation of the projects that replicate the health needs of the population via local participatory assemblies, upkeep of equity in health, stimulation of communities to raise voluntary resources to supplement devolved public funds, and sustaining the health services function greater successfully overall. In general, the campaign attained each of the aims to a large degree, and there had been drawback as well, due to the inexperience of certain communities in drafting projects. It is important to note that the campaign's lessons are already being implemented to new programs (Elamon et al., 2004). The 73rd and 74th amendments and the passing of the Kerala Panchayat Raj Nagara Palika Act launched as part of the Peoples Planning Campaign in 1996 have been important milestones in the history of democratic decentralisation. One of the main aims of this was to strengthen the public health system and ameliorate the quality of

public health services provided. Therefore, the process has advanced infrastructure and machines in primary and secondary healthcare institutions and expanded healthcare provision. It additionally ended in offering safe drinking water and sanitation facilities to the local community. The peoples' participation has ensured the accountability of the public health system although it could not cope with the problems of dietary unevenness, old age care, life style diseases and the shifting epidemiological scenario in the state (Rajesh & Thomas, 2013). A study carried out to apprehend the traits of private hospitals and equity in getting access to their services using the information to be had in the course of 1986-2004 has found that the private hospitals did not increase in numbers however a sturdy consolidation by way of massive hospitals has taken place. There was an increase in the private sector hospitals and its expansion in medical education has also been initiated. The area wise variation in availability of private hospitals turned into minimum. There has been an economic marginalisation of low social groups which constrained their get right of entry to private health facilities and the charity element in the charitable hospitals has disappeared (Dilip, 2008).

The level of morbidity is high in the state, and it is higher among females, scheduled castes and scheduled tribes than others. Infectious diseases have come down in the state, and non-communicable diseases have increased, irrespective of socio-economic conditions. The authors argued that the market health services system could not be an answer as high average spending on ailments, and therefore, it calls for public action (K.Navaneetham et al.2009). Kerala has been characterized as a state with good health at low cost for a long term, and one of the challenges that the state faces is that of a transitions in the financing of health care from a public sector to a private sector led provision. The state's historical health development manner has intently linked with the interconnected policies on health and allied social sectors with sustainable public sector engagement. But, the retreat of the state and a growing non-public sector health care and out-of-pocket expenditure led to widening inequities and medical impoverishment. Rectifying these troubles is vital to deal with the inequities in health (Thresia, 2013).

The National Rural Health Mission has sought amendments to Acts and Statutes in Kerala to completely empower rural local public institutions to look after the public health systems efficaciously. It additionally encourages the devolution of funds, functionaries and capabilities to those institutions to build capacities of elected representatives and user group individuals for the advanced and powerful management of the health systems. While health is a concurrent subject in the country, state governments are accountable for health provisioning.

The NRHM considers the district fundamental institutional unit for planning, budgeting and enforcing government health services. The implementation of NRHM guidelines in Kerala has shown positive gains in institutionalising local government institutions' involvement in health system management (John & Jacob, 2016). ‘‘Kerala is a state with an lousy lot of concern for being conscious of the electorate, and there's very tons belief that if the government don’t provide citizens what they need, the government will lose the subsequent election’’ (Madore et al., 2018 p.10). Therefore, demand for health care for the poor who make large numbers at the polls becomes hugely crucial to win. It is evident that Kerala stands out with its social sector gains compared to the rest of India.

Nonetheless, the evidence suggests widening health inequalities, limited public arenas, and democratic health practices regarding the situation of growing market ideology in health. The people with deprivations and forbidden freedoms for better health within the state mostly schedule castes and tribes, religious minorities and women. Therefore, it emphasises the need for more exceptional political interventions, recognising the interplaying relations of history, culture, social elements, politics and policies on health. This approach needs to be underscored by using public health studies (Thresia, 2018). According to the findings of the NSSO 75th round, there is a significant decline in the reported morbidity from 308 per 1000 persons in 2014 to 245 per 1000 persons in 2017-18. The public health service utilisation had significantly increased to 47% in 2017-18 from 34.0% for outpatient care in 2014. Simultaneously, the share was 30.2% in 2017-18, compared to 25.1% in 2014 at the national level. There is also an increase in outpatient care for the lower socio-economic population in the state, with about 58.1% from the poorest quintile who used public health facilities in 2017-18, which denotes a rise from 50% in 2014.

Similarly, the social groups show an increase of 67.6% from the S.T. population and a 66.1% increase of patients from the S.C. population in the 75th round in 2017-18 compared to the 71st round in 2014. The average out-of-pocket expenditure denotes that the OOPE during hospitalisation increased to Rs. 4239 in 2017-18 from Rs.3250 in 2014 (Muraleedharan et al., 2020). This trend in household expenditure shows the need for a robust public healthcare system to compete with the private sector health service delivery. Thereby reducing the pressure on households to seek care from private health care services and increasing the utilisation of public health services in the state.

2.2 Developments in Health Service System

The public health system in Kerala includes health SCs, PHCs, secondary care facilities like CHCs and taluk hospitals, tertiary care institutions consisting of district hospitals, regional, speciality, and teaching hospitals as the medical colleges. ASHAs and other frontline health workers furnished health education, screening, and service referrals to families thru home visits. A study in the course of 2010-14 of ASHAs in 16 states found that get entry to their services became more in the state, with 85% of potential beneficiaries benefiting services (MoHFW, 2015). In the case of financing and governance, a club of central, local, and private sources financed the health system. In 2014, the central government contributed 5.8% of Kerala's health budget, which included the management of union health programs. At the same time, state investment for health has committed a 79.7% of the budget and included recurring health system expenses, together with salaries, wages, health infrastructure renovation, drugs, and medical supplies. Furthermore, it also included spending on new health facilities. It is historically evident that the state allocated most of its health budget to human resources, particularly -thirds in 2017 by myself. (Madore et al., 2018).

In 2016, Left Democratic Front came into power in Kerala, and the newly elected chief minister was passionate about human development, especially health care. He appointed Smt. K.K Shailaja Teacher as health minister, and under her leadership, many new initiatives have been taken in the health sector. ''The government in Kerala has been resting on its laurel over the last few decades; therefore 'the state was not prepared to address the epidemiological shift towards Non-Communicable Diseases as a development issue. The state's reputation for good health is perceived only by people outside Kerala, especially those who compare it with other Indian states. Meanwhile, the Keralites continue to protest conditions in government health facilities'' (Madore et al., 2018, p.10).

Aardram mission is one of the four missions under the 'Nava Kerala mission' put forth by means of the left ruled state, Kerala in February 2017, which objectives at the precise health services at the local level. The state has set brief-term targets to be attained by 2020 and lengthy-time period targets by 2030 as envisioned in SDGs-2015. It became formulated by way of diverse expert committees that worked on current health challenges in the state. The primary attention on the PHC to FHC transformation element of Aardram is a stage based series of infrastructural and management modifications. By the sturdy springing up of the profit-motived non-public healthcare in Kerala that appeared to have been gaining growing

recognition among all segments of society, citizens started to lose interest in the public health system. A more potent curative recognition gave the non-public hospitals a top hand and compelled PHCs throughout Kerala to compete along the identical traces to merely stay afloat. A general shift in the path of tertiary healthcare provisions notably elevated the out-of-pocket expense for sufferers and blended with the epidemiologic and demographic alterations, public intervention via Aardram sooner or later have become essential (Government of Kerala, 2017).

Similarly, to the function of the street-level bureaucrat with regards to SDG-3, the transformation proposes complete healthcare provision consisting of all levels of care. The modifications accompanying the transformation may be classified into strengthening primary care, enhancing the quality of services, addressing the non-medical determinants of health and civic engagement. The first one basically concentrates on infrastructural upgrades, manpower training, and record management via the e-health system, advanced laboratory facilities and a more primary care instead of tertiary outlook in the direction of healthcare service provision. Community engagement is a vital function of a family health centre, particularly in the more rural ones. They carry the community together to work in the direction of improving the first-class of residing in the location thru its distinct forums, for which an incredible point out in this context could be 'Arogyasena.' They are the extensive modifications might be how the sufferers are handled at the FHCs. A pre-established orderly series of checkpoints exists that the sufferers are guided via, provides higher patient flow. It has a dual positive impact on the performance of the FHC. It will allow higher service supply at every step through specialisation and lets in the centre to deal with better volumes of sufferers (Government of Kerala, 2017).

Kerala's government strengthened the public health system at all levels in the last decade, especially in the past five years. One of the significant revolutions in primary healthcare innovations was the introduction of Aardram Mission phase one by ensuring physical infrastructure to these health institutions through the investments made from the KIIFB funds. It has transformed primary health centres into family health centres, with good lawns, buildings and interior and built laboratories, COPD devices, depression clinics and early cancer detection. Moreover, these funds were used for secondary-level hospitals like taluk and districts given advanced operation theatres equipped with modern equipment (Anandan, 2021).

First Phase (January- February 2020)

The nCorona Virus Outbreak Control and Prevention State Cell under the Government of Kerala Department of Health and Family Welfare (GOK-DHFW) issued a supplement on the 5th of January 2020 ‘‘to the testing, quarantine, hospital admission and discharge criteria for Covid’’, which was published on the 1st of February 2010. It was the foremost important and one of the primary documents of the state that had recognized that the coronavirus outbreak would become a problem for the state and society (Government of Kerala, 2020c).

On the 26th of January 2020, the GOK-DHFW issued novel coronavirus guidelines and it has also issued a ‘‘detailed document on the novel Coronavirus to the general public to make society aware’’ (Government of Kerala, 2020ci).

On the 1st of February, GOK-DHFW issued guidelines for sample testing and associated medical procedures. This document comprehensively told about whom to test and the sample collection procedure. It is recommended to take samples from asymptomatic persons for those with a travel history to Wuhan, China, after the 15th of January 2020. It is also suggested to test all suspected cases of 2019 novel corona respiratory illness as defined in the Surveillance guidelines of the Government of Kerala dated 01.01.2020. Revised guidelines were issued on the 1st of February 2020 explaining the same matter with updated contents (Government of Kerala, 2020dx).

‘‘To control and prevent the nCorona virus outbreak, the notification dated the 2nd of February decided to constitute Medical Boards in all secondary and tertiary health care institutions’’. The state medical board is included under the chairmanship of Dr Santhosh Kumar (Government of Kerala, 2020aq).

On the 3rd of February, ‘‘Terms of Reference (TOR) for state-level committees were made wherein all committees were advised to ensure to be present in the daily meeting at 6 pm at the state control room’’ (Government of Kerala, 2020ee).

The State Level Coronavirus Control Room had set with different teams within it, and State Rapid Response Team (RRT) was constituted at the state level to provide all the technical support to manage the containment and provide all technical support for containment and prevention activities. The state-level committees were giving information to state RRT. The state-level committees were liaisons with district-level committees, provided all support, and had to prepare the adversaries to facilitate field interventions. The state RRT has been headed

by KK Shailaja Teacher (Minister of Health, Social Justice and Women and Child Development) as the chairperson, Dr Rajan Khobragade as co-chairman and Dr Rathan Kelkar as secretary (Government of Kerala, 2020ar).

The health and education department issued a health advisory for students on the 5th of February. ‘‘The students from the families of people under quarantine or isolation were restricted from attending classes and suggested to be in quarantine for 28 days. If there were expectations of returnees from china, the students of the family were recommended to shift to a relative’s home to avoid home isolation’’ (Government of Kerala, 2020by).

On the 5th of February, a health advisory for the tourism department had issued regarding the ‘‘collection of travel data, contact, phone and emails of the tourists. Along with multi-language dos and don’ts, leaflets with helpline numbers were given to the tourists’’ (Government of Kerala, 2020bz).

Even though clear-cut advice was given to education, tourism, local self-governments and policy on biomedical waste management in the hospitals.

Second Phase (March-July, 2020)

On 14th March, the Department of Local Self-Government issued an order regarding the ‘‘measure that has been taken under the local self-government institutions and representatives to contain the infectivity’’ (Government of Kerala, 2020ds)

On 15th March, GOK-DHFW issued a ‘‘Covid-19 activities at the airports’’. It has explained a detailed activity chart for every airport team and general instructions (Government of Kerala, 2020d).

On 18th March, GOK-Department of General Administration (Secret Section) issued a circular on the Covid-19 preventive measures and precautions to be undertaken at each government office (Government of Kerala, 2020bb)

On 19th March, ‘‘guidelines for international tourists came to Kerala’’ (Government of Kerala, 2020bp) and on the 20th; guidelines for beauty parlours and saloons were issued (Government of Kerala, 2020bi).

On 20th March, GOK-DHFW issued ‘‘guidelines for employees in shops which listed measures and precautionary steps to be taken at the shopping centres and malls’’ (Government of Kerala, 2020bo).

On 23rd March, GOK-DHFW issued a circular on the ‘‘duties that are being done by Nurses, Auxiliary staff in the context of the novel coronavirus and the grievances of the healthcare workers who have been working with people in treatment and isolation in hospitals’’ (Government of Kerala, 2020bc)

On 24th March, the Government issued a ‘‘Covid-19 State Medical Board decision’’ (Government of Kerala, 2020bc)

On 24th March, GOK-DHFW issued an ‘‘advisory for pregnancy and labour management during the pandemic’’ (Government of Kerala, 2020l)

On 24th March, GOK-DHFW has been issued ‘‘guidelines for Universal Immunisation Program’’. It suggested to withheld immunisation for children aged up to 10 years and advised them to stay home (Government of Kerala, 2020at).

On 24th March, ‘‘Covid-19 Interim treatment guidelines for state’’ were issued by GOK-DHFW (Government of Kerala, 2020i)

On 25th March, Guidelines for the distribution of laboratories were issued by GOK-DHFW. It has been listed ‘‘Microbiology Lab, Government Medical College, Thiruvananthapuram, State Public Health Lab, Thiruvananthapuram, NIV Alappuzha, and Microbiology Lab Government Medical College, Thrissur and Kozhikode, Rajeev Gandhi Centre for Biotechnology, Thiruvananthapuram, SCTIMST, Thiruvananthapuram, Malabar Cancer Centre, Thalasseri, Inter-University Centre for Biomedical Research’’ (Government of Kerala, 2020ay)

On 26th March, GOK-DHFW issued an advisory for the ‘‘resident’s associations in the state to ensure the break of the chain and make the facilities for proper sanitation and hygiene practices’’ (Government of Kerala, 2020au).

On 26th March, GOK-DHFW issued ‘‘mental health advisories for those who were taking care of children, the general public, the aged population, healthcare workers, those who have been in quarantine, guest workers, travellers and tourists’’ (Government of Kerala, 2020cg)

On 26th March, GOK-Department of General Administration issued a circular on the ‘‘containment measures that are to be taken’’

‘‘Kerala Epidemic Diseases Ordinance, 2020’’ published as a notification on the 27th of March (Government of Kerala, 2020)

On 28th March, an advisory for patient admissions to Covid Care Centre was issued by GOK-DHFW (Government of Kerala, 2020.)

At the end of March, the GOK-DHFW issued a ‘‘guideline for transforming hospitals into Covid Hospitals’’ (Government of Kerala, 2020dl).

On 29th March, the Government of India issued a circular on ‘‘Insurance Scheme for health workers fighting Covid-19’’ (Government of India, 20201)

On 30th March, GOK-DHFW issued a ‘‘circular on services that have to be used from the retired officers who have been directly working in the fighting Covid-19’’ (Government of Kerala, 2020dy).

At the same time, a ‘‘guideline for human resource management in Covid Hospitals has been issued’’ (Government of Kerala, 2020bq).

On 11th April, GOK-DHFW issued ‘‘guidelines for identifying community transmission’’, which says about selection criteria and priority grouping for rapid antibody testing, serological surveillance of SARS Cov-2 using antibody testing guidelines for validation, sero-surveillance teams, the role of IT Mission, district nodal team, the role of the district collector, role and responsibilities of additional director health services (public health), custodian and district sero-surveillance team, record keeping and reporting and follow up action (Government of Kerala, 2020bn).

On 14th April, GOK-Department of General Administration (Secret Section) issued a ‘‘circular on the relaxations that were given to the Covid-19 induced lockdown’’ (Government of Kerala, 2020ao)

On 16th April, GOK-DHFW published the ‘‘Covid-19 infection prevention and control manual proposed by the Hospital Infection Control Committee, Government Medical College, Thiruvananthapuram’’ (Government of Kerala, 2020bd)

On 16th April, GOK-DHFW issued an ‘‘order for Covid-19 antibodies in the private sector, which says about the criteria for selecting laboratories to Conduct Covid-19 antibody test, criteria for selection of antibody test kit, when to test, sample collection method, interpretation of the result, reporting the result of the test, and rate of antibody test’’ (Government of Kerala, 2020av).

On 20th March, GOK-DHFW issued an ‘‘circular for ensuring Tuberculosis services in Kerala during the pandemic’’ (Government of Kerala, 2020g).

On 2th May, GOK-Department of General Administration (Political) issued a ‘‘circular on the extension of general lockdown’’ (Government of Kerala, 2020dm)

On 2th May, GOK-Department of General Administration (Political) issued a ‘‘circular on interstate transit of persons stranded due to lock down’’ (Government of Kerala, 2020cc)

On 4th May, GOK-Department of General Administration (Secret Section) issued an ‘‘order on the Containment of Covid-19 and its preventive measures and the procedures associated’’ (Government of Kerala, 2020bj)

On 5th May, GOK-Department of General Administration (Secret Section) issued an ‘‘order on the containment measures that were taken at each government office in the state’’ (Government of Kerala, 2020as)

On 10th May, GOK-DHFW issued an ‘‘order on Covid-19 containment, home quarantine, testing and the procedures associated with it’’ (Government of Kerala, 2020cn)

On 12th May, GOK-DHFW issued a ‘‘circular on the use of the Covid-19 Jagratha platform for real-time surveillance, care and support for people affected or quarantined by Covid-19’’ (Government of Kerala, 2020ef)

On 12th May, GOK-Department of General Administration (Secret Section) issued an ‘‘order on paid quarantine facility for returnees’’ (Government of Kerala, 2020cx)

On 14th May, GOK-DHFW issued an ‘‘circular on Covid-19 sentinel surveillance and railway surveillance guidelines’’ (Government of Kerala, 2020u)

On 18th May, GOK-DHFW issued an ‘‘advisory on performance assessment for Covid-19 hospitals’’ (Government of Kerala, 2020v)

On 18th May, GOK-Department of General Administration (Secrete Section) issued an ‘‘order regarding the extension of Covid-19 containment activities from 18th to 31st May 2020’’ (Government of Kerala, 2020de)

On 19th May, GOK-Department of General Administration (Secrete Section) issued an ‘‘order on the functioning of the war room and the duty chart for night shifts’’ (Government of Kerala, 2020cs)

On 20th May, GOK-DHFW issued an ‘‘circular for constitution of the state medical boardand it was decided to constitute a medical board in all medical college hospitals, district hospitals and general hospitals’’ (Government of Kerala, 2020m)

On 25th May, GOK-DHFW issued ‘‘Truenat Beta CoV Testing Government laboratories which listed 18 new laboratories in Kerala’’ (Government of Kerala, 2020dc)

On 26th May, GOK-DHFW issued ‘‘Revised guidelines for Truenat testing for Covid-19 modified’’ (Government of Kerala, 2020ba).

On 30th May, GOK-Department of General Administration (Political) issued an order regarding guidelines for the Keralites who were stranded in other states to come back and some others to return from the State (Government of Kerala, 2020bt)

On 1st June, GOK-Department of General Administration (Political) issued ‘‘Covid-19 regulations to contain the pandemic’’ (Government of Kerala, 2020do)

On 3rd June, GOK-DHFW issued an ‘‘circular on the performance evaluation of districts which talks of a critical aspect of service delivery management’’. Applying the service gap model is one of the standard tools for quality evaluation in the service sector. The assessment method helps to ascertain the level of functioning of the districts, their fidelity to the standard operating procedures and the best practices adopted regarding surveillance and prevention of infectious diseases, including Covid. This assessment also helps raise the districts' bar for excelling (Government of Kerala, 2020w).

On 7th June, GOK-Department of General Administration (Secrete Section) issued a modified order which says the guidelines and protocol which has been connected to the other government offices and their functioning (Government of Kerala, 2020bk)

On 18th June, GOK-DHFW issued an ‘‘advisory on collecting blood samples for Covid testing’’ (Government of Kerala, 2020p).

On 19th June, GOK-Department of General Administration (Secrete Section) issued an ‘‘order exempting Sunday, the 21st June, from lockdown’’ (Government of Kerala, 2020cq)

On 20th June, GOK-DHFW issued a ‘‘circular regarding healthcare resource management guidelines for Centres providing Covid-19 care’’, which talked about the list of health care workers and the three-tier system of human resource management for Covid-19 care (Government of Kerala, 2020ak)

On 24th June, GOK-DHFW issued an ‘‘advisory on recording and reporting Covid Testing’’ (Government of Kerala, 2020z)

On 28th June, GOK-DHFW ‘‘issued a framework work for supportive supervision in districts’’, which talked of control room-related and administrative and managerial issues, surveillance, infrastructure and Covid Management related, human resource related, Covid fund and SDRF management, PHC/FHC, CHC and peripheral health institutions related, physical distancing, infection control and non-Covid services, urban areas/Taluk hospitals and Non-Covid Services of THQs and Hospitals (Government of Kerala, 2020bh)

On 28th June, a circular has issued regarding a ‘‘special team to Malappuram under the leadership of Dr Sanal Kumar as Deputy Director as Team Leader and Dr Amjith E Kutty state quality office’’ (Government of Kerala, 2020eb).

GOK-DHFW issued a ‘‘Covid-19 Death Audit Report at the end of June 2020, and a Report on Keralites tested Positive outside Kerala’’ (Government of Kerala, 2020ax)

On 2nd July, GOK-DHFW issued an ‘‘advisory on augmenting testing and sample collection management and implementation framework for the districts’’ (Government of Kerala, 2020o)

On 2nd July, GOK-DHFW issued ‘‘issued an order Public Private Partnership for Covid-19 testing’’ (Government of Kerala, 2020dj)

On 2nd July, GOK-DHFW issued a circular on ‘‘fixation of Private Laboratory Covid-19 test rates’’ (Government of Kerala, 2020am)

On 9th July, GOK-DHFW has published ‘‘Covid-19 State Report on Clusters’’ (Government of Kerala, 2020dp) and ‘‘Covid-19 Clinical Management Report’’ (Government of Kerala, 2020dq)

On 14th July, GOK-DHFW issued ‘‘guidelines for sentinel surveillance in Coastal and Tribal areas to detect any local transmission in marginal population settings, i.e. Coastal, Tribal and Urban Slums’’ (Government of Kerala, 2020bs)

On 15th July, GOK-Department of General Administration (Secrete Section) issued an ‘‘order regarding the services of Shri Rajeev Sadanandan, IAS Retired, availed to advise the Honourable Chief Minister’’ (Government of Kerala, 2020df)

On 20th July, GOK-DHFW issued ‘‘Report on Health Care Workers, The Positive Cases-Study’’ (Government of Kerala, 2020dr)

At the end of July, GOK-DHFW published the ‘‘list of Covid hospitals in each district’’ (Government of Kerala, 2020ch)

On 30th July, GOK-DHFW issued ‘‘Covid Care focusing on the Coastal Health Action Plan and a public notice published in the public interest, which is aimed at giving clarity regarding the places to avail the treatment for Covid-19’’ (Government of Kerala, 2020aj).

At the end of July, GOK-DHFW published a discussion paper on Covid-19 ascertaining the cause of death: ‘‘Myths and Facts, Sentinel surveillance report volume 3, Death Audit Report’’

Third Phase (August 2020- Till date 2021)

In the first week of August, GOK-DHFW issued a ‘‘circular on Covid-19 testing and published tips and advices for celebrating Onam’’

On 7th August, GOK-DHFW issued a ‘‘circular showing the framework for health system preparedness in Kerala’’. It talked of Health System preparedness and its framework for planning in detail comprising of health care institutions, preventing disruption of treatment for those on medications for chronic diseases, proactive care of vulnerable population groups, infectious disease prevention control and relief camps, transportation arrangements, snake bites, volunteer plan and capacity building, psychological support, dead bodies, forecast the requirement of following items and maintain stock (Government of Kerala, 2020bg).

On 9th August, GOK-DHFW issued a ‘‘technical paper on Covid-19 sampling, laboratories, and testing management’’. It has listed a total of 8 laboratories with its daily capacity in each laboratory of the state and state report on Clusters (Government of Kerala, 2020ec)

On 10th August, GOK-Department of General Administration (Secrete Section) issued an ‘‘order on lockdown under the DM Act’’ (Government of Kerala, 2020cv)

On 12th August, GOK-DHFW issued an ‘‘order to walk into Covid-19 test facilities in private laboratories’’ (Government of Kerala, 2020dg)

On 15th August, GOK-DHFW issued ‘‘COVID-19 Revised testing guidelines’’ (Government of Kerala, 2020dv) and ‘‘treatment guidelines for Kerala state’’ (Government of Kerala, 2020dw)

On 22nd August, GOK-DHFW issued ‘‘Covid-19 contact tracing and quarantine guidelines’’ (Government of Kerala, 2020cl)

On 27th August, GOK-DHFW issued a ‘‘supplement to the advisory on sentinel surveillance regarding the 14th May 2020’’ (Government of Kerala, 2020a)

On 28th August, Kerala’s first, second-line treatment centres were set up at Adult Convention Centre at Karukutty near Angamaly (Times of India, 2020)

On 29th August, GOK-DHFW issued guidelines for ‘‘phased reopening-4 with tips to celebrate Onam safely’’ (Government of Kerala, 2020br)

On 3rd October, GOK-DHFW published ‘‘technical papers on the Rapid Antibody Test sero-surveillance Base Line Report and ICMR sero-surveillance 2nd Round for Kerala’’ (Government of Kerala, 2020dk)

In October, GOK-DHFW published the ‘‘proposal for strengthening critical care support by the Government Medical College, Thrissur’’ (Government of Kerala, 2020di)

On 13th October, GOK-DHFW issued ‘‘guidelines on Tele ICU and Intensive Care Services’’ (Government of Kerala, 2020bw)

On 14th October, GOK-DHFW issued ‘‘revised discharge guidelines for Covid-19 patients’’ (Government of Kerala, 2020du).

On 21st October, GOK-DHFW issued an ‘‘order on refixing the Covid-19 test rates sanction order’’ (Government of Kerala, 2020cz)

On 11th November, GOK-DHFW issued ‘‘Covid-19 Sabarimala pilgrimage 2020-2021 Action plans, and it has listed a detailed explanation of the Hospitals and Human Resources Deployment Plan’’ (Government of Kerala, 2020ab)

On 24th November, GOK-DHFW issued ‘‘guidelines on dead body management in the context of the Covid-19 pandemic’’ (Government of Kerala, 2020bu)

On 1st December, GOK-DHFW issued a ‘‘supplement to the Covid-19 revised testing guidelines’’ (Government of Kerala, 2020b)

0n 1st January 2021, GOK-DHFW issued an ‘‘order regarding refixing the Covid-19 test rates’’ ’’ (Government of Kerala, 2021cy)

On 2nd February, GOK-DHFW issued a ‘‘notification regarding the campaign Back to the Basics’’ (Government of Kerala, 2020bl)

The state had also deliberately increased the testing to find more accurate data, and the vaccination drive started on 16th January 2021.

2.3 Unfolding Covid-19 Response in Kerala

Kerala’s response to Covid-19 and the elements at the back of the achievement story is that more substantial social mobilisation and gaining knowledge of from the Nipah outbreak and a strong government health system also assisted to do powerful containment measures on time. The participation of local self-governments, transparency in data, and positive attitude of the authorities to take community into confidence have additionally prompted to the achievement (Sadanandan, 2020). (Menon et al., 2020) have examined Kerala’s response to the Covid-19 pandemic. The authors argue that energetic state machinery, executive and administration, and a strong public health system backed by way civic engagement had been the basis for its winning. The learnings from the state underline the significance of a sturdy public health system with energetic civic engagement for handling the Covid-19 pandemic (Rahim et al., 2020) explains what worked in the Kerala Model of Covid-19 Containment. It is because of the state's experience in mobilizing people, engagement of local self-governments in decentralised planning, engagement in the containment and remedy measures, ok health infrastructures and a system-ready health system. Three policy strategies had been essential to

Kerala's achievement: rigorous testing, clear communication and population management strategy, and operational health planning and administration. As many as 18 committees were hooked up to coordinate containment mitigation activities (Savoia, 2020).

Furthermore, the success of the Kerala Model of containing the spread is the outcome of the efficient governmental management of the situation appropriately and proper coordination between the state and society. Kerala's social movements and structure have also influenced the governance and health system actors to act on time during the pandemic (Raveendran, 2020). (Chathukulam & Tharamangalam, 2021) has examined Kerala model amidst the pandemic, in which they looked up on Kerala's trajectory in attaining achievement after which confronting the sudden reversal by means of contemplating the footprint of the Kerala model, which includes sturdy and decentralised institutions and provisions for healthcare, safety nets and welfare and particularly the potential of a democratic state working collaboratively with community and taking part in a high level of consensus and public trust. Finally, they concluded by saying the role of adversarial politics as a deficit in public action. (Paul et al., 2020) have studied a Kerala case study on revisiting Covid-19 challenges and responses. This take a look at tried to reply the destiny economic and health challenges the Kerala development model faces with Covid-19. The objective was to examine the financial challenges beforehand of the state as the tertiary sector faces challenges in contributing to the economic system and health problems. The authors carried out an in-depth interview amongst ten social scientists and economists of Kerala the usage of the purposive sampling technique. They did a thematic analysis. They have a look at has observed that the country's present day scenario all through the pandemic, the local empowerment in all sections of life clubbed with administrative direction, led to well-prepared public health service provision. Nonetheless, state recently saw increased Covid-19 cases after expatriates' return, the aspects referred to above assisted the state in its combat towards Covid-19. (Michael & Rahman, 2020) have studied the effect of the facebook campaign of the Kerala police throughout the Covid-19 lockdown. The authors speak how the Kerala state police branch used its social media platform, particularly its facebook page, to help the Covid-19 prevention campaign of the authorities. They took a look at and used quantitative content material analysis of the authentic facebook web page of the Kerala Police branch to get information approximately on their communication strategy. A target audience survey become performed to measure the effect of social media communication and the notion of the police department. They argued that the state-followed strategies that received international coverage and appreciation for their preventive measures

towards Covid-19. (Radha et al., 2020) has conducted an explorative study on local self-governments' role in controlling Covid-19 in Kerala. Their study focused on the Covid-19 response strategies carried out by the local bodies. The methods followed in the study were conducting interviews with various heads of local self-government bodies in the Kannur district. Then it was transcribed and analysed by using an inductive approach. They observed that the enormous elements in the Covid-19 response through the local self-governments were organisational capability, networking with diverse agencies, community engagements, resource mobilization, inter-sectoral coordination, and so forth. Therefore, the authors conclude that handling the pandemic by way of planning activities at the local level has gone a long manner in minimizing the spread of it Kerala, for the duration of the initial phase. The authors propose that this could function as a model for the effective implementation of public health programs.(Jalan & Sen, 2020) has studied Kerala's story of containing a virus with public actions and trust. The authors have studied Kerala's notable achievement in containing the pandemic's first wave. They have taken into consideration the exceptional additives of the state's Covid-19 policy during the primary wave. They syas that whilst being a state with huge resource crunch, Kerala contained its first Covid-19 wave via pre-planned complete set of public actions. It became executed by using leveraging and reinforcing the citizen's public trust in the state. (Thomas Isaac & Sadanandan, 2020) have studied Covid-19, public health system and local Governments in the state. They have mentioned the significance of the public health system, social capital, and energetic participation of the communities through local self-governments that enact a substantial role in state's achievement. The authors have also highlighted a historic exploration of the evolution of the public health system and local governments in the state. (Ummer et al., 2021) have look at the use of digital technology during the Covid-19 response in Kerala. They explored use of virtual tools in Kerala throughout the spheres of communication, surveillance, clinical treatment, non-medical support, and the core health system preparedness and response. The state is taken into consideration as India's primary digital state, with maximum proportion of families with computers and internet, mobile phone penetration especially smart phones and with 75% digital literacy. Therefore, the state could include technology in the response effectively in terms of ensuring timely health information, access to entitlements, monitoring of quarantined persons and track and tracing of contacts, use of telemedicine etc. However, the pandemic response has shown the potential of digital technology in health system and the challenges of data privacy and equity in digital access is serious concern in the state. (Dutta & Fishcher W, 2020) has studied local governance of the crisis in terms of infection prevention and social safety in India. The authors display how

the urgency of Covid-19 response has boosted new types of inter sectoral and inter-scalar interaction among administrative units covered in synergising responses. whereas, the local government have been embodying an ethic of care in the execution of state responses.

(Choolayil & Putran, 2021) have studied covid-19. This text gives a cross-sectional exploration of the Covid-19 containment approach and highlights its preliminary effectiveness in the Kasaragod district. The article explores the factors that allowed the preliminary a success restoration from a second-stage transmission after which examines the elements that later caused community-level transmission. The authors conclude that Kerala initially managed the risk posed by way of Covid-19 infections until the large inflow of expatriates began. The local level work of ASHAs, the police pressure and volunteers performed essential roles and averted intense strains on local healthcare institutions.(Vaman et al., 2020) have studied district-level preparedness and response to the first case of Covid-19 infection confirmed in Kasaragod. The district-level actions during pre- and post-identification of the first case have guided other resource-limited settings about the preparedness and mitigation measures to be adopted. The evolution of strategies spotlights the importance of coordination between district and state health administrators, district administration and line departments, rapid dissemination of health information, disaster preparedness and community engagement for surveillance support and home quarantine. (Rahim et al., 2020) have studied the lessons from Kerala on what worked under resource constraint settings in responding to Covid-19. The authors argue that the authorities and public response differed from other states. Its achievement with containment to prevent the spillover of the infection into most people for an extended period made other states and nations to take notice. The method that the authors accompanied on this look at turned into participatory observation. The author's experience in the public health and enabled them to study the scenario. They have got observed that the state ensured that a low percentage of the members of society were infected with a low CFR of 0.94%. (Vibhute & Chattopadhyay, 2020) have studied the issues with Covid-19 information and why Kerala sticks out in India. The authors have analysed the satisfactory of statistics published by way of the government having excessive Covid-19 numbers was analysed. The parameters that the authors have taken under consideration were timeliness of the publication of daily reviews, accessibility of reports, and sufficiency of the record in terms of all info and languages in which reviews had been released. They observed that aside from Kerala, all different states had been found missing in one or more parameters. They have got found that a more rigorous implementation of screening procedure, going beyond guidelines issued via the Ministry could be the cause at the back of

better testing levels than different states, particularly throughout initial phase of the pandemic. (S & Sreedharan, 2020) has conducted a study on Covid-19 cases in Kerala in a visual exploratory data analysis approach. The authors have analysed the Covid-19 cases and powerful measures taken by means of the Kerala government. in the analysis stage, they identified 3 phases: the primary from January 30 to March 9, 2020; the second from March 10 to May 8 and the last from May 9 to May 31, 2020. They found that the steps taken via the Kerala government ensured the virus changed into contained in the affected people. The implementation of contact tracing and domestic quarantine reduced community spread. The authors conclude by saying the model raised by Kerala for preventing towards Covid-19 can be considered a benchmark for the way the public health department may be utilised well. (Dickson et al., 2020) has conducted a Meta-analysis study on the impact and statistics of Covid-19 in Kerala. The authors have used the data accumulated from diverse sites hosted by way of government bodies and calculated the common range of days required to reach every 5000 new cases using the same information. They have argued that lifting the lockdown in a step-by-step process keeping in mind the requirements for the nation, was a thoughtful act. The authors concluded by saying the government authorities had no different alternative but to lift the regulations to lessen the economic burdens that had already affected the daily wage worker and farmers prompting them to give up their lives. Kerala followed a community based approach through the local governments, especially village panchayats, municipalities and municipal corporations. The local self-governments have mobilised the support of Kudumbasree and the volunteers from the community. The capacity building for elected representatives and Kudumbasree members was ensured through simple manuals and electronic classes. One of the significant learning that the state taught the other states was the strengthening of primary healthcare system within a short period of time (Vijayanand, 2020). Since the first case of Covid-19 in the state, the Kerala government has taken numerous measures to strengthen the guidelines, emergency preparedness, diagnostics and categorisation of risk involved in reducing virus transmission. The government has also released an immediate fund from the State Disaster Response Fund to tackle the outbreak after identifying Covid-19 as a disaster (Udhaya Kumar et al., 2020).

The project report on the Kerala Model of response to Covid-19 by the Centre for Public Policy Research has comprehensively analysed Covid-19 in the state. It talks of containment strategies and other dimensions of the health service system's response, food security interventions, financial interventions, outreach programmes, and the resurgence of the infection at the end of

May 2020 (Centre for Public Policy Research, 2020). However, the analysis was limited to the first quarter of the third phase in the first wave of infection in the state. The report on Kerala's Response to Covid-19 by National Disaster Management Authority has put forth a brief description of innovations and outcomes of the response in Kerala. It has emphasised the role of effective communication, a community-based approach, and social welfare policies.

Nonetheless, the report was of a short duration of time and thereby could not cover the whole first wave in the state. The IDFC Institute's brief description of Kerala's Strategies for Covid-19 Response and working paper on the State Capacity Perspective on Covid-19 has comprehensively explained the general response to the pandemic in the state. It talks of the state's socioeconomic, demographic and epidemiologic vulnerabilities, public health response and its comparison of different kinds. It emphasises why the state has a success story to tell about the first wave (Institute, 2020). However, the duration of the first phase of the first wave was about a few months. Kerala State Disaster Management Authority's Inter-Agency Group has prepared a response report on the actions taken by the agency to combat Covid-19. This report summarises the activities performed in each state district as part of the Covid-19 response. The main focus of their actions was community mobilisation and coordination of NGO activities in each locality. But the coverage of the activities was limited to the first phase of the pandemic in the first wave (Group, 2020). The Health Systems Research India Initiative has produced a research report on combating the Covid-19 Pandemic in Kerala. The report enlightens the Covid-19 response in connection with the public health systems' reforms in the recent past. The comprehensiveness of the report and the limited coverage of the duration of the pandemic is a drawbacks of the work (Initiative, 2020).

(Mustafa et al., 2021) has studied the need for an equitable and inclusive pandemic response framework by displaying the model of Kerala. It discusses diverse strategies and measures followed by Kerala, an Indian state, to combat the Covid-19 outbreak. Many followed strategies used every day and timely updates by public relations and health authorities. During the pandemic, instead of supplying conventional one-sided services, health services in the state used an alternative care version that embraced the sufferers and their health needs. It covered small conveniences like free internet access for patients, permitting family members to share rooms, and placing patient beds near windows. Those all constituted the part of empathy for the patient and subsequently wireless boosted the trust many of the people in the system (Vijayan, 2021). The state of Kerala witnessed large-scale efforts of multiple NGOs and volunteer groups which increased during the pandemic. Kerala has also been able to ensure

access to information for all. It included the vulnerable while provisioning basic social services of food, education, housing and work (Adithyan, 2021). (Israelsen & Malji, 2021) have compared the Covid-19 response in Kerala and Gujarat in the initial phase of the pandemic. There were considerable variations in infectivity, testing and mortality rates across states in India. In the initial stages of the pandemic, the state of Gujarat, known for its large economic output, had to witness high Covid-19 CFR. This was due to a disorganised response to the pandemic and poor access to health care in the state. Whereas Kerala's response was effective in the initial phase, which was an outcome of complete access to care, intensives testing, and an organized and well-coordinated response with a robust public health care system in the state. It is to be noted that since the 2000s, the Gujarat model has emphasised industrialisation and economic development at the expense of social development. Meanwhile, the Kerala model emphasises social development at the expense of economic development. Therefore, these differences in the approach to development have also reflected in the Covid-19 response in the two states where Kerala had done well compared to Gujarat. The fourth nationwide seroprevalence survey conducted by the Indian Council of Medical Research shows that only 44.4 percent of the individuals in has been exposed to the Covid-19. This was the lowest in the country and tells us the success story of the state in the initial phases (Gowda, 2021). (Rashmi & Lekshmi, 2021) has explored the role of community mobilisation during epidemic emergencies in Kerala. It was in the backdrop of the Covid-19 response in the state and the community participation associated with it. The components of community kitchens, social surveillance, and large-scale production of masks and sanitisers; by utilising the productive capacity of women's self-help groups, youth clubs and associations, and even prisoners. It was not a model borrowed from any part of the world but a locally invented one. (Joseph et al., 2021) have studied the Ayurvedic response to Covid-19 in Kerala and its effect on quarantined human beings. The implementation framework of the approach was well designed and had a decentralised, people-focused, participatory approach. The study finds that the program carried out systemically with an organised framework with social participation allows wider utilisation of the services. This framework became easily replicable even in terrible resource settings. (Vaman et al., 2020) have studied the relevance of the TPR as a hallmark for strategic action in Covid-19 in the context wherein administrators and policymakers have depended on the TPR for making policy selections concerning local, regional, and country wide lockdowns. Consequently, the primary care system and contact tracing are relatively extra robust than in numerous other areas, testing an appropriate individual in a well-timed style alone can cause an upswing in the TPR. In preference to daily change, the general change in a larger time frame

of one to two weeks should provide an early warning concerning the resurgence of a new wave. It suggests a need for a composite indicator to act on and might allow people to do each day livelihood activities without compromising regulations imposed because of Covid-19. (Prajitha et al., 2021) has studied the strategies that helped Kerala's fight against the Covid-19. The major themes that worked well in the response were social capital, robust public health system, participation and volunteerism, health system preparedness and challenges. The synergy of these themes has helped get more effective outcomes out of the response. There were many arguments on why Kerala initially stood out. Some of the reasons were the close monitoring of the infected by sufficient health personnel and the provisioning of appropriate medical care with the help of a robust public healthcare system. It also has the best health infrastructure in the country. During the second wave Kerala could export oxygen to other states as they have invested in oxygen plants to ensure there are sufficient number of oxygen supplies (Gowda, 2021). The victory against the Covid-19 lies with respect to keeping the fatalities to the minimum. The state has vaccinated 71 % of its targeted population with the first dose and 26 % with the second dose as of 27th August 2021. Kerala model offers a lesson to continue early case detection efforts and better management of the pandemic while expanding the coverage of vaccination (Babu, 2021). From the above extensive literature review, it is clear that the research studies and new reports on Covid-19 response in Kerala shows that there are plenty of studies which talks of the district level or sub district level Covid-19 response. Therefore, we proposed to do an exploratory study on the organisation and the actual functioning of the Covid-19 response in an urban set up at the selected wards in local level. The research questions of this study will focus on;

- How have the elements of health system preparedness been functioning at Manjeri municipality?
- What systemic constraints persisted in the Covid-19 response, and how did it overcome?
- How does the Covid response organisational structure at the Municipal level form, and how did they coordinate the activities of health and social sector actors?
- What were the enablers and barriers of the Covid-19 response existed during and how did it become and vital part?
- What were the ways in which the human resource was mobilised immediately amidst the epidemic, and how did they perform in the response strategy?

Chapter-3

Methodology

The current study is more focused on the perspective of health system analysis which is one of the comprehensive analytical approaches in health systems research. This study will follow a qualitative mixed method in social science research. The study will delve into the research questions through the distinct components of the health system response to the pandemic in an urban locality in Kerala. The study has identified the methodological relevance of exploring the topic regarding the systems approach to the Covid-19 response. The larger macro-level scenario of the health system's performance at the Municipal level and its organisational structure also includes institutions that deal with public health activities. It also incorporates broader social, economic and political structures within the health system. Apart from this, a detailed document analysis has also been done to get through all the government publications and the government orders regarding the Covid-19 pandemic and other social protection schemes allied with it. The geographical location for this study would be Manjeri Municipality in Malappuram District enlarge; therefore, in-depth interviews and critical informant interviews are done at the local to capture the lived experiences of various actors in the health sector as the non-health sector who had engaged in the response team.

Moreover, it has also performed six in-depth interviews with the local self-government members and six interviews with the ASHAs to know the ground realities within the Municipalities concerning the various socioeconomic, cultural and demographic characteristics. A few key informant interviews have been done with those on the top and bottom of the hierarchy and doing similar job profiles like medical officers, public health nurses and health inspectors who had been part of the grass-root level activities. Consequently, a set of questions would be based on the components of preparedness at several sub-systems of a health service system. The distinct dimensions of the issue will look into social participation, the devolution of power and resources through decentralisation in health care and how it has been worthwhile to Covid-19 response. The analysis has been conceptualised and incorporated the approach of systems thinking from the health systems perspective. The study has mainly looked into the specific step taken to improve and strengthen the health service system regarding the preparedness and response to the Covid-19 pandemic in Kerala.

3.1 Conceptual Framework

Health System

The notion of a health system is complex system which has no universally accepted definition. ‘‘There are various factors that guide the development of a health system which includes the demographic structure of the society, epidemiologic characteristics of the population, cultural context of the people, the economic scenario of society as in resource distribution and its availability in the society, the political context in which the society developed and sustained especially emphasises the question of whether health is an individual or a social or state’s responsibility. The social context of the health system addresses stratification based on people's identities in terms of caste, class, gender, religion, ethnicity etc. these all affect the health outcome of the population; therefore, it is considered the determinant of health. It includes livelihood, wages, housing, food security, water supply and sanitation and access to basic needs’’ (Baru, 2019). The people-centric health systems, from individual to family to community, are the core of any health system. A health system can have a different level of administrative or governance units, namely, local, district, regional or state, and national. One of the essential divisions of a health system can be done through public, and private as the socio-political and economic factors of a nation decide whether to be a health system and what kind to be adopted (WHO, 2003).

The health system comprises various subsystems: ‘‘health services, information and evidence, medical products and technologies, human resources, health financing, leadership and governance, research and development, monitoring and evaluation’’ (WHO, 2000, p.1). In service delivery, it addresses the ways in which the health services are organised and take forward to ensure access, quality, safety and continuity of care over health conditions on all parts of health facilities and over time. At the same time, the information and evidence tell about the engendering and shrewd use of information, evidence and research on health and health systems to strengthen administration, leadership and governance. Medical products and technologies ensure access to essential medical products through just way and highly sophisticated technology with ensured quality. Human resource is one subset that considers the management of workforce dynamics, primarily to direct the entry of and exit of the health manpower and boost the distribution and potential capabilities of existing health manpower. Furthermore, health financing deals with mobilizing sufficient financial resources for health which can save people from financial troubles when they access needed health services. Finally, the leadership and governance that provide scope for strategic policy and combine with constructive administration, coalition of functions, regulation, scrutiny to issues of health

systems design and enhance the responsibility to protect the public interest in health (WHO, 2003). ‘

‘The system from the management perspective can be categorised as input in terms of resources, output in terms of services, and outcomes along with the processes among the three sequential components. The inputs are human resources, infrastructure, durable goods, technology, equipment, consumables, drugs, and stationary; gloves, and the indicators used for these inputs are doctor-to-population, hospital beds per population ratio, nurse-to-population ratio, etc. The output of a health system is provided in the form of preventive, promotive, curative and rehabilitative services, and the inputs are translated into the services provided to the people. The indicators of service provided include the number of surgeries performed, bed occupancy ratio, proportion of children immunized, proportion of institutional deliveries, etc.’’ (Quadeer, 1983, p.201). Finally, the outcomes of a health system can be seen as the population's improved health status, which uses indicators such as Infant Mortality Rate, Maternal Mortality Rate, and Incidence and Prevalence rates. The topic under study is conceptualised based on the subsystems of health systems, especially from the health service system's perspective. It focuses more on mobilising human resources in the Covid-19 response in Kerala.

Health Service System

The health service system is composite of research, education and health service delivery systems for preventive, promotive, curative and rehabilitative services. It is only one among the many inputs need to progress the people's health. It is a part of the larger health system, which comprises different subsystems. The health service system is centred on family and community-level care, interlinked into the service system. The various elements of the health service system are health workforce, education and training, health research, pharmaceutical and medical equipment industry, health financing, health leadership and governance (Qadeer, 1983). Health services are only a subsystem of the larger health system that provides health services to the population according to their needs. Health services and access to basic needs determine the population's health outcome in a locality. Therefore, the state's role in providing these health services has to be given prominence as, most often, these health services must be given for free to the people. This ensures equity in the population's health and social justice through the redistributive policies of the state (Baru, 2019). According to Qadeer, ‘‘the Indian health service system can be characterized by inequalities in resource distribution, access, and participation and health status (Qadeer, 1985,p.204)’’. The three-tiered healthcare systems of health services lack human and material resources, which is still visible. The concentration of

advanced healthcare institutions at the centre of a district and the residence of the healthcare personnel in the urban centres make the rural and periphery regions suffer more. Therefore, their health needs are not being addressed on time.

Furthermore, most types of equipment used for curative services are extremely costly and located in the tertiary hospitals at the centre of the districts. The inequality of access is highly reflected in the rural-urban dichotomy, which leads to the concentration of resources at the centre. Most people from the periphery find it challenging to reach out and avail of these services. ‘‘The class, caste and gender dimensions of the access issues have also made the health services system more complex, and this would result in health inequalities and inequities’’. On the other hand, inequalities in participation have two dimensions in terms of receivers of healthcare services and providers of healthcare services. So, the existing inequalities in the social system have a more significant impact on the health services system.

Consequently, a definite result of the above said inequalities of various kinds is the varied impact of health services on the people’s health status. Besides the inequalities of several types, the healthcare services system has certain distinct features in terms of lacking an epidemiological logic, inappropriate use of technology and having a top-heavy organization. The unepidemiological sense of the health service system can be seen where curative care is given more attention than preventive care; thereby appropriate mix of primary and secondary prevention is missing. Over-dependence on technology in health services leads to neglect of diseases with social roots. In comparison, the top-heavy organization results in the centralization of human resources linked to advanced technologies for curative services (Qadeer, 1985).

Systems Thinking for Health Systems Analysis

Since health systems are often treated as monolithic broader system wherein modest recognition is given to the interlinkages of their various components. These interactions and their dynamics synergize the shifting subsystems. Therefore, in people-centred health systems, the role of people must be emphasized. It should not just at the centre of the system as arbitrators and recipient but as actors in driving the system itself. It involves peoples’ engagement as individuals, organisations, civil society and stakeholder grids. Moreover, they also involve as stakeholders have an effect on each of the subsystems in the form of health workers, managers, and policymakers. Putting people and the communities at the centre of the analysis emphasises the principles of primary health care, impartiality, equity, community

engagement, and multi-sectoral coordination. ‘‘System thinking is an approach to problem-solving that views problems as part of the wider dynamic system’’. It emphasises greater than a reaction to current outcomes. Therefore, it needs intense knowledge of the linkages, relationships, interactions and behaviours among the components that characterise the whole system. ‘‘Applying systems thinking is health expedite a more realistic understanding of what works, for whom and under what circumstances’’ (Roy & Sen, 2000).

Health Systems Analysis

Health system research often addresses the performance or developments of any or a few subsystems. The primary objective of health system research is to promote coverage, quality, efficiency, and equity in health systems. Health systems research is, therefore, a multidisciplinary approach to addressing the system's issues. It draws upon various disciplines, particularly social sciences. Even though the use of various branch of knowledge to be applied largely based on the kind of the research question is carried out. Furthermore, health system analysis studies the performance of the subsystems of the system, and it helps to form desirable policies and strategies to boost the functioning. It includes data collection on health system inputs, processes, and outputs. Later, it looks the ways in which the three factors combine to produce health outcomes, especially their end result on individual and well-being of the people. Moreover, this exploration has to examine other critical system environments such as politics, history, and institutional set up in which most developments occur. Health system analysis tries to formulate hypotheses on the reasons for the poor performance of health systems and the ways in which policies and strategies can boost the functioning. In other words, it tells us how reforms can be put into practice and their possible results (Berman & Bitran, 2016). One of the significant components of the systems approach is the system's constraints in the Covid-19 response in the study location. It can be of general system constraints, health system constraints, and health service system constraints which would have impacted the overall performance in Covid-19 management. It also considers the system enablers that helped the Covid-19 response to perform better in the study area.

Key Components of Health Systems Analysis

Components of Health Systems Analysis	Explanation of Components of Health System Analysis
System performance framework	Looks into the performance, which explains the system parts and links system performance to inputs and processes of the ways in which the health system works
Appraisal of system performance	Explanation of valued outcomes of the system, points and trend scales of their extent
Evaluation of system performance	Understanding on provided criteria related to whether system performance achievements are sufficient and meet priorities for action to boost health system performance
Explanation of system components	Quantitative and qualitative details on various segments of the system in through inputs, organization, and processes
Estimates of the impact of change on performance	Projects the ways in which suggested changes in policy and action which are likely to impact the system

Source: (Berman & Bitran, 2016)

This study will look up on the systems perspective on the elements of preparedness and response to the pandemic in Kerala. It will also examine various systemic constraints in the Covid-19 response. Thereby, health systems analysis of Covid-19 response indicates a view of a larger system, so a set of elements would be included in a comprehensive analysis of the entire health system. It could also be used to a more fragmented analyses, in terms of a subsystem. Various components combined collectively make up health systems analysis; even though, this does not imply that Health System Analysis must incorporate all components given above. Therefore, the health system analysis strongly impacts their content, rigour, and comprehensiveness of approach (Berman & Bitran, 2016).

3.2 Objectives of the Study

- To explore the Covid-19 Preparedness and Response in the selected wards at Manjeri Municipality in terms of organisational set-up and actual functioning
- To examine how human resources have been mobilized in the Municipality to tackle the challenge of Covid-19
- To critically examine the systemic constraints that adversely affected the Covid-19 response at the locality
- To find out the enablers and barriers in the Covid-19 management in the selected wards of Manjeri Municipality

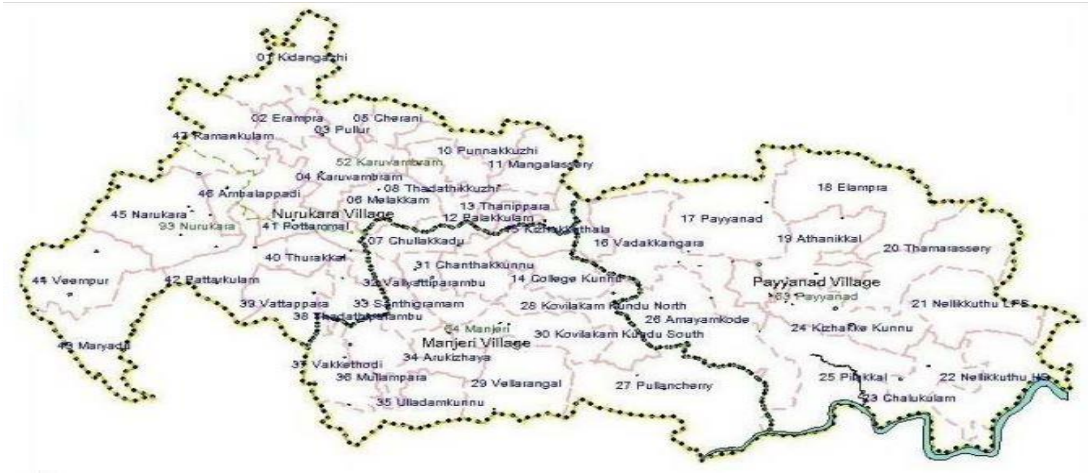
3.3 Research Design

The overall structure of the study has been conceptualised as an exploration of the Covid-19 response in Kerala, especially Manjeri Municipality. Therefore, it is a kind of descriptive research. The qualitative mixed methodology is the appropriate and feasible method employed in the study. The current study has adopted a mixed methodology approach to study the research questions as the information drawn from the study is more qualitative. Since the more prominent topic of the study is the Response to Covid-19 in Kerala through a Health Systems Analysis, most of the data variables are qualitative, and a portion of the analysis is devoted to deciphering the epidemiological and demographic data. A combination of a review of literature and document analysis has been performed to describe the strategies, measures, and activities that were done during the Covid-19 response in the state. Therefore, the study is focused on the particular approach of mixed methodology to address the research questions. The health system research and analysis follow a mixed methodological approach when the research questions are asked comprehensively. Health system research is social science research where much of the contents are used and analysed from a multidisciplinary framework. Hence, the importance of mixed methodological application is unique in this context. The health system analysis is focused on the inputs, outputs and outcomes in the health system, and much of this may not be quantifiable and needs to understand the process among the three components. Thereby to capture the interlinkages of the subsystems of the health system and the process of it from the perspective of a managerial side would allow us to find out the system's performance. The analytical framework used for this study explores the Covid-19 response in the state by categorizing the levels of response in the macro and micro parts of the system. The

macro-level analysis would bring about the detailed performance of the Municipal level response to Covid-19, and the micro-level response strategies and intervention is captured from the local self-government ward members' and ASHA workers' activities at the ground; the primary data collection has also conducted at the same locality. So that the study can bring up more contextual and empirical results from the field. Furthermore, the methodology has been designed to be flexible enough to include the continuous developments in the response strategy from 1st January 2020 to 31st March 2021. This was when the first wave of the pandemic happened, and the longer duration of it could explain qualitative findings through a comprehensive approach to the research questions.

3.4 Selection of the Study Area

The study has been designed to be a comprehensive analysis of the Covid-19 response in Kerala, and it has already stated that the levels of the investigation would be at Micro (Ward) and Macro (Municipality). Since the study is focused on Manjeri Municipality is considered the macro unit where the fieldwork has been conducted. The reason why Kerala has taken as the topic to explore the Covid-19 pandemic response was to find out the mechanisms the state followed, especially in the preparedness and the response in general. The state was considered one of the better performing in the first wave of the pandemic. Therefore, it was crucial to examine the health service system's input, output and outcomes during the pandemic. The location for the case study was Manjeri Municipality, as there is a Medical College Hospital and other secondary-level healthcare institutions as well as primary healthcare institutions. The Malappuram district is one of the backward in the case of health infrastructure, and it has resulted in poor health outcomes compared to other districts. There has always been a theory that Kerala's social development has some regional disparities. The southern parts of the state are far better in social development indicators like health and education, and the gap is getting lower as the year's pass. Therefore, it was essential to study a district that is already backward in health and education and has the largest population in the state. Manjeri municipality has come under the Taluk, Eranad and out of six Taluks in the district, the Municipality has an area of 53.06 square kilometres. Manjeri Municipality is the second-largest one in the state, where diverse communities live harmoniously.



Source: Manjeri Municipality Website

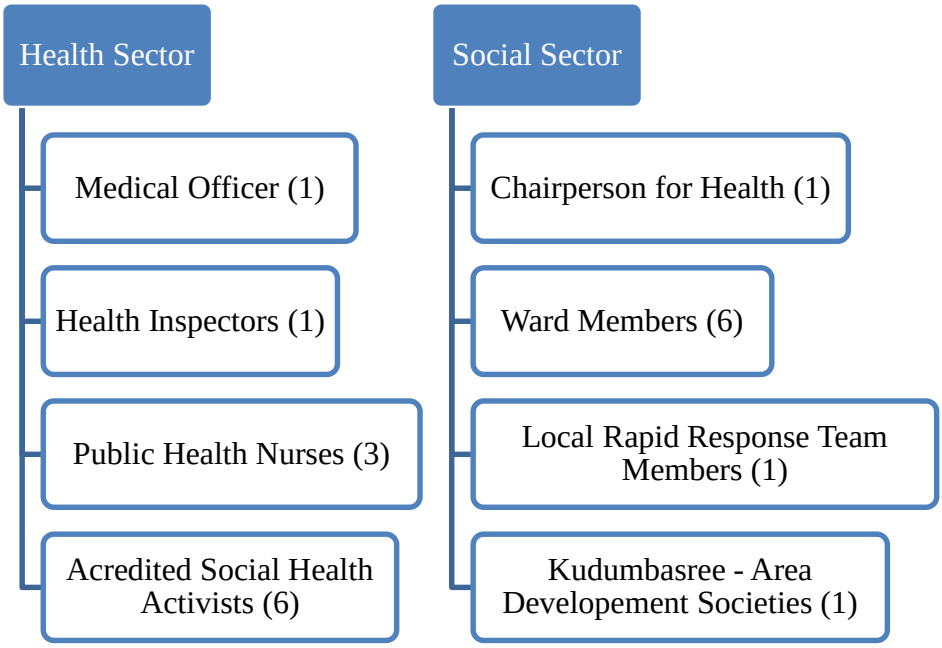
The municipality has 50 local self-government level wards where more decentralised governance has been done. The municipality is considered the commercial capital of the district. The Municipality's total population is 97102, according to the Census, 2011. The sex ratio of the municipality accounts for 1058, slightly lower than the state-level average. The population density amounts to 1830 per square kilometre that is above the state level. Most state government institutions and offices, like the district court, medical college, district hospital, and district media office, are located in this municipality. The total number of revenue villages is three in the municipality: Payyanad, Manjeri and Narukara.

The health sector in the Manjeri Municipality has been considered the best in the district, including Medical College, five private Allopathy hospitals, two government Ayurveda hospitals, one government Homeopathy hospital, one Veterinary hospital, one Tuberculosis Hospital, two Family Welfare centres and more than 95 laboratories. Apart from this, the public health sectors have four primary health centres and twelve municipalities' sub-centres. Additionally, two National Urban Health Mission centres exist in the area. Furthermore, the medical college in the district lacks sufficient infrastructure and equipment; therefore, most severe cases that need advanced and super speciality care are referred to the nearby Calicut medical college. Calicut medical college is considered one of the best and oldest in the Malabar region. Therefore, conducting the study in different areas of the municipality is crucial. It has decided to include elected ward members of the municipality, HIs, JPHNs, ASHAs, a rapid response team that deployed in each of the wards, Kudumbasree members, those who served as Sannadhasena warriors, etc. furthermore it also includes non-health actors who have been part of the Covid-19 preparedness and response in the study area.

3.5 Criteria for Selection of the Sample

The case study that has been carried out for this topic is Manjeri Municipality of Malappuram district in Kerala. The methodology used to carry out the study is mixed methods, where a documents and in-depth interviews with various actors in the Covid-19 response mechanisms has performed. Therefore, it applied snow ball techniques to capture the respondents as the scenario rising out of the pandemic was unable to find out the actors as quickly as the normal situation. Snowball sampling comes under non-probability sampling techniques where the samples have an attribute of uncommon to discover. It is a sampling technique in which existing subjects provide referrals to recruit samples required for a research study.

Sampling Framework



This technique consists of a primary data source nominating different potential data sources with the intention to be able to take part in the research study. Therefore, this sampling technique is solely primarily based on referrals, that's how a researcher can generate a sample. The flexibility of this method to carry out sampling and the context in which the research has chosen this method have significantly impacted the study. In this particular study, exponential non-discriminative snowball sampling has been used as one individual sample provided multiple referrals and these new referrals gave more data for new referrals. A complete of twenty interviews have been conducted to apprehend the ground realities within the governance system and to get extra facts and clarifications.

3.6 Sources of Data

The study has decided to follow a mixed methodology where much of the data were from available secondary sources and the rest from the field. It includes published research articles, journals, reports, policy documents, advisories, guidelines, and minutes of meetings, recorded and live webinars, and live discussions on television channels in both Malayalam and English. However, epidemiological and health data has been collected from the Government of Kerala Dashboard on Covid-19. The primary data has been collected from different actors in the Covid-19 response and preparedness in the sample study area. They are; Health inspectors, Junior Public Health Nurses, Local Self Government Members, ASHA workers, Kudumbasree Members, Anganwadi workers, Local Rapid Response Team Members and Socio-Political Organisations Members. The health inspectors were the lead at the field level in monitoring and following up on cases, and junior public health nurses were also a part of the process. Local self-government members and ASHA workers were very reliable in telling us the ground reality of their wards and locality. It helped the Health inspectors and junior public health nurses reach each spot. Kudumbasree and the Local rapid response team could do the full-time surveillance of the locality with the help of making some invisible groups to watch how the situation is going in their respected region. The socio-political organisations' members were a source of information on how the formal and informal social welfare schemes have been distributed and the socio-economic vulnerabilities of the population in each area.

The secondary data sources include the foremost epidemiological data, which consists of newly tested positive cases, recovered cases, active cases, and deaths daily. Apart from these data, the available government circulars, orders, advisories, guidelines, protocols, minutes of meetings, and posters from the Directorate of Health Services, has been used to combine the data collected. Moreover, articles from international, national and local newspapers are another data source. The finding of the ICMR seroprevalence study has been taken to evaluate the containment measure to curb the spread of the infection in the community. This study can predict how the states have performed better in the Covid-19 preparedness and response. Therefore, the data sources are primarily secondary, and the qualitative elements of the response have been used as the study's basis. It was performed after the study's conceptualisation and formation of research questions and is considered the suitable method.

3.7 Process of Data Collection

The mixed method of approach was used for the study, where the public health milestones from 1st January 2020 to 31 March 2021 were analysed. Since the first case of the Covid-19 reported in the state and country on 31st January 2020, it was essential to look back at the state's preparedness. Therefore, a combination of government advisories, guidelines, orders, circulars, minutes of meetings of public health importance, and newspaper articles has been extensively collected and translated into a data format. The detailed review of the literature was conducted during February and April 2021, and it was modified when new studies were coming up. The data collection for document analysis was focused on carrying out public health events for 15 months. The available research articles and reports of various organisations have also been collected to see the developments in Kerala's response to Covid-19. However, a few webinars on the topic have been covered, which are available online in English and Malayalam.

The primary data were collected by interviewing different Covid-19 response and preparedness actors. The initial sampling began with the local self-government level ward member, and then the respondent provided a few contacts of ASHA workers and Kudumbasree workers. Later the Kudumbasree workers provided the contact of Anganwadi workers, and the ASHA worker provided the contact of Junior Public Health Nurses. Consequently, the junior public health nurse has contacted Health Inspectors. Whereas the ward member has also provided the details of the local rapid response teams, members of socio-political organisations helped to conduct the interview directly as they are always available in the locality. All of these actors were from the same municipality, and in-depth interviews were conducted in native language via telephone after getting verbal informed consent from the participants. Interviews were performed at a suitable date and time for participants. The interview was conducted on an interview guide where appropriate questions were asked to each participant. Therefore, the data collection process was segmented a few months later. It was collected when the suitable time came and resulted in receiving the updated details of the Covid-19 response.

3.8 Data Analysis

The study has aimed to explore the Covid-19 response in Kerala through a Health Systems Analysis. The definitions, methodology, approach and process of health systems analysis have already been discussed in the study's conceptual framework. However, the core part of the analysis has been centred on the qualitative dimensions of the description of measures that the state has taken for the preparedness and response to the Covid-19 pandemic. Document

analysis is the primary tool used in the analysis process and, therefore, can get a detailed description of the policy and strategic measures adopted by the state and its departments. Moreover, the analytical approach has been applied when this information is interpreted according to the contextual factors considered. Therefore, social science research can clarify the questions of 'how' and 'why' in exploring facts and evidence.

Consequently, the research findings can be considered suitable models for society or states with similar socioeconomic, political, demographic and epidemiological characteristics to frame their strategies and measures. In the case of the data collected from the field to understand the realities on the ground and lived experiences at the grass-root level, primary data in the form of telephonic interviews have been collected. The primary data collected through the in-depth discussion were recorded, and transcripts were prepared. Then the thematic analysis was performed to obtain the findings corresponding to the research questions. This information has been collated and merged with the appropriate context and factors described in the analysis and discussion chapter. Furthermore, the incorporation of the primary date has been modified several times when the number of respondents increases over the study period. Finally, the triangulation procedure has been done using the collected information concerning the research questions. It is a research strategy that can help you enhance the validity and credibility of the finding that arise from the study. In the triangulation procedure, the interview transcripts and the dissertation report textual content clubbed thematically to pick out core consistencies and meanings the usage of a coding scheme, seek, summarise and examine information. The coding themes arose via inductive and deductive procedures primarily based on the interview manual, research questions, and analysing of the literature accrued. Consequently, findings from every information have been looked after into similarly classified segments that cope with the research questions of interest to test content material overlap and divergence areas. Later recognized the topics from every records source and in comparison with the findings to test the degree of convergence of the meaning and prominence of the themes provided. Eventually, the character and scope of the specific topic areas for each facts source have been to fulfil the completeness of all the finding.

Chapter - 4

Status of Health Services and Socioeconomic Characteristics of Manjeri Municipality

Health and health services within the larger health system are critical components of the socioeconomic development of a society and people. It is also considered one of the human development's basic needs. Therefore, it is crucial to study the interconnectedness of social, economic, political, and demographic characteristics with health status and health services in a locality. One of the effective umbrella terms used to combine all these factors is social determinants of health. These are the non-medical elements that affect health and associated outcomes. They're the situations wherein people are born, grow, work, live and a more extensive set of forces and structures shaping the needs of the population's day-to-day lives. The forces and structures encompass economic systems, development goals, social policies, social systems, social norms and institutional systems. The current study aims to provide insights through narratives of the Covid-19 response in Kerala with particular reference to Manjeri municipality. Therefore, it is vital to examine the socioeconomic characteristics and the health service at the local level. Furthermore, in the case of health and development, there are four types of broader indicators: health status, health determinants, health services and health systems. The core health status indicators that measure a population's health are life expectancy, infant mortality, and chronic disease rates. While the leading health determinant indicators that measure the factors that influence health are income, nutrition, water or air quality and other individual risky behaviours. The fundamental health services indicators used for further improvement of service provision are immunisation, reproductive, maternal, new-born, child and adolescent services provided, HIV and TB preventive and curative activities done and coverage of essential health services. Finally, the health system indictors guide the larger macro picture of the system through the quality of the health system and services, access, financing, health workforce, utilisation and outcomes. This chapter will address the socio-cultural, economic, political, demographic and geographic characteristics that influence the status of health services at the Manjeri Municipality. At the end of this section, it will give a brief idea about the formation of Municipal level Covid-19 response institutional structure and its organisational form and the Local Rapid Response Teams at the ward level, which were highly proactive during the pandemic.

4.1 Socio-Cultural Characteristics

Manjeri is a town and Municipality inside the Malappuram district within the northern region of the state. It has an area of 53 square kilometres, and the headquarters of the Ernad taluk is also situated in Manjeri. The Municipality is considered the second widest in the state, where all communities live harmoniously. Manjeri town lies at 11.12 N degrees north Latitude and 76.12 E degree East Longitude. The geography of the locality shows that forty-six per cent of the municipality's total area is high land, with 16% fairly slopped and exceedingly slopped. The climate is more or less hot and humid in the locality. Nonetheless, mostly the temperature right here reaches as much as 33 degrees C, and the minimal temperature goes down to twenty-five-degree C. The wind is primarily from the east and west duration morning and night hours, respectively. The people and communities in Manjeri share more or less similar social, cultural and religious practices, and they live in harmony. It has always been noted that many non-Malappuram residents who stayed in the district for a day, weeks, months and years have realised the hospitality and cooperative and welcoming attitude of the people in the region. It applies to Manjeri also, as it is seen as the most developed town in the district. Muslim communities constitute the central part of society; however, Hindus and Christians are there as significant in numbers. Therefore, most of the population comes under the Other Backwards Classes category, including much of the Muslim population. The Scheduled Castes and Tribes also live there but constitute less than ten per cent of the residents (Government of Kerala, 2011).

The history of this locality is rooted in the Mappila Rebellion of 1921, during the British rule against the landlords' exploitation of tenants and the poor. Therefore, many historical places within the locality are preserved and maintained as evidence of the freedom fighters and social movements within Kerala society. Even though Manjeri is considered a town, the people of the peri-urban region still fall under the lower middle-income groups. Most Muslim community members try to go to any Middle Eastern countries for employment opportunities. They return after three to five years of informal work in the Gulf and improve their standard of living in their native place. This process has influenced the gender equations of power within the family and Muslim households as the wives and children are left behind during this Gulf migration process. In another sense, this has empowered and improved the living conditions of this region. However, the Hindu caste system and discrimination are not explicitly visible in the locality or, in general, Kerala. Still, it is implicitly visible through the resource distribution and ownership, livelihood, health, education, the social and political process of framing

development projects or programs, geographical; separation of lower caste communities into Colonies where they live in congested spaces with limited basic facilities and amenities. Most of these communities are located in peri-urban areas where they are highly dependent on the informal sector and often underpaid work daily. On the other hand, there is stratification within the Muslim community where it is associated with the recently converted and others. Those who converted from lower castes of the Hindu religion also face some differential treatments, which is visible in their social status and standard of living. They also live in the peri-urban localities in the Manjeri municipality and majorly depend on unskilled labours in the locality. The Gulf migrations from these people are lower than the well-off categories. Furthermore, a common trend in Kerala is that people have an aversion to blue-collar work, so they are hesitant to go for everyday work. Therefore, substantial internal migrants from the north and eastern Indian states have settled in some parts of the Municipality. One of the reasons for this inward migration is that relatively better payment and living conditions for the people in Kerala.

Housing is one of the critical issues in the Municipality as the population size is increasing. Housing was not an issue in the past few years as the joint family system had been prevalent. Later in recent times, the family structure has changed, and many are adopting nuclear families, thereby houses for all these families. On the other hand, the non-availability of appropriate land is some other problem for housing. However, the housing issue has been rectified by implementing the LIFE (Livelihood, Inclusion, Financial Empowerment) mission in the municipality. The employment guarantee scheme for the urban areas in Kerala is called the Ayyankali Urban Employment Guarantee Scheme, which provides a considerable number of work days for poor households are one of the sources of income for the people of this Municipality. The Kudumbasree units and its members coordinate this scheme's implementation and enrol workers into the working group at each ward level. Since the selected wards have large numbers of informal workers, the Covid-19 crisis was a disaster for their livelihood options. It was easy to understand and see how this pandemic has affected people differently concerning age, class, caste, gender and locality. Many lost their work and went into lockdown, making them more vulnerable in socioeconomic and health statuses. Therefore, it is exceptionally significant to throw some light on the socioeconomic characteristics of the Manjeri Municipality and the status of health services to decipher the background of the Covid-19 response in the locality.

4.2 Political Characteristics

The Manjeri Municipality formed on 1st April 1978, and the first election to the council was held in 1982. At the time of the formation of the Municipality, there were 28 wards; now, there are 50 wards. The 74th Constitutional Amendment Act 1992 has produced a national framework for municipal governance in the country, and the Kerala state legislature passed the Kerala Municipality Act of 1994. Since then, decentralisation of governance and management had commenced like a campaign and then it was institutionalised. Due to this process, a single-tier structure of Municipalities and Municipal Corporations was created for the towns and cities. Moreover, a wide range of powers, functions and duties have been handover to the Local Self Government Institutions to work as a tertiary tier of government. The Acts additionally foresaw functional decentralisation via sharing functions of diverse state government departments to Local Self Government Institutions. It includes hand over of public service delivery institutions like schools, dispensaries, primary health centres, Anganwadis, institutions of social welfare programs etc., to the Local Self Government Institutions. The municipality prepares proposals and implements projects for overall development, making sure social justice.

The major political parties in this locality are UDF (United Democratic Front), LDF (Left Democratic Front), Bharatiya Janata Party (BJP), and Welfare Party. However, the exceptional upper hand of the Muslim League within the UDF has influenced the political process in the municipality. One of the reasons for this trend is the presence of many Muslim communities and their ability to exert their politics in this region. Therefore, the election results in all years have shown that the victory has always been in the hands of UDF, especially the Muslim League, for decades. Nonetheless, in recent years there has been a trend where the number of wards where the LDF used to win elections has increased, thereby reducing the earlier seats of the UDF. There was a time when the opposition within the Municipal Council was not very powerful and significant as the number of candidates on the opposite side was less. But now the scenario has changed, and the people of the area look forward to changing and voting for an alternative political party. The local political dynamics play an essential role in implementing programs and schemes in each ward as they go hand in hand with people and ward members. The institutional structure of the Municipality administration can be seen as the Chairperson is the Chief Executive Head, whom the elected selected from representatives who have won. Municipalities are mandated to form Standing Committees to evaluate plan manifestos and problems concerning particular sections such as Health, Education, Development, Welfare etc. and the resolutions of the Standing Committees are scrutinized by

the council. There are six Standing Committees, and the elected representatives elect the Chairpersons of these committees. They also constitute a few steering committees that coordinate and monitor the working of all the Standing Committees. The Municipal chair of the standing committees include the Steering Committee. Another significant modification foresaw with decentralisation was community engagement and planning from below for that numerous levels made at the Local Self Government Institution. To ensure this process, an assembly of the residents in a ward is held four times a year, called Ward Sabha. It offers a opportunity for the residents to raise their demands and issues and resolve on the proper utilisation of available resources to benefit the people of concerned wards. The municipality has three Revenue Villages: Manjeri, Narukara and Payyanad. Whereas the total number of LSG Wards is 50, they mostly have an average population of 1500. The elected representatives play an essential role in their wards' social and economic development.

There are various departments within the Municipal administration; General Administration, Accounts, Council, Revenue, Public Work, Town Planning and Health. These departments hardly work at the local level for the smooth functioning of the ruling process and the larger welfare of the people. The significant services administered at the Municipal level are registration of births, mortality and nuptiality, distribution of different certificates, social welfare nets, issuance of permits and licenses, collection of multiple taxes, and Redressal of public grievances. The health care institutions under the purview of Local Self Government Institutions, are Sub Centres, Primary Health Centres, Community Health Centres and District Hospitals, hospitals and dispensaries of Ayurveda, Homeo and other alternative systems of medicine. The standing committee that direct the administration are Health and Education Committee and Hospital Management Committee at the Municipal level. At the bottom level, a ward level committee called Ward Health, Sanitation and Nutrition Committee is formed. It consists of Ward members, Junior Public Health Nurses, ASHAs, and Kudumbasree ADSs and addresses the health, sanitation and nutrition issues at the ward level. They organize and conduct various health awareness programmes and activities at the grass root level with the participation of the community members of the respective areas.

4.3 Economic Characteristics

Manjeri is considered the commercial capital of the Malappuram district and one of the biggest municipalities in the state. Economic activities result in the production of goods and services, while sectors are classified based on the nature of economic activities performed by the people. Furthermore, it can also be characterised based on ownership, working conditions and the nature of economic activities. The sectoral composition of the local economy of Manjeri shows that the primary sector constitutes 5.70 per cent with 1.26 per cent of the total population share. The economic activities included in this sector are agriculture, mining, fishing, forestry, dairy, etc., where natural resources are directly used for production. On the other hand, the secondary sector constitutes 1.18 per cent with 26 percentage of the entire population share. It consists of the industries where finished products are made from the natural resources that are produced in the primary sector. The economic activities included in this include the industrial production of chemicals, plastics, oils, food processing, plants etc. are some examples. Finally, the third sector is tertiary, where 93.11 per cent of total workers are located with 20.54 per cent of the population share. It comprises trade and commerce, service, banking, insurance, finance, transportation, etc., and activities included in this (Municipality, 2017).

The total number of workers is 26,101, of which 22108 are primary workers, and only 682 are cultivators. The agricultural workers comprise 1223, and household industry workers are 252. A significant chunk of the working population is constituted under other workers, 19951. Marginal workers form 3993, where cultivators are 98 and agricultural labourers are 521. At the same time, household industry workers 41, other workers 3333 and the non-working population 71001 (Census, 2011). In the past five years, there has been a trend of migration of the rural poor from the north, east, and north-eastern Indian states. It has increased in the settlements of internal migrant labours in the locality also. Therefore, these migrated informal workers have grown over the years, predominantly working in agriculture and allied sectors, construction, hotels, quarries etc. It is significant to note that these workers are slightly underpaid than the native casual labourers.

The municipality has also run a National Employment Guarantee Program, Ayyankali Urban Employment Guarantee Program and other works done by the members of Ayalkkoottams or Kudumbasree units. The situation of poverty and lower economic status is almost similar to the different parts of the state. Most of the local poor people are from lower social and economic backgrounds. Many of them depend on informal work. The sum total of

households that come under the Poverty Line (2009) is 8130; however, there has been a considerable addition to the list since then. The municipality's public distribution system is also well-functioning; most people from all socioeconomic backgrounds depend highly on the edible items provided. The municipality's primary income sources consist of tax earnings, non-tax earnings and a shares from the state. Meanwhile, the major spending generally includes remunerations, pocket money, and pensions of staffs. However primary sources of income of the families in the Municipality are remittances from Middle Eastern countries. It is also one of the crucial components of the local economy, which boosts the locality's financial sector and again gives birth to many small-scale industries which generate employment opportunities for the native people.

Distribution of Workers by Category

Category	Total	Male	Female
Total Workers	26101	22142	3959
Main Workers	22108	19090	3018
Main Workers Cultivators	682	665	17
Agriculture Labourer	1223	1089	134
Household Industries	252	214	38
Other Workers	19951	17122	2829
Marginal Workers	3993	3052	941
Non-Working Persons	71001	25029	45972
Category	Total	Male	Female
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Household Industries	252	214	38
Other Workers	19951	17122	2829
Marginal Workers	3993	3052	941
Non-Working Persons	71001	25029	45972

Census of India, 2011

Most people in these selected wards depend highly on informal sector works. The distribution of workers by their nature of work illustrates a significant difference in labour force participation from a gender perspective. Cultivators and agricultural labourers constitute a considerable part of the labour force. The total number of workers is 26,101, of which 22108 are primary workers, and only 682 are cultivators. The agricultural workers comprise 1223,

and household industry workers are 252. A significant chunk of the working population is constituted under other workers, 19951. Marginal workers form 3993, where cultivators are 98 and agricultural labourers are 521. At the same time, household industry workers are 41, other workers 3333, and the non-working population 71001 (Census, 2011). Cultivators and agricultural labourers generally constitute 5.7% of total workers, whereas household industries, manufacturing services, and repair share 1.18%. The significant chunks of the working population are engaged in trade and commerce, transport and service, amounting to 93.11%. Nonetheless, the nature of work and workers are more informal. Furthermore, the labour force participation rate of Manjeri was around 22.06 per cent of the entire population, according to the census report of 2011.

Manjeri has several academic institutions in her territory, consisting 41 primary lower schools, 22 upper primary schools, 16 secondary and five higher secondary schools. For higher education, there are four arts and science colleges in the municipality. they are; Nair Service Society College, Unity Women's College, which is the first one only for women in the district, Hidayathul Muslimeen College of Science and Technology in the private sector, Ernad Taluk Co-Operative Arts and Science College, and Bachelor of Education Centre of the University of Calicut, is also functioning at Manjeri.

Furthermore, Manjeri Medical College is also situated in the town, which was come into existence in 2013 by upgrading the District Hospital into a medical college. The town has a well-connected road network to important towns. Regarding transportation with access to the main cities and capitals, Karipur International Airport is the only one 22 km from the city and has the most accessible air access. Moreover, the central vegetable and animal husbandry market is situated in the town. The transportation and expansion of commercial buildings and many restaurants, textile shops and other shops play an essential role in strengthening the local economy. Many local people work in these shops and production units, and many are women from poor socioeconomic backgrounds. Additionally, the recent trend shows the increasing number of internal migrants coming from outside Kerala to work in the local shop has also increased. Therefore, it is crucial to study the impact of the economic structure of the Manjeri Municipality to investigate the Covid-19 response at the ward level, as many of them lost their job and work days when the state went on lockdown for a few months in the initial period.

4.4 Demographic Characteristics

As per the Census of 2011, it has a population of 97102, with a growth rate of eighteen between 2001 and 2011. The density of population in the town is 1830. There are 47 wards in the municipality as of 2011, and the most populated ward number is 3, while, ward number 31 is the least populated one.

Demographic Structure of the Municipality

Description	Census 2011 Data
Total Population	97102
Total Area	53.1 Sq. Km
Sum of Households	19386
Sum of Male Population	47171
Sum of Female Population	49931
0-6 Age Sum of Population	13668
0-6 Age Male Population	6907
0-6 Age Female Population	6761
Sum of Person Literates	79893
Sum of Male Literates	39077
Sum of Female Literates	40816
Sum of Person Illiterates	17209
Sum of Male Illiterates	8094
Sum of Female Illiterates	9115
Sum of Scheduled Caste	8257
Scheduled Caste Males	4040
Scheduled Caste Females	4217
Sum of Scheduled Tribe	134
Scheduled Tribe Males	130
Scheduled Tribe Females	134

Census 2011,

The given table shows the population distribution concerning age, sex and caste. It is evident that the number of households in the Municipality amounts to 19386, and the total population of the Municipality is 97102 as per the Census 2011. The sex ratio in the Municipality is 1058, and the child sex ratio is 979. The density of the population in the region is 1830 per square kilometre. The Scheduled Caste and Tribes in the Municipality accounted for 8257 and 264, respectively. The sex ratio of Scheduled Caste is 1043 and of Scheduled Tribes is 1030. The literate persons in the area are 79893, and the illiterate are 17209; therefore, the literacy rate is

95.8 %. It is considered one of the essential statistics for the region's socioeconomic development and welfare policies and programs.

Decadal Population Change

Years	Population	Growth Rate
1951	10357	86.7
1961	12276	18.5
1971	15734	28.2
1981	53959	24.3
1991	69334	28.5
2001	83707	20.7
2011	97102	16

Census of India, 2011

Over the year, population numbers are increasing, but the population change rate shows a declining trend in the municipality. The density of the population in the region is 1830 per square kilometre.

Religious Composition of the Population

Religion	Total Population	Male Population	Female Population	Share of Population	Literacy Rate
Hindu	26820	13196	13624	27.62%	27.65%
Muslim	68135	32933	35202	70.17%	65.85%
Christian	1977	958	1019	2.04%	2.09%
Sikh	6	5	1	0.01%	0%
Buddhist	11	4	7	0.01%	0.01%
Jain	2	2	0	0%	0%
Other religions	19	8	11	0.02%	0.02%
Religion not stated	132	65	67	0.14%	0.13%

Census: 2011

The local religious demography of the Manjeri municipality shows the distribution of various religious groups. It is evident that Muslims constitute a significant share of the population at 70.17%, and Hindus are the second with 27.62%. On the other hand, Christians comprise only 2.09% and the rest in less than one per cent. Regarding the literacy rate, Hindus and Christians achieved a better literacy level than the Muslim community in the Manjeri Municipality as per the 2011 Census.

4.5 Status of Health Services

The process of decentralized planning during 1996 and 2001 has provided new knowledge on future capabilities of decentralizing public health and health services. The goals of the campaign were a reaction of a functional division among authority hierarchies with respect to the health activities each level can better do, generation of the projects that reflects the health needs of the population by local participatory mechanisms, maintenance of equity in health, stimulation of communities to raise voluntary resources to add on to devolved public funds, and sustaining the health services run efficiently. Historically, health status and healthcare showed a slow development in the Malabar region and the Malappuram district, which was among the most resource-crunched. The health sector in the Manjeri Municipality was considered the best in the district, including Medical College, five private Allopathy Hospitals, two Government Ayurveda Hospitals, one Government Homeopathy Hospital, one Veterinary Hospital, one Tuberculosis Hospital, two Family Welfare Centres and more than 95 laboratories. The public health sectors have four primary health centres and twelve municipalities' sub-centres. Additionally, two National Urban Health Mission centres exist in the area. Furthermore, the medical college in the district lacks sufficient infrastructure and equipment; therefore, most severe cases that need advanced and super speciality care are referred to the nearby Calicut Medical College. Calicut Medical College is considered one of the best in the Malabar region and the oldest among the districts (Municipality, 2017).

<u>The Health Service Provisioning at Urban Primary Health Centres at Manjeri</u>

The health services provided through UPHC Manjeri have to be explained in detail to get a sense of how the primary care system of the locality could play an essential role in addressing the health needs of the people. Reproductive and Child Health Services consists of early diagnosis of pregnancy, support throughout pregnancy, motivation for institutional delivery, enabling take-home rations for the pregnant woman through Anganwadi Workers, offering pregnancy test kits to those who need them, identifying high-risk births, anaemia cases, and risky postnatal cases are the services provided.

Child health services include prompt management of ARI and fever, diarrhea, detection and treatment of anaemia and deworming, and early detection of growth abnormalities, developmental delays and disability. Similarly, adolescent health services and referral as per need, immunization, management of Severe Acute Malnutrition, severe anaemia, confirmation of any deficiencies developmental delays up to six years.

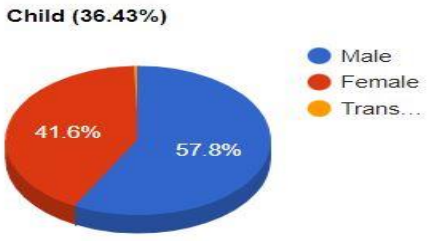
Family Planning Services involves health communication and preventive education for early marriage, identifying eligible couples, motivation for family planning – delaying first child and birth spacing, referral for sterilization, follow-up of contraceptive-related complications, counselling for family planning, access to all spacing methods and first aid for gender-based violence – link to a referral centre and legal support services.

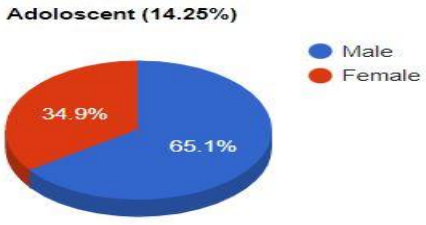
Health Services for Common Communicable Diseases consists of identification and referral for testing at UPHC, symptomatic care for fevers, diarrhoea, aches and pains, skin infections, diagnosis and management of fevers, management of aches, pains, rash, gastritis and acute febrile illness.

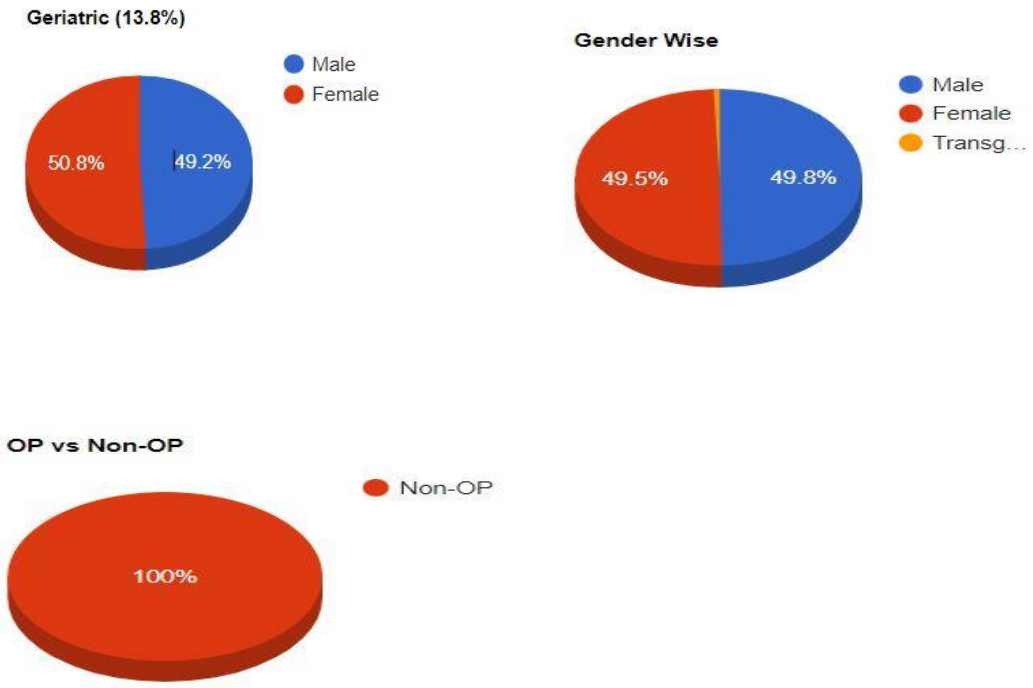
Health Services for Non-Communicable Diseases comprise screening and primary & secondary prevention of hypertension and diabetics. Awareness generation regarding signs and symptoms, counselling on mitigation of risk factors associated with cancer, preventive action, and early case identification of silicosis and fluorosis.

Geriatric & Palliative Care includes support to the family in palliative care, counselling the elderly on keeping a healthy, management of common geriatric ailments, counselling, and supportive treatment. Pain management and provision of palliative care with the support of ASHAs.

The health services provided through primary and urban primary health centres are crucial in avoiding a massive crowd in secondary and tertiary level health care institutions. Therefore, it is vital to look at the distribution of patients who utilize health services concerning age, gender, type of care, etc.







E-health Kerala, 2021

Health Service Provided at Manjeri Medical College

Government Medical College, Manjeri, also known as GMC Manjeri, is a government-controlled medical college. The college is located in the heart of the centre of Manjeri. It was established in 2013 as the sixth one in Kerala. The college was inaugurated on 1 September 2013 by the then Chief Minister Oommen Chandy. It is affiliated with Kerala University of Health Sciences (KUHS), has 500 beds and 12 operation theatres, with an intake of 110 students for MBBS every year. The medical college has been a dream for the people in Malappuram as they had to depend on Kozhikode Medical College for all cases. There was only one district hospital in Manjeri till 2013. Later, this was upgraded to a Medical College without expanding the infrastructure in terms of land, buildings, equipment, human resources, funds, etc. However, the situation has changed over the years, and there has been progress in the medical college's development. But the need to sustain the functioning of the General Hospital in connection with the medical college is a demand y the public and politicians as the outpatient care units in the medical college are constantly going through a rush. Currently, the demand has not been fulfilled even though the medical college was upgraded to a research institute by Health Minister K.K Shailaja in 2021. But still, there is scope for improvement of the physical infrastructure of the Medical College as it has not changed much since 2013. The

significant departments which function and provide inpatient and outpatient care to the people are listed below.

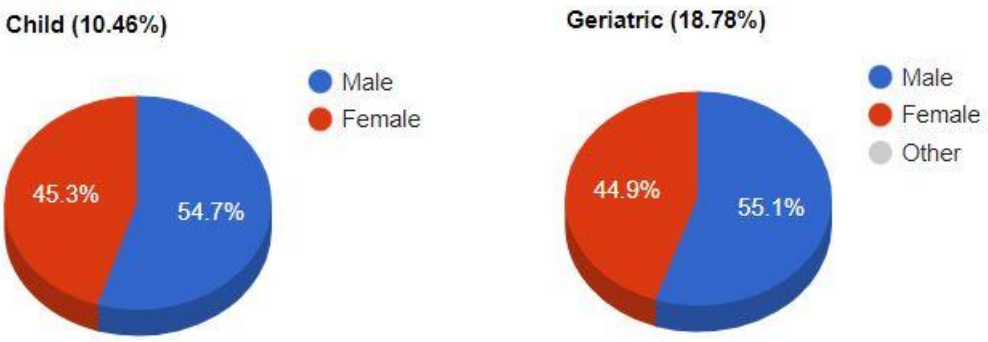
Departments at Manjeri Medical College

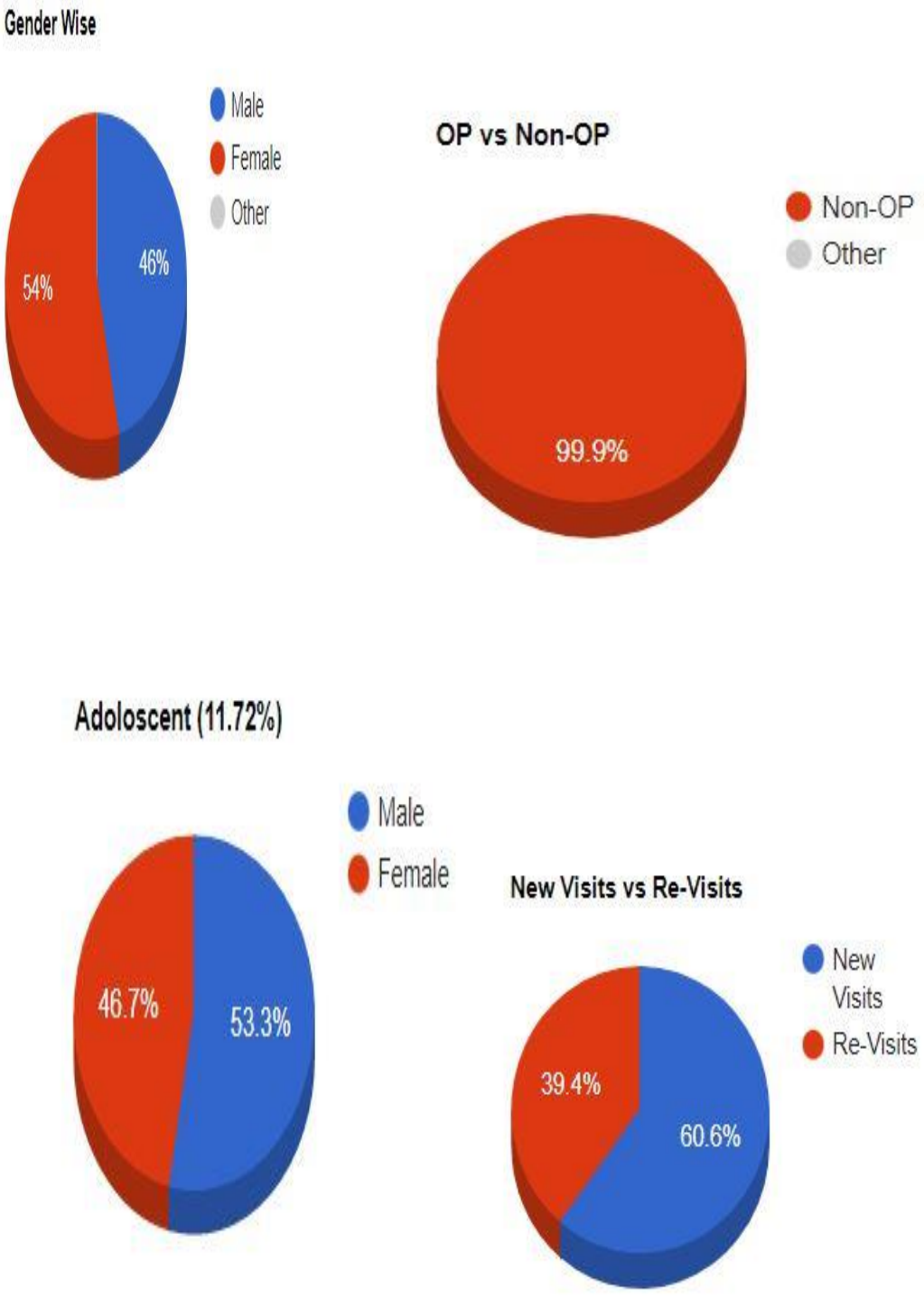
Anesthesiology	Radiology
Dermatology	Orthopaedic
Ear, Nose and Throat	Respiratory
Medicine	Paediatrics
Surgery	Psychiatry
Ophthalmology	Obstetrics and Gynecology
Oral and Maxillofacial Surgery	Dentistry

Source: Government Medical College, Manjeri

During the initial phases of Covid-19, the people of the Manjeri Municipality and the Malappuram district had to depend on the Kozhikode Medical College for testing and treatment. But when some modern technologies and equipment are used for Coronavirus treatment and introduced in the public sector medical colleges, Manjeri Medical College also got those facilities. It is the only public sector medical college in the district; therefore, most Covid-19 cases are treated in the medical college. The Covid-19 treatments provided were free of cost and ensured public trust in the health service system. Furthermore, most Covid-19 tests are done freely from the Covid-19 cell of the medical college even though a substantial private sector hospital and laboratories exist nearby. As a tertiary care provisioning unit in the Covid-19 response system, the role played by the Manjeri Medical college is enormous.

Utilization of Health Service at Manjeri Medical College





E-health Kerala, 2021

4.6 Organizational Structures of Covid-19 Response at Manjeri

The Kerala Model of Covid-19 Response was rooted in its decentralized activities at the ground level. It has already been evident that strengthening the state's public healthcare system has been historically relevant since British rule. However, with the introduction of the Aardram Mission in the last decade, public healthcare systems at different levels have been strengthened by investing more in physical infrastructure and human resources. When the primary case was reported in the state, the health system was put in place to be vigilant to oversee the upcoming cases. Only a few cases in the state from January to February 2020 were considered the first phase of the pandemic within the first wave in Kerala.

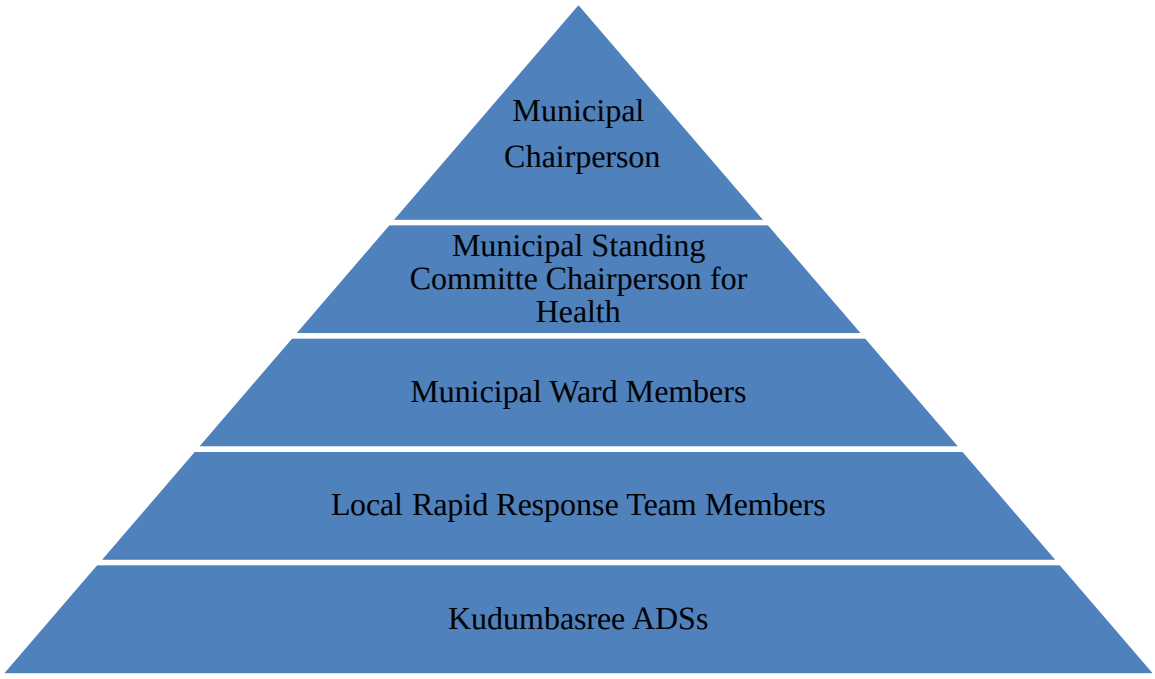
Meanwhile, when the second phase of Covid-19 hit the state's local areas in March 2020, the Department of Local Self-Government issued an order regarding the measure taken by the local self-government institutions and representatives to contain the infectivity. Furthermore, the authorities have notified regarding the formulation of Covid-19 cells in various departments; therefore, various committees were formed at the state, district and local levels. Apart from the department-wise roles and responsibilities that have been listed, there were efforts for inter-departmental coordination among the ‘‘departments of transport, tourism, social justice, general education, local self-governments, civil supplies, food safety, Kerala state electricity board, Kerala water authority, women and child development, department of information technology, and public relations and information department’’. It has also influenced the Manjeri Municipality to take the initiative to be prepared for the upcoming surge in cases during the period. The organisational structure of the Covid-19 response at the Manjeri Municipality has been characterised as an urban local body, and its health system actors come together and respond to highly infectious viruses. Two institutional structures are primarily effectively involved in the Covid-19 response at Manjeri municipality. They are health and social sector actors functioning collaboratively and efficiently during the three phases of the Covid-19 first wave. The health sector actors involved in the Covid-19 response were the ASHA Workers, Junior Public Health Nurses, Public Health Nurses, Junior Health Inspectors, Lady Health Inspectors, Health Supervisors, the Medical Officer in Charge, Covid-19 Nodal Officer, and Superintend of Manjeri Medical College. On the other hand, in the social sector, the actors who got involved were the Kudumbasree ADSs, Local Rapid Response Team Members, Ward Members, and Municipal Standing Committee Chairperson for Health.

Health Sector Actors

Source: April 2021

The above-shown pictorial representation can tell us about the operational structure of the pandemic response at Manjeri Municipality. The hierarchy of health sector actors in the Municipality starts with ASHA Workers from the bottom to Medical College Superintend at the top. Since the study is more focused on frontline health workers, much importance has been given to the lived experiences of ASHA Workers, Junior Public Health Nurses, Health Inspectors and Medical Officers in Charge of Covid-19. In collaboration with the social sector actors, these frontline health workers did the response strategies at the local level. Therefore, it is imperative to study the hierarchy of functions and functionaries of health and social sector actors amidst the response. Those who are mostly connected with the community and health system are the ASHA Workers everywhere in the state, and the Junior Public Health Nurses guide them; the hierarchical relationship goes up. They are the people who constitute the Local Rapid Response Teams which actively encourage community participation in the Covdi-19 response strategies at each ward. Therefore, the social and health sector actors intersect and finally reach out to the community to function in the context-based Covid-19 response activities at each ward in the Municipality.

Social Sector Actors



Source: April 2021

The above pictorial representation shows the organizational hierarchy of social sector actors at a Municipal level. Since it is an urban-centered decentralized governance and administration, the head of the organizational structure is the Chairperson of the Municipality. Therefore, whatever the decisions regarding the Covid-19 response have been taken at the Municipal level, headed by the Chairperson and Municipal Standing Committee Chairperson for Health. The final decisions and recommendations that have been formed and put in place by the municipal authority are transferred to each elected ward member. As a result, most of the activities at the local level are undertaken under the leadership of ward members who have sufficient knowledge of their wards. To ensure community participation, Local Rapid Response Teams were formed. Under these teams, most of the community-level responses were efficiently implemented with the help of taking local context and knowledge into account. At the bottom of the organizational hierarchy of social sector actors, Kudumbasree Area Development Societies are an interface between the households and the more significant social sector. They are the head of Ayalkkoottams, the lower structure of the Kudumbasree and a group of empowered women. They have close contact and network with almost every woman in that local area. These social sector actors comprise a significant chunk of each ward's Covid-19 response at the ground level. Therefore, it is incredibly significant to examine the role of social sector actors in pandemic preparedness and response.

Local Rapid Response Teams

Source: Manjeri, June, 2021

The local rapid response teams are the mechanism used to accelerate community participation in the Covid-19 preparedness and response. Ward members headed each ward consisted of junior health inspectors, junior public health nurses, ASHA workers, Anganwadi workers, Kudumbasree ADSs, Government employees, and community volunteers. The primary function of these teams was to identify the cases in their areas within a ward and inform the ward member, facilitating the covid-19 response at the ward level, coordinate the activities, proper communication the incidence of cases, and prevalence, arrange quarantine mechanisms, providing transportation services to the hospitals, disinfecting the infected people's houses, observation of those who are in quarantine, distribution of food and other edibles to the needy, and distribution of medicines of all kind to the people who have asked for it. They created a WhatsApp group of these members, and the members appropriately communicated to the general public. It also publishes route maps of the infected or suspected in the local areas. Furthermore, the member of the local rapid response teams has done intensive field activities to prevent further spread, especially during the lockdown period, in terms of creating containment zones based on ward level so that it is highly crucial to study the dynamics of the local level response to the pandemic in each ward concerning local rapid response team's functions.

Chapter-5

Response to Covid-19 in the Selected Wards at Manjeri Municipality

The present study is aimed at an exploration of the Covid-19 response mechanisms in the selected local self-government wards of Manjeri Municipality. While there are bits and pieces of mainly writing from Covid-19 reports, response and allied activities in the local newspapers and national and international media about Kerala's success story of containing the infectivity during the first wave, we proposed to do an explorative study on the organisation and actual functioning of Covid-19 response in an urban centre at the local level. The first wave of the Covid-19 pandemic in Kerala was from January 2020 to March 2021. Moreover, there are three phases of the pandemic within the first wave in the state which is characterised by the spike in cases and its decline in subsequent days. So that there is almost similar phases within the first wave at the Municipal locality have also been observed. It was partly due to the local socioeconomic and health dynamics prevalent in the locality. The primary case was on 14th March 2020; later a declining trend was seen in March 2021. During this first wave of the pandemic, there were three phases of Covid-19 spread, which has observed due to the lifting up of the lockdown, political unrest, Eid –Ul-Fitr, Onam, and the elections to the Local Self Government Institutions in December 2020. Therefore, it is imperative to explore the role of decentralised governance in the pandemic management and the human resource mobilisation done at a massive scale during the crisis period. This sort of initiative has not been seen in many other parts of the nation, thereby upholding the relevance of decentralisation in health governance. There were fifty wards in the Municipality, and six were selected. One of the criteria for sampling was based on the revenue villages; therefore, two wards from each revenue village have taken to conduct the study. To get a diverse perspective of the Covid-19 response mechanism, the respondents from the social sector have taken from different political parties and diverse socioeconomic and cultural backgrounds. It was proportionate to the sample of the study. The health sector actors are taken from the significant frontline health workers who actively participate in the field-based response. Both these methods of choosing a convenient sample can also bring new knowledge to the existing studies in the Covid-19 response in Kerala. Furthermore, the study is conceptualised in a health system analysis of the Covid-19 response at Manjeri Municipality, which includes health service systems, health systems and constraints associated with those are explored in detail to understand the comprehensive decentralised response at the ground level.

5.1 Elements of Health System Preparedness and Response

In the case of Kerala, it was seen that the state had prepared its health system to face unusual public health events. Since the disease's epicentre was known, the state concentrated on individuals who back from China and other affected countries. Some committees were formed to function effectively during the onset of the outbreak at the state level. Similarly, at the Municipal level and in other forms of local self-government administration, the committees were formed under the head of Chairpersons or Presidents to be vigilant to act on time whenever there is an unexpected occurrence of public health events. It was when the second phase of the Corona virus in Kerala in the first wave of Covid-19 the active participation of the local self-governments was observed. One of the primary activities that the elected ward members in the Municipality have been assigned to perform in the community is the effective communication of the spread of the virus and its preventive mechanisms with the frontline health workers. The team consisted of ASHAs, Anganwadi Workers, Junior Public Health Nurses, the Area Development Society (ADS) of Kudumbasree, and Ward Members. These members used to visit every house in their respective wards to spread awareness of Covid-19, a new disease to the people. It was considered the foremost step in Covid-19 management at the grass root level all over Kerala. This approach ensured the maximum participation of the community members in spreading the community's awareness and setting up public facilities for hand-washing and sanitising hands. However, there were various constraints and barriers in the Covid-19 response at the local level in the Municipality as its unique socioeconomic, cultural, demographic, political and health characteristics have played a significant role. These are linked to complex system components, generally considered systemic constraints in the Covid-19 response mechanism.

Furthermore, the systemic constraints addressed in the study are of two types: health system constraints and health service systems constraints. These are the central theme in analysing the Covid-19 response of an urban locality in Kerala. Therefore, it is crucial to examine the role of different systems that helped and became constraints during Covid-19. Local self-government ward members from various political parties were selected to get a diverse view of the Covid-19 mechanisms at the grassroots level. The sample represented the class, caste and gendered lens of the activities with a heterogeneous group of key informants broadly divided into health and social sector actors.

Systemic Constraints

The study is carried out in the periphery of the town as it is more of a semi-urban locality except for two wards from the town's core. Therefore, the local socioeconomic and political relationships, as seen all over the state, have highly influenced the response mechanisms and dynamics. Out of the selected six wards in the study, the majority of the wards consist of lower and lower-middle-class households mainly working in the informal sector. The Muslim majority areas have characterised the selected wards, with Hindus and Christians being fewer in number. It was evident that the Gulf migration was rooted in religious connections, especially for Muslims; most of the elder members of a Muslim community have migrated to the Gulf countries. Therefore, the women and children of these houses are left behind, and their day-to-day expenses are entirely dependent on the remittances from abroad. The Scheduled Caste and Scheduled Tribes in these localities are in the lower strata in the social and economic hierarchy. As a result, majority of them work in the unorganised sector to meet their daily needs. Apart from these, the internal migrant workers from North and East Indian states have also shaped the Covid-19 response at the locality. Consequently, these societal dynamics have determined the Covid-19 response's efficiency in curbing the increased number of cases at each phase of the epidemic.

The high proportion of the aged population has also been one of the severe concerns in the Covid-19 response at the locality as most of them suffer from various kinds of co-morbidities due to non-communicable diseases. The second phase of the first wave created a situation where most people got scared as the virus and infection were new to them. The stigma associated with the virus has affected the mental and physical health of the people who had a travel history and were kept in quarantine. When the lockdown was declared on 24th March 2020, the people who depended on the informal sector jobs had to worry about their daily needs. However, interventions and assistance from the state machinery and voluntary organisations helped reduce the suffering. Moreover, it was necessary to consider the trust of the people living in the locality as there were restrictions on mobility. When the national lockdown was declared and implemented in each locality, people were scared, and some sections of the society were not cooperating with the rules and regulations of the state. Therefore, the police force had to go and punish those who violated the laws and regulations framed to deal with the pandemic. Initially, technology was not intensively explored to check whether people were breaking the rules; later, with the help of drones, the police used it to

capture photos and images of the people violating these rules. The people who had no livelihood options violated these rules and regulations as they were looking for work.

In contrast, many people violated these rules just because they wanted to stay home. It was one of the outcomes of the patriarchal mind-sets of the men in Kerala as they do not spend much time in household activities; instead, they roam around the street and public places during their leisure time. Female members must take care of the house assigned to their socially and culturally accepted roles. This systemic discrimination towards women has also been one of the constraints that adversely affected the local pandemic response. At the same time, financial support to the needy was one of the main issues faced by the elected representatives as they were running out of funds. However, the active participation of voluntary organisations, charity societies, residential associations, religious institutions, political organisations, etc., helped reduce people's hurdles. There were political instabilities and clashes among different ideologies, so the distribution of personal protective equipment from the Municipal authority was affected. The institutional mechanisms of the Covid-19 response were not prepared when the first case was reported in the state; later, when the cases went up in March 2020, all of them became active to respond effectively. The stigma and discrimination faced by the frontline health workers and social sector actors were unacceptable as they put themselves into a risky situation. There was resistance and opposition from some of the households who did not cooperate with the ground-level activities of the actors who have been engaged at the bottom level. Control of the mobility of the people and managing the cases simultaneously was a challenging task for the social sector actors; it was also their responsibility to ensure food security and to keep the situation under control. Those who have returned from abroad were given proper guidance in the initial places and asked to stay home or Covid-19 First Line Treatment Centres, but most of them were not ready to stay at CFLTs as they complained about the facilities which came out of their class complex. Similarly, in some cases, those in the upper middle class and above who stay in the centre areas of the town were not cooperative with the response mechanisms implemented at the grass root level as they were so confident in their health security and well-being. Therefore, it was in this light the systemic constraints in response to Covid-19 have also affected the overall answer to Covid-19 in the Manjeri Municipality, especially during the initial phases of the first wave.

Health System Constraints

The systemic constraints at the health system level have been one of the prominent barriers to responding to the Covid-19 crisis effectively. It is a combination of socioeconomic, cultural, demographic, epidemiological, environmental and political factors which has shaped the system. Since the virus was novel to the world and the state's health system, there were many factors to be taken care of before implementing any restrictions on the travel and mobility of people. One of them was the assurance of livelihood options for the people and ensuring food security in each locality. The decentralised health planning in the state of Kerala has been one of the significant factors which helped to make solid and timely decisions. The social sector actors were facing issues of resource mobilisation from the locality, and the participation of voluntary institutions in fundraising has also been seen as the remedial measure for that. The water and sanitation facilities became a challenge for the authorities to provide appropriately as it was the summer season. The break the chain campaign was initiated on 15th March 2020, which set up facilities to wash hands in public places and the water scarcity in some areas has negatively affected this campaign.

In the case of food security and nutrition, the state provided food kits to the needy on a universal basis; however, vegetables were not included vegetables. It has adversely affected some households to purchase their food items from the market with relatively higher prices, and later some organisations started distributing vegetable items to the needy people. On the other hand, the public sector was responsible for the Covid-19 response, but a substantial private sector was not part of the Covid-19 response activities. It was the responsibility of the state to save the lives of a large section of society. The Manjeri Medical College is the only tertiary care facility in the municipality. In the initial two phases of the pandemic, it was not set up to handle the cases from the locality. Therefore, the issue of travelling to the nearby medical college at Kozhikode, which is 50km from the town, was the only place to seek care during that time. Testing samples were done at Pune in the initial phases and later at the state's institutes. Later there was competition among the private labs to test the cases, and some labs performed malpractice in providing the results by manipulating the results for extra payments. The treatment costs of the cases in public sector institutions were free for all, while it was a considerable amount in private hospitals. There was a shortage of human resources in the health system, and later the authorities recruited them contractually to respond to the pandemic. These contractual workers did not get paid for two or three months and had to strike at the civil stations and secretariat to get it on time.

The frontline health workers like ‘‘ASHAs, Junior Public Health Nurses, Junior Health Inspectors, Lady Health Inspectors, Health Inspectors’’ etc., were engaged in intensive activities at the grass root level. Their mental health was not considered a priority in the initial period, and the stigma and discrimination they faced from the community were inhuman. The decentralised planning in health has helped the state to perform well during Covid-19, but it was only in the second phase of the first wave that accelerated its functioning. It was functioning through Local Rapid Response Teams, which consisted of social and health sector actors and were given only five thousand for the whole year to perform at the grass root level. The members of the RRTs had to take the infected to the hospitals, quarantine centres, CFLTCs, CSLTCs etc., by arranging their private vehicles. Whereas most of the frontline health workers are from the lower caste groups, the relationship hierarchy was also bitter even during a pandemic. There were pressures from the top of the health care administration on the frontline health workers, especially those contractually employed for a short period. Therefore, it was evident that the difference between those who are permanent in the health care job and those who are contractually employed. ASHAs were at the bottom of the health sector actors' hierarchy and were given inadequate personal protective equipment while going into the field. They had to walk several kilometres on foot to reach houses during the lockdown period, and their lack of transportation was another challenge.

Community participation through various socio-political organisations and residential associations has been an integral part of the response mechanism, even though there was some time when their services were limited to some sections of the people. The political parties have done the food kits and other essential items’ distribution was sometimes skewed to the household affiliated with a particular political ideology. The institutional arrangements of Covid-19 have also been associated with local politics in terms of providing facilities to each ward. One of the examples was the rollout of vaccination which has been prioritised based on the age group, wards and the kind of occupation the people are doing. Those highly associated with the ruling party in the Municipality got enough vaccines for their wards, and others got delays in conducting vaccination camps. The aged and diseased in the community were taken care of by the palliative care members; they also faced stigma from the community as they kept visiting patients’ homes. The issue of fake news regarding the spread of the virus and infected persons was another kind of constraint. It has created unnecessary fear and anxiety among the people.

Health Service System Constraints

The health service system in the Municipality has also had some constraints in dealing with the pandemic initially. One of them was the infrastructural issues at the Manjeri Medical College, as the whole district had to depend on this institution for treatment for Covid-19. On the other hand, the deficiency of manpower in the health service system, especially in the case of frontline workers, was another issue in preparedness. The public sector healthcare facilities were leading the fight against Covid-19, whereas a large chunk of the unregulated private sector failed to respond to the virus on time. Preventive care was left in the hands of the public sector, and the treatment options shifted to the private sector later, leading to the exploitation of the patients by putting higher costs for the treatment. There were false insurance claims by the private sector hospitals during the pandemic. The labs and clinics in the private sector were not ready to reduce the price of Covid-19 tests even though there were strict guidelines from the state to do so. The health service system lacked human resources initially; later, they mobilised the workforce through contractual recruitments. General health services these days got discontinued, and those in severe conditions can seek care from hospitals. There were no telemedicine facilities in the initial period, which was later initiated around the mid of the first wave. However, the distribution of medicines became a duty of ASHAs and other community members who have enrolled as Sannadha Sena members to distribute the medicine and other essential items to the needy, old aged and handicapped.

Furthermore, the alternative systems of medicine got little attention in the Covid-19 response in Kerala as the people were not ready to take Homeopathic and Ayurvedic medicine tablets that were distributed through the ASHAs and Kudumbasree ADSs in the community. These incidents emerged as the stigma associated with the disease in the community because people were unwilling to seek medical care from the hospital even if they had signs and symptoms. It was difficult for the ASHAs and ADSs, Junior Public Health and Ward Members to convince them to take care from the hospital. Once the lockdown has lifted step by step, the continuity of general health services began. The services were provided through the Tuberculosis Hospital Manjeri to reduce the interaction and crowded situation at the Medical College. The speciality services were limited to certain days a week, and super speciality services were transferred to District hospitals which were located 25km away from Manjeri town. It has created enough problems for the patients who seek care from public sector hospitals. This situation has been utilised and exploited by the private sector hospitals in the town by putting more charge on patients. The overcrowding in the public sector has also led

the situation to seek care from the private sector hospitals even though they incur huge costs on hospitalisation. One of the important aspects of health service delivery through the urban primary health centres during the lockdown period got discontinued as everyone in the community was scared to visit these facilities, and it was not functioning. It was significant to note that only severe cases of health problems got attention in the hospitals, and the rest were treated at home. Since June 2020, there has been the localised spread of the virus as the lockdown lifting process was accelerated, which has led to a situation where the number of cases went up. As a result, the health service system faced a problem of overcrowding of Covid-19 patients in the hospitals. Therefore, the government suggested and issued a guideline for home-based treatment for mild and moderate cases. Only those who have severe cases of the infection have asked to visit hospitals. It was a situation where most health and social sector actors got Covid-19, and the grass root level preventive activities were interrupted. Later, in June and July 2020, political controversies at the state level against the ruling party Left Democratic Front emerged. There were a series of political strikes and agitations all over the state, and Manjeri has also witnessed some of them.

Additionally, the Eid Ul Fitar and Onam Celebration in August and September contributed to the spread of the virus as people gathered at large public places. The health service delivery system has faced a huge challenge in managing cases. Only severe cases were referred to hospitals, and most were on home-based treatments. On the other hand, in the primary phases of the pandemic, preventive and promotive health services like immunisation of children got stopped for a couple of months, and the baby foods distributed through the Anganwadis were disrupted. It seriously affected the growth and development of children under five. One of the important challenges that the health service system was concerned with was the mental health issues of the health workers and those who were immobile and stayed home for a couple of months. The mental health support system was only provided for those in quarantine and treatment, and many people needed mental health care services. Mental health care services for actors were considered the least priority in the debate of health service delivery in the public sector. Apart from these, the resistance from the community towards the preventive and curative aspects of the Covid-19 response was present at some point in time from a small fraction of society. It adversely affected the Covid-19 response at the grass root level, and health sector actors had to work a bit more for the situation under control.

5.2 Health System Response to Covid-19

In the absence of the appropriate treatment options and vaccines, the public health management of an epidemic can only be done through prevention of the spread by early detention and isolation, tracing contact and quarantine of the exposed and infected, and the implementation of physical distancing. Localised response strategies have been adopted all over the state, and the local social dynamics played an essential role in determining whether these strategies became successful. The health system response to Covid-19 has been determined by the factors that shape the health system, including socioeconomic, demographic, cultural, political, physical, and epidemiological characteristics of a locality. It also comprises different subsystems of health service delivery, human resources, information and research, financing, medical product and technology, leadership and governance. The health system response to Covid-19 at Manjeri municipality has roots in its semi-urban-centred response mechanism, which was influenced by various factors. One of the essential steps the health system has taken is the intensive tracing of cases and isolation of those who have contacted the infected. To do this strategy at the local level, the deployment of frontline health workers on a massive scale has been recruited on a contractual basis to deal with the pandemic. Furthermore, community participation and inter-sector coordination between different departments in the Covid-19 response activities have helped the Municipality to perform effectively in the initial phases of the pandemic. The social security measure introduced in the state greatly impacts the welfare of the people, especially the poor. Financial assistance was provided to the needy through microfinance loans through Kudumbasree units, which has helped the poor meet their daily needs. The RRTs do the activities at the local level in disinfecting the infected places and homes, and cleaning and maintenance of CFLTCs and CSLTCs were some of the crucial parts of the community participation in the locality. The Kudumbasree members used to observe those in quarantine to check whether they were breaking the rules imposed on them that are not to go out. There were WhatsApp groups widely used to spread verified news and updates on the spread and epidemiological data of Covid-19 in the wards. All of these have contributed to a comparatively better performance of the Covid-19 response strategies at the Manjeri Municipality in the first wave of the pandemic. There were factors in terms of enablers and barriers in the Covid-19 response mechanism; they are discussed in the next section. These factors will explain the pros and cons of the Covid-19 response at the ward level and can be considered the major components of the health system analysis.

Enablers in the Covid-19 Response Strategies

Many factors facilitated the Covid-19 response at the ward level. The primary factor was the strong political commitment of the state and local governments to contain the virus through early preparedness and response. One of the immediate steps in this strategy was spreading awareness of the virus in the community with the help of frontline health workers under the leadership of elected representatives from each ward. These activities were done at the grass root level on a door-to-door basis to educate the community on preventive measures for spreading the virus. Later, when the number of cases tested for Covid-19 increased, the authority published route maps of the infected to be vigilant, thereby reducing the infected person's secondary and tertiary contacts. These route maps were shared in social and private media on a massive scale and helped the people around the spots to go self-quarantine to curb the multiplier infectivity. Apart from that, those with internal and international travel history were initially kept under home quarantine for seven days. It added up to fifteen days and then twenty-one days to twenty-eight days based on the studies that came up with the disease's evolution and transmission. Their contacts were collected, and they were asked to go for home quarantine and advised to use DISHA Helpline. They were also contacted by the Ward Members and ASHA and Kudumbasree ADSs to collect regular health status updates and monitoring.

In March 2020, the Break the Chain Campaign was started by the ministry to make people a habit of frequent hand washing and sanitising. For that, sanitising and hand wash spots were established in public spaces for the people to use these facilities while moving from one place to another. The imposition of mask-wearing in public areas and even homes where the infected reside has significantly helped the response. During home quarantine, the state mechanism provided psychosocial support and counselling, and community kitchens started to serve the needy during the lockdown. There were Covid-19 First Line Treatment Centres, Covid-19 Second Line Treatment Centres and a mechanism of Reverse Quarantine for the elderly. When strict quarantine measures were implemented all over the nation and it was the duty of the Police and respective Ward Members to head the leadership. Moreover, the Local Rapid Response Teams were responsible for seeing whether people were breaking the lockdown rules and regulations. Once the localised transmission of cases began in June and July 2020, the government’s advice for home-based treatments for mild and moderate cases has been managed by the frontline health workers and the Covid-19 volunteers.

One of the crucial elements of the Covid-19 response was that each local level witnessed effective community participation. It was ensured that there was maximum participation of people in the response mechanisms at the grass root level. The local self-governments had constituted Local Rapid Response Teams in each ward to monitor and implement Covid-19 preventive activities at the local level. They were a group of members from various job profiles under the head of Ward Member, including Junior Health Inspectors, ASHAs, JPHNs, ADSs, Teachers, Daily Wage workers, Drivers, Government Employees, etc., whose duty was to collect data and monitor the situation at their locality. They were given financial incentives for effective functioning on the ground to address the needs of the people. They observed the people who were under quarantine and provided all the essential items and services to the needy people, distributed food to the people, disinfected the homes of the infected, arranged transport facilities for the patients, etc.

On the other hand, Kudumbasree units were a part of the organisational composition of the Covid-19 response at the local level under the leadership of elected ward members. The ADSs used to coordinate all the activities through Ayalkkoottams; they have been doing neighbourhood watch activities in their localities to check whether the people in quarantine were violating the rules and regulations imposed on them. These women's collectives collected primary socioeconomic and demographic data of the people to identify their vulnerability and poverty levels. Furthermore, they produced masks, sanitiser, and soaps and sent them to the district units to sell and use in the government's Covid-19 response. They had created WhatsApp groups to collate the information related to updates on the Covid-19 situation passed through from various wards and Ayalkkoottams units to coordinate the activities at the ground. Community participation was encouraged through different socio-political organisations, religious institutions, and residential associations to mitigate the effects of the lockdown and facilitate the health system response to Covid-19 in the Municipality, which was commendable. They distributed essential medicines and food items to the people and arranged quarantine facilities for people from other states and countries during the lockdown period. The palliative care charity society and its workers care for the health of the elderly and people living with chronic diseases. They collected medicines and other items for the marginalised people who could not move from home. Most socio-political organisations have been taking preventive measures such as implementing the Break the Chain Campaign in their localities and providing essential items to the people, especially the daily wage workers.

As the number of confirmed cases in the state continued to rise in the second phase of the first wave, the state was on a mission mode to fight the pandemic. The cases of the disease needed a vast quantum of human resources for its management at various levels of the public health system, including hospitals, Covid First Line Treatment Centres, Covid Care Centres, Surveillance and Monitoring system. to strengthen the human resources in the public health system in the state, the state has constituted Covid Brigade which is a group of Health Care Workers and Volunteers who trained in suitable areas of the fight against Covid-19. As a part of these, the local self-governments were responsible for the recruitment of additional primary health care workers, including ‘‘Junior Public Health Nurses, Public Health Nurses, Junior Health Inspectors, Health Inspectors, Lady Health Inspectors and Health Supervisors, Doctors, Nurses, Paramedical Staff’’ and other allied workers in the sanitation and hygiene section. All of these recruitments were done urgently with a contractual duration. This large army of the labour force in the fight against Covid-19 was from the background of students who had just completed their course, those who were in the final years of course completion, those who were in the rank list of Kerala’s Public Service Commission, those who were retired and about to retire. There was a human resource mobilisation committee at the state and district levels to coordinate isolation activities, contact tracing, surveillance, and call centres. The local self-governments carried out the recruitment of frontline health workers. In the selected wards, the health sector actors were allocated in a manner where ASHAs were at the bottom of the hierarchy of the Covid-19 response activities, then comes the Junior Public Health Nurses who work as part of Sub Centres for a population of five thousand can be of three to four wards depending up on the population size. Then comes the Junior Health Inspectors, Health Inspectors, and Supervisors who work under a Medical Officer in the Urban Primary Health Centres and Covid-19 Nodal Officer at the Manjeri Medical College. They all worked for various job roles in the existing and newly created Covid particular hospital and treatment centres. They have been trained in their specific job profiles amidst the pandemic. There was the tier-wise classification of Covid-19 hospital staff, the workflow of each tier and staff rotation cycles which reduced the workload among the health workforce in the public health system. On the other hand, in the social sector, the localised volunteer recruitments were conducted by the ward members and constituted the Local Rapid Response Teams and the

Sannadhasena.[1] They have been used to transport essential medicines and other medical emergencies based on trained skills and cleaning of Covid Centres.

One of the crucial elements in dealing with a pandemic is proper communication and delivery of reliable information to the health sector and community actors. There was an initiative by the government to communicate the epidemiological data related to the Covid-19 epidemic in Kerala. Initially, the media briefing was done by Honourable Health Minister K.K Shailaja Teacher in the presence of the Chief Secretary and Health Secretary of Kerala. The epidemiological data containing the number of people tested, positive cases, recoveries, deaths, and people under surveillance and quarantine was shared with the media. This information was put on air at 6. pm and later, 5 pm every day during the first wave of the pandemic. It was in Malayalam to ensure an enormous reach, and multiple platforms like local TV, Social Media channels, radio, and local newspapers were used.

Similarly, at the local level, this information was passed through different social media platforms, including WhatsApp group created for various committees. There were WhatsApp groups for each Local RRTs and Kudumbasree Ayalkkoottams unit where the information regarding the spread of the virus and epidemiological data of the ward was widely shared to make people aware of their local context. One of the examples was publishing route maps of the infected, so those in contact could quarantine. Moreover, releasing informative animated videos and audio messages in the form of songs, parodies or stories about Covid-19 has helped people understand the situation quickly. The communication materials for target populations like the elderly, migrants, self-isolated individuals, and tourists were provided. There was a media cell at the state level to monitor misinformation that frightened people.

The public distribution system in the state ensured food security for all. Through these outlets, the state distributed edible grains at a subsidized rate to the needy, reducing mental stress and insecurity of not having to worry about the next meal. The government announced free rations on a universal basis in April, which provided 35kg of rice to BPL categories and 15 kilograms of rice for all others. The government had started the distribution of kits with 17 essential items worth Rs.100 for every family. Community kitchens began to distribute free meals to the poor with a limited number of items. While, Janakeeya hotels functioned as a place

[1] GOK has created Samoohika Sannadha Sena on 1st January 2020 which is a common platform for all volunteers and voluntary organisations to work in tandem with government functionaries, therefore they coordinated various Covid-19 response activities.

where meals were given at Rs.20. Anganwadi centres and Schools provided food items to the student that were supposed to get at the school functioning times. It consisted of rice and other essential edible items every month.

Inter-sectoral coordination of Covid-19 response activities was one of the major attractions in Kerala's success in containing the pandemic in the first wave. It was not just the health department fighting the pandemic; health is multidimensional. It was a collaborative effort by the different departments of the state, starting with health and family welfare, local self-governments, revenue, police, labour, finance, civil supplies, general administration, information, transport, education, electricity, tourism, public works department and social justice. The local self-government institutions have been working with other departments on the social and financial needs of the people in the respective wards. They also facilitated staff recruitment to health centres and implemented Information and Education Communication activities at the local level. Revenue and finance departments were actively engaging with allied sectors in resource mobilisation and deployment of the department staff in the Covid-19 activities at the grass root level.

Whereas police and general administration coordinated the containment zone activities at the ward level, monitored lockdown restrictions, ensured the frontline workers' safety, created awareness about the virus among people, and provided online services. The civil supplies department was the key actors in ensuring food security in each locality that provided essential goods and services through the public distribution systems, ensuring the quality and quantity of the food kits distributed throughout the state during the pandemic. They also checked the hoarding and black marketing of food items and ensured the targeted groups received the essentials. The department of transportation offered services to the frontline workers who commuted from their homes to the hospitals and other centres of care and transportation of patients to the hospitals and CFLTCs. The education department played an essential role in the containment of the virus by not just making the classes offline but rather they deployed teachers in the preventive activities at the local level, thereby strengthening the human resource in the Covid-19 activities at the ground level. The electricity and water departments have facilitated the sustained supply of power and water these days, and there was a relaxation in the payments of the bills for three months. The public works department has arranged effective quarantine mechanisms for migrant workers and coordinated the activities with local self-governments. The tourism department cooperated with all the activities with the governments by closing down all spots and centres. The social justice department ensured the

safety of the marginalised sections of society, provided food security, and gave special care to the community members. Large-scale social security measures were introduced on a universal and targeted basis, including the relaxation of bill payments, universal access to healthcare, and tax relaxation on transportation. On the other hand, the targeted social security nets provisioning consists of an advance distribution of social security pensions, free meals to the poor, access to food for the migrant workers, campus for the migrant workers, mid-day meals for children, easy access to microfinance loans, and camps for the homeless people. In case of frontline workers, access to essential items and healthcare was ensured. The elected ward members performed all these activities at the grass root level with the volunteers who enrolled in the Covid-19 response activities. The microfinance loans were given through Kudumbasree units in each ward, and they distributed phones and TVs for those who could not afford them when the school classes became online. As Kudumbasree was the agency through which the microfinance loans were distributed to the poor, was Rs.5000 per member. The welfare of migrant workers was given importance as they were the vulnerable people who got stranded in the state; therefore, local self-governments took care of food security and their worries. They were given food that suited their taste and culture, the voluntary organisations recharged mobile phones; proper communications were maintained in their native language by the districts.

The social security measures for reducing hunger and poverty focused on the public distribution system, community kitchen, and Janakeeya Hotels. Three of these initiatives played an essential role in ensuring food security in society. Free rations for all with essential items were delivered by the door-to-door basic with the help of volunteers. At the same time, the community kitchens were started to distribute cooked food for the needy with the help of Kudumbasree and volunteers under the leadership of local self-governments. The Janakeeya hotels provided meals for all with a charge of Rs.20/- which was way below the market price for a meal in the locality. Since the power was in the hand of local self-governments, they provided financial assistance to the targeted sections of society, like people who were involved in animal care, artists, fishermen, lottery agents, etc. it was also the responsibility of the ward member to monitor the vulnerable populations of their ward to ensure no one is falling under poverty and hunger in those difficult times. The resources for these activities were locally mobilised and collected, utilised for purchasing vegetables and other items not included in the free ration kits provided by the state. Therefore, the decentralised governance and the actors in the social sector have played a significant role in reducing human suffering during the pandemic.

Barriers to the Covid-19 Response Strategies

Various kinds of barriers have been present in the Covid-19 response activities at the ground level. Considering a study undertaken in a semi-urban set-up, the socioeconomic, political and cultural factors that shaped the barriers to the Covid-19 response must be explored. Since the Covid-19 response, the restrictions imposed in society were new to the people and community, and the kind of stigma and fear that spread in people's minds were enormous. The health system was responsible for reducing the fear and anxiety among people about the virus. One of the adverse events that have been happening in the community was the fear and stigma associated with the infection. Those with a travel history and who were in institutional and home quarantine faced discrimination from the community members. Apart from these, the social and health actors faced stigma and discriminatory behaviour from the community members; sometimes, they were called carriers of the virus. Therefore, this was one of the fundamental challenges faced by the actors on the ground. Furthermore, some families have also experienced discrimination and alienation from some community members.

When the entire nation went into lockdown for a long number of days from 24th March 2020 with short notice, people in the community were unprepared to face and handle the situation. It was entirely novel for everyone, and the mobility of the people got restricted to reduce the infectivity. To observe and watch the situation under control, the police force was widely deployed and arrested those violating the lockdown restrictions. Various committees were set up to monitor the movement of the people, especially those in quarantine. Moreover, the Break the Chain Campaign of the state government has been affected by the strict containment measures as people had to forcefully come out of their homes as a normal condition was not allowed to do so even for essential needs. However, the people could not meet their daily needs and had to get the necessary items from the nearby shops even though there were particular time slots allowed for people to come and purchase. It restricted the people's mobility, especially those who had worked in the informal sector, and the kind of response from the police towards those who broke the lockdown rules was inhuman. In some sense, this has helped the Covid-19 activities, but it is primarily seen as a violation of human rights by the state. On the other hand, the frontline workers had to travel kilometres by walk as there were not many transportation facilities available during the lockdown. One of the significant challenges faced during the lockdown period was the disruption of livelihood options of the local people. Most people depended on the informal sector jobs and daily wage earners; they lost their work during those horrific lockdown days. Some of them have gone for

the work but are discouraged by the people around the work place. The National Employment Guarantee Programme, which provided 100 days of work in a year, got stopped, and they had to be in distress. On the other hand, many households depended on the earnings of Gulf migrants, who were unskilled labourers. When Covid-19 hit globally, it also affected the work in the middle-east; thereby, the impact on the people in Kerala was also visible. Many of them returned to their native place through the Vande Bharat mission and stayed home without work for months. It has affected the lives of many residing in the selected wards of the Manjeri Municipality. The micro containment zonal-wise lockdown affected the local labourers who worked in the nearby wards as they were not allowed to move from one ward to another if there was containment in one and none in the other. Furthermore, several internal migrant workers were referred to as 'Guest Workers' by the state during the pandemic. These groups also faced work issues, and their unrest and protests against the lockdown have also been a challenge that came in front of the health system, especially those actors in the social sector.

The community's resistance to the response activities on the ground was one of the severe challenges faced by the system's actors. Although there were massive campaigns and awareness programmes about the Covid-19 response activities all over the state, some sections of society were still against the health system activities. People did not cooperate with the containment measures in many places since most were daily wage earners. In some areas, the middle-class people were not cooperating with the local bodies because of the people's power, status and other hesitance. There were many incidences where those in quarantine started violating the protocols. Apart from the kind of misogynistic values and patriarchal minds of the adults and older adults led, they come out of their homes and roam around the public places and streets. It created serious problems for the LRRTs and the police force. It is to be noted that in the initial phases of the restrictions imposed on the mobility of the people to break the spread of the infection, the people were cooperative and actively involved in the Covid-19 response activities. But when these lockdowns and restrictions went beyond a certain number of months and days, people got frustrated as they could not do anything like what has been called normal time.

The battles against the virus were mainly concentrated in the hands of the public sector, leaving a vast, less regulated private sector as left behind in doing anything for social welfare. Historically preventive care has been confined to the responsibilities of the public sector, the secondary and tertiary care has taken care of the private sector as it accelerates profits. This crisis has shown the inefficiency of the private sector, not just in the Municipality's preventive and other response mechanisms, despite a large number of private sector hospitals and clinics.

They also became a barrier when the state government officially reduced the cost of testing, and it went on to the court; later, the verdict was in favour of the government as everyone has to reduce the cost of testing. Nonetheless, there was an incidence where some private labs and hospitals did not reduce their cost of testing. On the other hand, the same trend was seen in the cost of treatment of Covid-19 cases in private sector hospitals. It was an abnormal increase in Covid-19 treatment costs; consequently, the honourable high court of Kerala intervened and made legislation to reduce the costs. Furthermore, the scam on the government-sponsored health insurance schemes wherein hospitals takes a considerable amount from the insurance packages of the patients in the name of Covid-19 treatments. It was a time when there were plenty of cases in the community, and the public health care hospitals could not provide hospital admission to the patients. These all became a barrier in the Covid-19 response at the Municipal level as the health system includes public and private entities of health care provisioning.

Health care is political and institutional; political clashes between the parties and ideologies have also become hurdles in the Covid-19 response in the Municipality. It has also resulted in a financial crunch at the local self-government institution level as Covid-19 hits the local, state, national and global economies. Therefore, one of the core factors which led to Kerala's response to Covid-19 is comparatively successful; the massive scale of human resource mobilisation into the system has also been affected by the financial crunch. Those hired contractually in the Covid-19 response time did not receive their salaries for months and months and had to go on strike and other protests in front of district and state Collectorate and Secretariat. The financial crunch was also visible on the ground when the ASHAs were given only personal protective equipment when they had to visit the field, and they had to buy these by spending their own money. On the other hand, the effectiveness of the response depended on the LRRTs, which were given five thousand rupees in total for the whole year, and it was too minimal to function and run the Covid-19 preventive activities at the ground as the majority of their work concentrated on travelling and disinfection of the affected areas.

One of the last and not the most negligible factor which became a constraint for the smooth functioning of the Covid-19 response at the ground level was the community transmission initiated in mid-June 2020. The primary reasons for the localised transmissions were protesting across the state against the ruling government, phase-wise lifting of lockdown, unnecessary travels by the people during the crisis etc. this is the time when the Covid-19 cases across the local district and state level got increased. Later, when the lifting process went beyond the third phase, the people's mobility improved, affecting the Covid-19 response.

Additionally, the Eid celebrations in July have also been one of the factors which have accelerated the spread of the infection, thereby more wide localised community transmission. It was because of the relaxation that granted the people to move out of their homes to purchase the necessary items for the celebration of Eid. But the mobility associated with celebrating Onam in the Municipality was another factor that led to the case hike, as it has been treated as a secular festival. People from most religious groups used to celebrate and participate in the Onam festival; the increased mobility and public gatherings have created many problems in the Covid-19 response. Consequently, the cases in the community and hospital admissions increased; therefore, the home-based treatment of mild and moderate cases of infection has started.

Localised community transmission has a severe role in the Covid-19 response at the ground level as the role of local self-government institutions and departments is reduced to just reporting the cases from doing some comprehensive activities at the ground level. The publication of the route maps of the infected and thereby tracking the cases was also interrupted when there were too many cases in the community. The activities performed by the LRRTs have also been confined to disinfection rather than tracking the cases and reporting them to health officials. There were coordination issues between the health and social sectors where the social sector actors ignored what the health sector actors suggested in the overall Covid-19 management. The kind of power relationships within the health and social sector has created problems for those at the bottom of the hierarchy, as most of them were contractually hired by the authorities. The organisational structure that has evolved during the pandemic and its management period, the class, caste and gender division-based power relationships have been visible throughout the year. The frontline workers have faced much pressure from those at the higher levels of the hierarchy. Most frontline workers, including ASHAs, come from lower socioeconomic backgrounds. Therefore, the Covid-19 response at the Manjeri Municipality has been constrained by the factors discussed in the above section with the actors' lived experiences in both social and health sectors.

5.3 Conclusion

The response to Covid-19 in Kerala can be analysed through different perspectives, especially the integration of social sciences theories and perspectives in public health is the approach used in this study. The health system analysis of the Covid-19 response at Manjeri Municipality has been conducted in a challenging and fragile situation as the nature of the disease, and the response mechanisms kept evolving in the first wave. Nonetheless, it has incorporated a holistic understanding of the response activities carried out at the ground level by the frontline health workers and the ward members comprising the health and social sector, respectively. Moreover, this study focuses more on governance, specifically the organisational structure and its functions, along with the human resource mobilisation focusing on the frontline health workers. Many studies have been conducted on Kerala's response to Covid-19. Still, a health system approach to examine Kerala's strategies at the ground level in an urban setup is rare. Therefore, this study's impact on deciphering the various dimensions of the Covid-19 response at the grass root level would be an exciting piece of knowledge to understand. The study begins with the debates and discussions on Covid-19 and the response mechanisms across the world. Then it focuses on the Indian scenario, Kerala and the local context in which the study has been carried out. It is done through an extensive literature review and analysis of the various dimensions of the Covid-19 response worldwide. It has helped frame the research questions concerning the local context in which the study has been undertaken. The exploration of several studies available about the Covid-19 response in Kerala guided us to formulate the research questions and showed how to address these questions. One of the data sources of this process was the reports from the local, new papers and media.

Additionally, the secondary data available Covid-19 dash board of the Government of Kerala is also used to note down the milestones in the Covid-19 response at the state and the district level. It is also applied to elaborate on the developments within Kerala's health service system, especially during the pandemic. Apart from these, the studies conducted on the Covid-19 response in Kerala were explicitly used to analyse the situation and discover the research gap. It has helped the study to conceptualise the health system analysis to undertake the research and apply it to the local context to generate knowledge and alternative interpretation. The analysis chapter has been divided into two branches. One deals with the status of health services and socioeconomic characteristics at the selected Municipality, and the other on Covid-19 response at the selected ward in the Municipality.

The Covid-19 response at the grass root levels could only be explored and understood by studying and analysing the socioeconomic characteristics and status of health services available in the locality. Therefore, the study conducted a field-level enumeration of the community's available health infrastructure and health services. The local dynamics in this area have extensively influenced the Covid-19 progression and its response activities. Since the study has been conducted in the Municipality's urban peripheries, most of the population comprises informal workers except two wards from the urban centre. The class, caste, gender, and age composition of the society has immensely associated with the kind of social relationship within the community, and it greatly impacts the Covid-19 response. The socio-cultural features of society can tell us how different sections of society live together harmoniously in the locality even though there is a huge dominance of one community. The political, institutional and economic factors that shaped the Covid-19 response at the Manjeri Municipality have implications for the crises that may arise in the upcoming future.

Apart from a robust health service system in the Municipality, the favourable socio-cultural, political, economic, and demographic factors have favourably influenced the Covid-19 response in the study area. The study finds that the bits of advice and suggestions from the state level on time has improved the local self-government institutions to constitute their institution mechanisms concerning their local context. Kerala's health and development have advanced by a diverse socioeconomic, cultural and political factors, and it took many years to reach the present level status. The considerable investments in the social sector, especially in human development over the years and the influence of left politics in the development debate and redistribution of resources in the state have strengthened a public system for health and education. The study can also tell us about the effective management of the Covid-19 situation by the state with a participatory method where people and communities are given importance when there is a severe shortage of human resources in the system while preparing for the crisis. One of the significant developments in the health service system that has helped the state to perform well in an unprecedented time was the constitution of State Level Response Teams and the utilisation of existing Local Rapid Response Teams at the grass root level by the ward-level authorities. The study has also found that decentralisation in health is among the significant factors that drive all the activities in the community's health in an integrated approach addressing the more effective social determinants of health. Kerala's response to Covid-19 cannot be seen in isolation from its characteristics and principles of welfare states where the state's intervention in provisioning of population needs.

The study found that some crucial factors contributed to the successful comparative containment of Covid-19 in Kerala. Apart from these factors, many factors became constraints and barriers in the response activities. It was evident that the systemic constraints like a fairly large number of informal sector workers, left behind wives of Gulf migrants, settlements of internal migrants, deviant behaviour of the upper class, adversarial politics, financial constraints, infrastructural issues, caste-based disparities, patriarchal values of the society have negatively impacted the Covid-19 response. Whereas, the health system constraints like food security, water and sanitation, the presence of a huge unregulated private health sector, adversarial politics in the infrastructural issues of health planning, deployment of contractual works without paying them on time, the resistance of the community to the Covid-19 response activities, fear and anxiety, discrimination based on the job role, higher cost of treatment for the infected, localised transmission etc. have become hurdles in the Covid-19 response.

Moreover, the health service system constraints like inherent issues of shortage of human resources in health, discontinuity of general health services, the higher charge of testing private labs, negligence towards alternative medicines, stigma and discrimination against the frontline health workers, vaccine hesitancy, negligence of mental health of frontline workers, etc. considered as the constraints that faced by health system actors. The study found that many factors facilitated the Covid-19 which includes, including a strong political commitment, a decentralised health care system, active community participation, Covid Brigade, Local Rapid Response Teams, higher literacy rates, presence of an active social and private media, Kudumbasree, voluntary organisations, break the chain campaign, provisioning of financial assistance, massive recruitment of human resources, daily press meetings, universal provision of food kits, well connected inter-sectoral coordination, free food kits for the school students, welfare schemes and multiple agencies etc. were the factors that led to the success story of the Covid-19 response in Kerala. These elements of the Covid-19 response have further strengthened a strong public health system in a low-middle-income country setting. It was the reason why the state’s performance in the Covid-19 response has been applauded all over the world. In other words, Kerala’s achievements in social development, especially in the health sector, have gained international recognition for decades and decades, as many of the state's health indicators are equal to that of developed nations’. One reason for that is the social movements and intermediation in the state in the medieval period. Later, this legacy was translated to the modern age, where the people of Kerala accepted most public health activities and were very concerned about their rights and needs. That’s why the health development in

the state is of people's demand in nature, as it is political in particular. The decentralised governance of the 1990s paved the way for a new health development revolution as many healthcare institutions' administration is shared with the local self-governments.

Furthermore, the health system strengthening in the last decade has significantly improved the situation of public healthcare systems, especially with the launch of the Aardram Mission in 2017. It has directed to strengthen the three-tier health service delivery of the public health care institutions and ensure affordable, accessible and quality health services to the people, thereby ensuring universal health coverage. The study also points out the role of Health Minister K.K Shailaja in efficiently handling the Covid-19 pandemic, as her commitment and team work during the crisis period pay off. There were many criticisms that the Kerala Model of Covid-19 management faced during the second and third waves of the pandemic, specifically due to the unique health and epidemiological characteristics, even though the first wave of the pandemic was unquestionable in its effective management by the people of Kerala and the government. There are many lessons for other states and nations to learn from Kerala in managing Covid-19, especially in light of the first wave and public investment in the state's health sector. It is also to be noted that when there was an unprecedented situation of an unknown virus coming in new forms and the less regulated huge private sector health hospital desperately kept silent without doing anything for the great social good, it emphasised the need to state intervention in health especially public investment in the field of health. It would strengthen the public health systems and make them robust to handle any situation in the unforeseen future, especially when we have a world of global networks and highly interconnected globalised communities.

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Annexure 1

Response to Covid-19 in Kerala: A Health System Analysis

Interview Schedule for Health Sector Actors

Reference No: _____

Place and Date: _____

Designation: _____

Mobile No: _____

Ward No: _____

I. Views on Covid-19 Preparedness and Response

1. Could you please explain the lived experience of the pandemic as a Covid-19 warrior?
2. Could you please elaborate on the roles and responsibilities that you undertook?
3. Did you face any challenges while carrying out your duties? Please elaborate.
4. Could you please explain how the health system capacity was strengthened to battle?
5. What were the initial strategies followed for testing, isolation and treatment?
6. Could you please explain more about the Break the chain campaign?

II. Delivery of Health Services

7. Was there any monitoring of activities aimed at-risk groups? If yes, how?
8. How was the home visiting programme carried out, and how was it followed up?
9. Were the private health services incorporated into the response, and what was their role?
10. How does the government ensure the safety of healthcare workers?
11. What was the mechanism for the continuum of health services for non-Covid patients?

III. Human Resource Mobilisation

12. What steps were taken to mobilize the level of essential human resources?
13. What mechanisms were adopted for the availability and deployment of teams in PHCs?
14. How is the allocation of human resources being done, and based on which training?
15. How does the question of mental health address and services provide?
16. Did there any special incentives for the front-line workers? What were they?

Annexure 2

Response to Covid-19 in Kerala: A Health System Analysis

Interview Schedule for Social Sector Actors

Reference No: _____

Place and Date: _____

Designation: _____

Mobile No: _____

Ward No: _____

I. Views on Covid-19 Preparedness and Response

1. Could you please explain the lived experience of the pandemic as a Covid-19 warrior?
2. Could you please elaborate on the roles and responsibilities that you undertook?
3. Did you face any challenges while carrying out your duties? Please elaborate.
4. How did the youth were involved in the Covid activities through Sannadha Sena?
5. How did the Kudumbasree alone make a revolution in the Covid-19 response?
6. What contributions ensured food and medicine supply to the local people?

II. Decentralised Governance

7. Could you please list out various stakeholders and their roles and responsibilities?
8. How do the proper communication and coordination mechanisms channel?
9. What were the community training and education activities to prevent and contain Covid?
10. Could you please elaborate on the intersectoral actors and their coordination activities??
11. How does the system ensure community participation, and what were their activities?

III. Social Welfare Measures

12. What have major social protection schemes been announced and implemented so far?
13. Could you please explain about Community kitchens and Janakeeya Hotels?
14. What were the interventions that were being done through Kudumbasree units?
15. What was the measure taken for migrant workers who were referred to as guest workers?