## **COVID & PUBLIC HEALTH SYSTEM**

#### **ABSTRACT**

The COVID-19 pandemic, also defined as the coronavirus pandemic, is a global pandemic situation that occurred in the year 2019 which is caused by corona virus that is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first coronavirus case in India was identified at the end of January in Kerala, India's southernmost state. When the virus first emerged, the Ministry of Health and Family Welfare (MoHFW) was charged with keeping track of its spread. The pandemic brought confusion and implications for all areas of global business. The public healthcare system in India has developed as a result of a range of factors over the last 60 years, including British colonial influences. In India, there is a great need for an accessible and successful public health system. Due to the sudden rising cases, the public healthcare systems faced some problems while making arrangements of the all the medical services for the covid patients on urgent basis. In order to control and overcome the challenges of the inadequate facilities of the public health system in India to fight against Covid-19, various measures have been adopted by them.

The study covers the periphery of the Indian Public Health System and also the impact of Covid-19 on the people of India. The study also focusses in the problem that were face by the public health system in India to fight against the pandemic as well the various measures or schemes introduced to fight against Covid pandemic situation.

## INTRODUCTION TO THE STUDY

Public health systems refer to all the public, private, and voluntary entities who wish to contribute and provide essential public health services within a jurisdiction. The main function of any public health system includes series of activities that are essential for achieving the aim of public health, which is to enhance, encourage, protect, and restore the health of the community by collective action and are under the primary responsibility of the state. The aim of public health is to improve and protect the health of citizens. International, national, state, and local governments all take part in public health initiatives. The majority of communities are served by health departments, which collect and use experimental evidence for disease surveillance in the community.

Some of the functions that are performed by the public health system of any country are as follows:-

- 1. To assess the health of community and solve all the health problems of the community.
- 2. To diagnose the health problems and hazards in the community.
- 3. To inform, empower and educate the people about the various health issues.
- 4. To develop plans and modules in order to support health efforts of individual and the community.
- 5. To prepare and enforce various laws in order to protect health and to ensure safety of the community.
- 6. To meet the needs of the people by providing them personal health services whenever needed.
- 7. To make sure there is competent public health care workforce available.
- 8. To research about new innovative solutions for the health problems.
- 9. To effectively evaluate and provide access to quality health services to the mass public in the country.

### **Pandemic Situation**

As per the World Health Organisation (WHO), a pandemic situation refers to spread of a new disease across the world. Whenever a new diseases emerges for the first time, it can be difficulty for everyone to fight against such disease that is beyond the natural immunity. Such situation can be unpredictable, rapid and this spread can happen suddenly across the communities and spread all around the world. A pandemic situation can affect higher number of people and it can be more deadly than an epidemic situation. It can also lead to disruption in the society, large amount of economic losses, and indeed a hard time for the people on a larger scale. A pandemic can also bring additional strain on healthcare systems by growing demand for specialised treatments.

## **History of Pandemic Situation**

In the history of pandemic situation in the world, one such pandemic that had happened in the past was the influenza of 1918 which had severe effects across the globe. This was caused by the H1N1 virus of avian origin. This virus was first originated and identified in the United States in a military personnel.

Around one third of the world's population was affected by this deadly virus and had affected more than 500 million people. The number of deaths that occurred due to this pandemic were about of 50 million people and the death rate was high among the younger people between the age group of 20 to 40 years.

This influenza also largely affected the Indian population in 1918. It killed around 17 to 18 million people in the country. In India, this pandemic first broke out in Bombay and hence it is also called as the Bombay Influenza and spread across the whole country. The health care system in the country at that time was not able to meet the sudden increased demands for the medical attention. This pandemic in the past had led to fall in the economy all over.

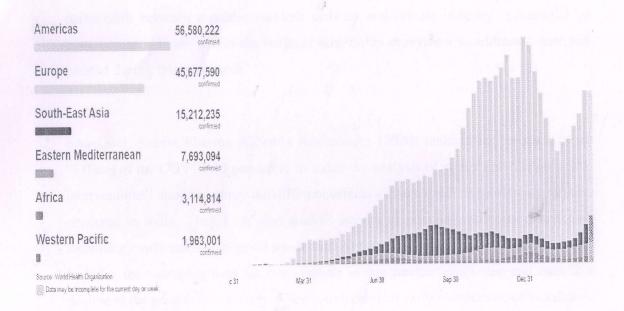
## Covid -19

The COVID-19 pandemic, also defined as the coronavirus pandemic, is a global pandemic situation that occurred in the year 2019 which is caused by corona virus that is caused by acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This virus was first found in the month of December in 2019 in Wuhan in China. On the outbreak of this covid-19 virus, the World Health Organisation (WHO) declared Public Health Emergency in the month of January 2020. In the month of February 2020, the WHO named this disease as "Covid -19" which is a short form for coronavirus disease 2019.

COVID-19 has rapidly impacted our daily lives, industries and the global trade. As the virus gets spread very easily from person to person, the early detection of the disease is important in order to control the spread. The majority of people who are infected with COVID-19 will have moderate respiratory symptoms and will recover without getting any special care and some other symptoms are loss of taste, sore throat, fever, breathlessness, dry cough. People above 65 years, as well as those having medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, and cancer, are at a higher risk of developing serious illness.

This covid-19 pandemic has brought additional strain on healthcare systems by growing demand for specialised treatments. Intensive care patients with serious COVID-19 symptoms need more ventilators and beds. As a consequence, resources for those that need this equipment can be limited.

Present situation of cases across the globe are as follows:-



(Source: World Health Organisation)

Keywords:- Covid-19, Public Health Sytem, Covid Impact, India

### **OBJECTIVES OF THE STUDY**

- 1. To understand the periphery of public health system in India.
- 2. To study the impact of Covid-19 on the people of India.
- 3. To find various problems faced by the public health system to fight against Covid-19.
- 4. To understand various measures for public health system during pandemic situation.

## LITERATURE REVIEW

1. Kanchan Mukherjee (2021) under her research paper "Integrating technology, innovation and policy: COVID-19 and HTA" has studied the role of the Health technology assessment in order to study the innovations in health where a case study of Indian Covid-19 diagnostic test is taken for the study. At the end of the study she concluded that the HTA was able to provide evidence on why this technology is important for health system. FELUDA technology was the result of an urgent

partnership between a public research institute and private industry encouraged by government policies within the national innovation ecosystem to address a new gap created during this pandemic.

- 2. Isha Goel, Seema Sharma & Smita Kashiramka (2020) under their research paper "Effects of the COVID-19 pandemic in India: An analysis of policy and technological interventions" aimed to study the different effects of the Covid-19 pandemic situation occurred in India. They have also studied impact of policies and other changes in technology with respect to covid pandemic. At the end of their study, they found that In India, the unemployment has risen rapidly in this pandemic situation and there is a decline in the growth of economy. They concluded that early instructions of lockdowns in the country helped to reduce the doubling rate of the covid patients and there must be advancement in technologies, partnerships among the private and public health systems until any vaccine gets developed.
- 3. Azizah F. Siddiqui, Manuel Wiederkehr, Liudmila Rozanova and Antoine Flahault (2020) under their research paper "Situation of India in the COVID-19 Pandemic: India's Initial Pandemic Experience " has examined health system capacity of India for fighting such pandemic situation of Covid, measures how screening tests can help in stopping the spread of this virus. At the end of the study they concluded that at the starting these screening test were didn't always give the accurate tests results. The study also focussed on the unreported cases of covid patients in India.
- 4. Rajesh Kumar, Vanya Singh, Aroop Mohanty, Yogesh Bahurupi and Puncet Kumar Gupta (2021) under their research paper "Corona health-care warriors in India: knowledge, attitude, and practices during COVID-19 outbreak" aimed to study the knowledge of the health care warriors, their attitude and practices followed by them during outbreak of Covid-19 pandemic situation. They conducted a survey in the form of a questionnaire that was shared with public and private health care facilities to assess their attitude an knowledge during such crisis. At the end of the study they concluded that the level of education is aligned with the appropriate knowledge of the health professionals in the country.

- 5. Balram Rai, Anandi Shukla and Laxmi Kant Dwiwedi (2020) under their research paper "COVID-19 in India: Predictions, Reproduction Number and Public Health Preparedness" studied the predictions of the rising cases of Covid-19 patients in India and rapid doubling rates of the cases within the short period. They have studied the preparation done by the public health system to fight against this virus. They have also concluded with various preparations taken into hand by public health system of India to control the spread of Covid
- 6. S. Mahendra Dev and Rajeswari Sengupta (2020) under their research paper "Covid19: Impact on the Indian Economy" studied the state of the economy of India in the pre
  covid period and also examined the impact of Covid on the various segments of the
  businesses in India. At the end of the study, they concluded that lockdowns and other
  social distancing measures in India are proving to be hugely disruptive due to
  economy's difficult position, especially in financial sector in the pre-Covid-19 era, and
  the economy's dependency on informal labour.
- 7. Dr. Kishore Kumar Das and Shalini Patnaik (2020) under their research paper "The Impact of Covid-19 in Indian Economy An Empirical Study" has studied the gross domestic product on India due to the covid-19 pandemic, the short term and long-term effects on the various sectors of the country and also various suggestions for different sectors. At the end of the study, they concluded that the emergence and spread of Covid-19 across the globe has put the entire economy in a difficult phase and it is important to improve overall capabilities of the nation in order to again revive economy by taking proper safety and social distancing norms.

#### Discussion

## Public Healthcare System of India

India has a universal health-care system. In India, there is a significant disparity in the quality and coverage of medical care. States, as well as rural and urban areas, may have vastly different healthcare systems. Physician shortages are common in rural areas and frequently have less access to affordable healthcare than residents of more prosperous states. The state governments are responsible to provide healthcare and health education, while the federal government is responsible for providing administrative and technical services.

In India, there is a great need for an accessible and successful public health system. A nation's public health system is a collection of all coordinated programmes aimed at preventing disease, extending life, and improving people's health and productivity. The provision of medical care has long dominated the Indian healthcare system, which has ignored public health. India accounts for 11.9 percent of all maternal deaths and 18 percent of all child deaths worldwide, making it the most dangerous country on the planet. By the age of five, 36.6 out of 1000 children have died, and just 62 percent of children have been immunised. In India, communicable disease is the leading cause of death, accounting for 53% of all deaths.

The health care system of India is divided into private and public i.e. Government sector. Even though there is an increased spread of urbanisation in India, India's rural population still accounts for 68.84 percent of the country's population. The private sector hospitals basically concentrates in urban areas, while there is widespread difference and lack of efficiency in the distribution of healthcare services in the rural areas of the country. In rural India, Public sector provides health care in the form of health care centres. Health care canters in these areas are often limited and they lack adequate resources. In urban areas of India, both the private and public healthcare services are available. The central and state governments share responsibility for the health system's administration, funding, and activity.

The Ministry of Health and Family Welfare, which regulates the bulk of health decisions at the federal level, is not specifically involved in health care delivery. It is divided into two sections:

- i. The Department of Health and Family Welfare is in charge of coordinating and delivering national health services, each of which is overseen by a separate administrative agency.
- ii. The Department of Health Research is in charge of supporting health and clinical research, establishing ethical standards for health research, disease investigations, and offering advanced research training and grants.

Public hospitals are viewed with suspicion because they often lack modern diagnostics and specialised care options, whereas private hospitals are viewed with suspicion because of excessive medical costs and sometimes improper medical treatments given. The breakdown of the health-care system, as well as the emergence of various alternative medical treatments, has long created a sense of fear and distrust among health-care providers and doctors. To counter

this, efforts have been made in recent years to improve overall system by expanding publicprivate partnerships, by accrediting public health centres, private hospitals, and laboratories, and expanding access to health care across geographic and socioeconomic boundaries.

## Impact of Covid-19 on the people of India

On January 30, 2020, the first case of COVID-19 in India, which originated in China, was registered. With more than 11.4 million registered cases of COVID-19 infection and more than 158,000 deaths as of March 15, 2021, India has the highest number of confirmed cases in Asia and, after the United States and Brazil, the third-highest number of confirmed cases in the world.

India was swift to introduce strict social distancing policies in contrast to countries like Italy, United States and the United Kingdom. When only 360 cases were active in the country at the end of March 2020, the government had enforced a nationwide curfew to prevent virus from spreading locally. Prime Minister Narendra Modi imposed the "Janata Curfew" to raise public awareness (and participation) in the so-called "War Against Coronavirus." The Prime Minister imposed the world's biggest lockout for 21 days under the Disaster Management Act of 2005.

The coronavirus pandemic has had a major effect on India's economic activity as well as the loss of human lives. Almost all sectors have negatively impacted as domestic demand and the exports have decreased. Some sectors saw a strong growth.

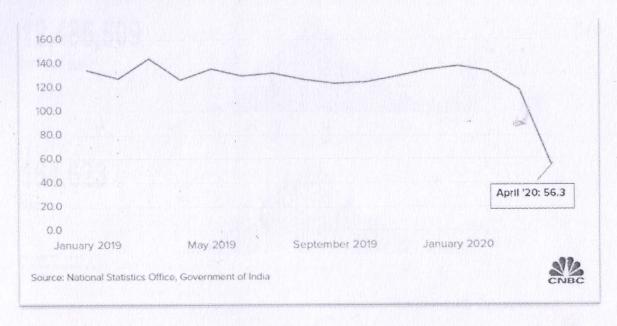
The Gross domestic Product i.e. the GDP of India has declined due to the Covid-29 pandemic. Following are the trends of GDP from 2015 to 2020. A huge decline can be observed:-



(Source: Ministry of Statistics & Programme Implementation (MoSPI))

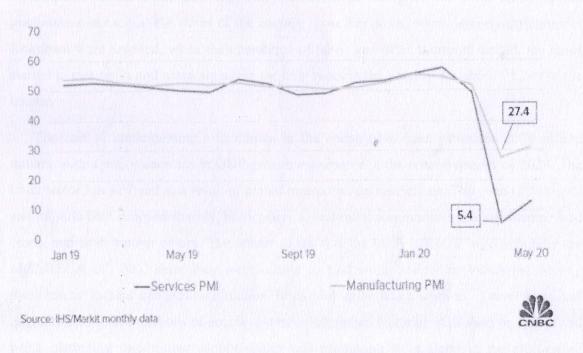
There has been a decline the GDP of the country starting from the last quarter of 2020.

Following is index of Industrial Production till the April 2020 in India where the nation was in lockdown and major economic activities had come to a standstill.



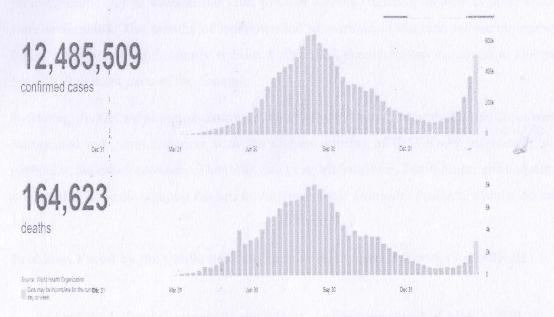
(Source:- https://www.cnbc.com)

Following is decline in the service industry of India which had led to contraction in activities of business in the nation due the lockdown announced:-



(source:-:-https://www.cnbc.com)

In India, following is the statistics of India's Covid-19 cases starting from the month of March 2020 till the present situation as on 4<sup>th</sup> April 2021.



(Source:- World Health Organisation)

As we can observe in the above statistics that by the month of July 2020, The cases of covid-19 were maximum of about 93,874 cases were active in the country.

The rate of the cases declined with the increased lockdown measures taken by the government in each of the states of the country. Post lockdown, when certain restrictions of lockdown were lowered, when the operations of trains and other transport started, the cases started to rise again and currently again the new cases in the country are about 93,249 in the country.

The cost of implementing a lockdown in the country has been estimated at 26 billion dollars, with a major decrease in GDP growth anticipated in the second quarter of 2020. The trade sector has suffered as a result of global transportation restrictions. The country's exports and imports both dropped sharply, particularly for essential commodities like petroleum, food crops, and coal, among others. The labour sector was the badly affected who are under the MGNREGA of 2005, since they were unable to find work due to the lockdown. Mostly these labour sectors consists construction firms and daily wage workers. Travel bans and quarantines affected millions of people and have left Indian factories with short on labour and parts, disrupting just-in-time supply chains and prompting sales alerts in the electronics, automotive, pharmaceutical sector, consumer goods, and other industries.

The pandemic brought confusion and implications for all areas of global business. Despite the fact that India is ahead of most countries in terms of being able to enforce work-from-home policies, especially in white collar jobs, job and earnings deficits, as well as price volatility, were anticipated. The months of lockdown led to increase in the rates of unemployment in India, which slowly and steadily stabilized after the Indian economy reopened in around late May 2020 in most parts of the country.

Following district zonal segmentation, research revealed that the worst-affected areas were the orange and red zones (districts with the highest number of COVID-19 infections) and, in particular, the urban economy. The following year, Maharashtra, Tamil Nadu, and Gujarat were predicted to have the steepest decline in the Gross State Domestic Product, with an average of 15%.

# Problems Faced by the public health system to fight against Covid-19 pandemic

As the Covid-19 pandemic struck our country India in the month of March 2020, the death toll had started rising in the country. From 24<sup>th</sup> March 2020, the government of India had imposed a lockdown in the country to control the spread of the corona virus in the nation. Due to the sudden rising cases, the public healthcare systems faced some problems while making arrangements of the all the medical services for the covid patients on urgent basis.

Inadequate Infrastructure for medical needs was one of the important challenge faced by the public health system in India. Country's healthcare system was not at all prepared for such type of crisis, with 8.5 hospital beds per 10,000 residents and eight doctors per 10,000 as claimed by Fitch Solutions.

India spent less than 2% of its GDP on public health between 2009 and 2019. This figure has been gradually décreasing, with just 1.1 percent of GDP allocated to public health in 2019. Thus, India's inability to cope effectively with the ongoing COVID-19 pandemic was a result of this lack of investment. There is also a shortage in medical professionals to cater the needs of the covid-19 affected patients. Due to the rapid rate of increase in the covid virus cases in the country, the patients having other health problems and diseases are getting neglected.

There is overload on medical shops of the country. Due to lockdown imposed, the supply chain of delivery of the medical products in the shops was also difficult at certain regions in the country. In a huge population of India, it is difficult for the public health system

to ensure high protection of each and everyone. Also, there was lot of overload work on existing health care professions and doctors.

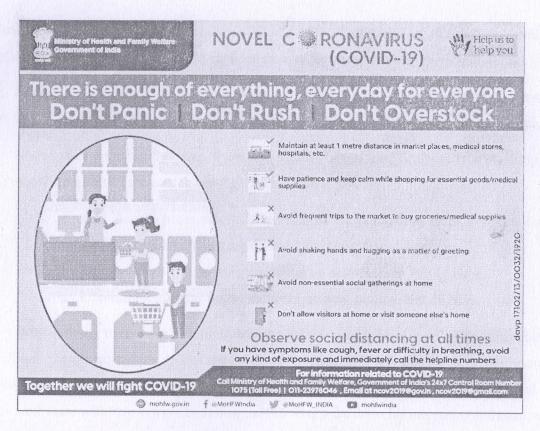
Also mild cases of COVID-19 require isolation wards, and extreme cases need intensive care units. It is also estimated that out of the every 10 Covid-19 patients, one will require critical care such ventilators and it is difficult for the public health care system of India to meet these needs on urgent basis.

## 4.4 Various Measure taken by Public Health System in India to fight Covid-19

In order to control and overcome the challenges of the inadequate facilities of the public health system in India to fight against Covid-19, various measures have been adopted by them.

The introduction of the strict social distancing norms, the updating of various guidelines for state governments as well as the local authorities, mobilising of adequate resources from the private sector, and also implementation of the most extreme type of movement restriction that means the national lockdown were all part of public health initiatives.

They also came up with numerous awareness materials and gave the Do's and Don'ts in all the languages of different regions of India and posted it on the Ministry of Health and Family Welfare, Government of India website for creating awareness with regards to maintaining social distance, regular hand washing, wearing of masks and sanitising and etiquettes to be followed while coughing and sneezing. This information was also shared with all forms of media so that awareness about this could reach the mass public all over India.



(source:- https://www.mohfw.gov.in/)

The Indian government imposed multiple visa restrictions shortly after WHO declared COVID-19 a pandemic situation. Depending on the occurrence of symptoms or a history of high-risk exposures, the passengers with a travel history were monitored for 14 days upon arrival in the country, either at their homes or in quarantine facilities. Also, there is corona virus ring tone that creates awareness among the people each time they dial the phone to anyone regarding all the social distancing norms and cough etiquettes, Also, helpline numbers are provided if anyone needs any help.

In this course, there were also false messages and facts relating to public health norms relating to Covid-19 were shared and in order to have proper authentication, the government of India took certain initiative. They introduced a platform named CovidIndiaSeva on Twitter so that people understand that information from this Id only will be authenticated. Also, in the rural areas, the Gram Panchayats were informed to make people aware about not falling to false facts regarding Covid-19 safety norms.

An mobile application named "Aarogya Setu" was also introduced to make individuals aware about Covid-norms, the measures that should be practiced for being safe from this

pandemic, to understand the prevalence of Covid-19 in nearby vicinity. It has been mandated by the government that this mobile application must be with each and every individual.

For the safety of the Health care workers and professionals, PPE kits that is the Personal Protective Equipment were provided to all so that they be safe while serving the covid patients.

As the cases were rapidly rising, the public health system strategically did the planning and divided the regions of the country into different zones which are:-

- a. Red Zones- Areas where 80 percent of the population there is affected with covid and cases are getting doubled even less than 4 days.
- b. Orange zones- Areas where there are no new cases in last 14 days.
- c. Green Zones- Areas where there are no new cases in last 28 days.

By defining these zones, the public health system could then increase the infrastructure facilities like the quarantine spaces and other required medical services for the people more in green zone areas. For this even some rail coaches were turned into quarantine spaces and tie-ups were done with non-government hospitals as well were done for increasing infrastructure.







( Sources:- <a href="https://twitter.com/covidindiaseva?lang=en">https://twitter.com/covidindiaseva?lang=en</a>, <a href="https://www.aarogyasetu.gov.in/">https://www.aarogyasetu.gov.in/</a>, <a href="https://www.cowin.gov.in/home">https://www.aarogyasetu.gov.in/</a>, <a href="https://www.cowin.gov.in/home">https://www.aarogyasetu.gov.in/</a>,

Presently as the vaccinations have been made to protect from the covid-19 virus, the public health system has introduced online portals like co-win for online registration of vaccines and availability of free vaccination at the government hospital and minimal charges of Rs. 250 at the private hospitals The Government of India has identified the priority groups that will be vaccinated first, based on the possible availability of vaccines, since they are at

higher risk. Healthcare and frontline staff make up the first group. Persons over 60 years old and those between 45 and 59 years old with comorbid conditions will be the second party to receive the COVID-19 vaccine.

So, these are some of the measures that are taken by the Public Health System of India to fight against the Covid Pandemic. The cases in India currently are again rising suddenly and again the system have given certain guidelines of lockdown so that the cases in the country decline soon.

#### CONCLUSION

The COVID-19 pandemic indeed resulted in huge loss of human lives all around the world and indeed poses an enormous threat to public health, to the food systems, and the workplace. The economic and social effects of the Covid-19 pandemic are devastating. Millions of people are at risk of falling into extreme poverty, also number of people who are undernourished, which is currently nearly 690 million are likely to rise more rapidly. However, India has performed well in order to tackle this emergency of pandemic situation.

The impact of Covid – 19 on the Indian economy is huge and has affected and led to losses of many human lives. The pandemic brought confusion and implications for all areas of global business. The lockdown imposed led to increase in the unemployment rate of the nation. Travel bans and quarantines affected hundreds of millions of people and have left Indian factories short on labour and parts, disrupting just-in-time supply chains and prompting sales alerts in the electronics, automotive, pharmaceutical sector, consumer goods, and other industries. The businesses which didn't came under the essential products category got affected hugely due to lockdowns imposed in the country and so indeed India is facing a tough time.

The public health system also faced various challenges to fight against this virus and come up with new initiatives and improvements to protect the people's health. Inadequate finances for the medical equipment, lack of medical infrastructure for having quarantine spaces were some of the problems faced.

To improve this, Public health system came up with various programs. Firstly it was important to create awareness among the people about this Covid-19 virus, social distancing norms to be followed, coughing sneezing etiquettes that has to be followed. Also, zone wise

arrangements were made. Red zone areas where containment and spread was happening rapidly, infrastructure facilities were improved there first.

With numerous awareness materials and gave the Do's and Don'ts in all the languages of different regions of India and posted it on the Ministry of Health and Family Welfare, Government of India website for creating awareness with regards to maintaining social distance, regular hand washing, wearing of masks and sanitising and etiquettes to be followed while coughing and sneezing. This information was also shared with all forms of media so that awareness about this could reach the mass public all over India.

The World Health Organisation praised India's strong political leadership for focusing on important issues such as improving diagnostics and being able to scale them up, as well as being very systematic about lockdown steps and unlocking in a systematic manner.

So, from the study, the periphery of the public health system was understood. The impact the Covid-19 Pandemic has made on the people in India was discussed. The various difficulties the Indian economy faced could be analysed. Also, the numerous problems faced by the public health system of India during this situation of pandemic was studied and then the measures they are taking to fight against Covid-19 are explained in the study. As the world's largest vaccination campaign officially begins in India, it's important to take into consideration the previous year's events. To combat Covid-19, coordinated action at the federal, state, district, and sub-district levels has been crucial.

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