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A REVIEW ON THE WORLDWIDE PANDEMIC SITUATION OF COVID-19 ACTIVITIES FROM THE BEGINNING TO CURRENT SCENARIO 2025

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ABSTRACT

Research related to COVID-19 has expanded rapidly since the onset of the pandemic. This study presents a comprehensive review of public administration scholarship on COVID-19. Using a Structural Topic Model (STM), we examined 710 published articles and identified 27 major themes within the field. Our findings show that the prominence of most topics has remained relatively stable over time. We also observe that thematic emphasis is shaped more by journal venue and the geographic location of authors than by the degree of international collaboration among research teams. Based on the overall analysis, several avenues for future research and theoretical advancement are suggested.

Over the past three years, the global community has continued to confront the wide-ranging effects of the COVID-19 outbreak, and many nations are still experiencing its consequences. The pandemic led to a series of challenges – including lockdowns, economic and financial instability, food insecurity, and unemployment. COVID-19 has proven to be a worldwide infectious disease due to its rapid and far-reaching spread. Coronaviruses are known to cause respiratory illnesses in humans, varying from mild colds to severe diseases such as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS).

KEYWORDS: *Vaccination, Pandemic, Infection, Transmission, COVID-19.*

INTRODUCTION

The Corona Virus is a worldwide transmittable disease. These viruses are first identified by virologist J.D. Almeida, C.H. Cunningham and D.M. Berry et al.[1] This virus is also known as COVID-19. It is a large family of viruses which cause sickness in humans and animals. In humans, corona viruses to cause respiratory infections range from the general cold to further severe disease such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most newly discovered corona virus causes corona virus disease COVID-19. New virus and disease were unidentified prior to the eruption begin in Wuhan, China, in December 2019. It is caused pandemic affecting to all worlds

The most common symptoms of COVID-19 are dry cough, fever, and tiredness. Symptom that are less common and may affect some patients include aches and nasal congestion, pains, conjunctivitis, headache, diarrhea, sore throat, loss of taste or smell, skin rashes, discoloration of fingers and toes. These symptoms are typically gentle and frequently.[2] In a timeline that reaches the present day, an epidemic of cases with mysterious low respiratory infection detected in Wuhan, the major urban region in China's Hubei, was first given to WHO Country Office in China, in 31 December 2019. The etiology of this illness is now credited to a novel virus belong to the family of corona virus (CoV).[3] The CoVs have become the major pathogens of promising respiratory disease outbreaks. It is a large family of single-stranded RNA viruses that can be isolated in different kind of animals.[4] Now various peoples are died day by day, whole world from this virus. So the present review study we have discuss about infection of corona virus and its pandemic activity on worldwide, same as we have discussed its structure and replication process, and also transmission with precaution in this study.

History

Under an electron microscope, coronaviruses look as crowns due to spike-like projections on their surface. They are enclosed positive sense RNA viruses that range in diameter from 60 to 140 nm. In humans, four corona viruses—HKU1, NL63, 229E, and OC43—have been found to cause minor respiratory illnesses. In the last 20 years, there have been two instances where animal-beta corona virus crossover to humans has caused serious illness.

One such incident occurred in Guangdong province, China, in 2002–2003, when a novel coronavirus belonging to the β genus, which originated in bats, spread to people through palmcivet cat.

The past:The enclosed positive sense RNA viruses known as coronaviruses range in size from coronary bat virus. Samples

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collected from the animals and items at the Huanan seafood market also tested positive, suggesting that seafood is the source of this virus .

ORIGIN AND SPREAD

For an unspecified reason, persons in Wuhan with severe respiratory illness visited nearby hospitals in December 2019. To find the cause, breathing samples from patients and the control system—which was created after the SARS outbreak spread—were submitted to reference labs. China notified the WHO of the epidemic on December 31, 2019, and seafood stores in Huanan were shut down in January 2020. The virus was identified on January 7th as a coronavirus with roughly 70% resemblance to SARSCoV and 95% symmetry with coronary bat virus and about 70% similarity to SARS CoV. Samples that were taken from the Huanan seafood market's objects and animals were also positive, indicating that this virus is generated from seafood.

SYMPTOMS

COVID-19 symptoms can vary widely among individuals, but common
symptoms include:

1. Fever or chills
2. Cough
3. Shortness of breath or difficulty breathing
4. Fatigue
5. Muscle or body aches
6. Headache
7. New loss of taste or smell
8. Sore throat
9. Congestion or runny nose
10. Nausea or vomiting

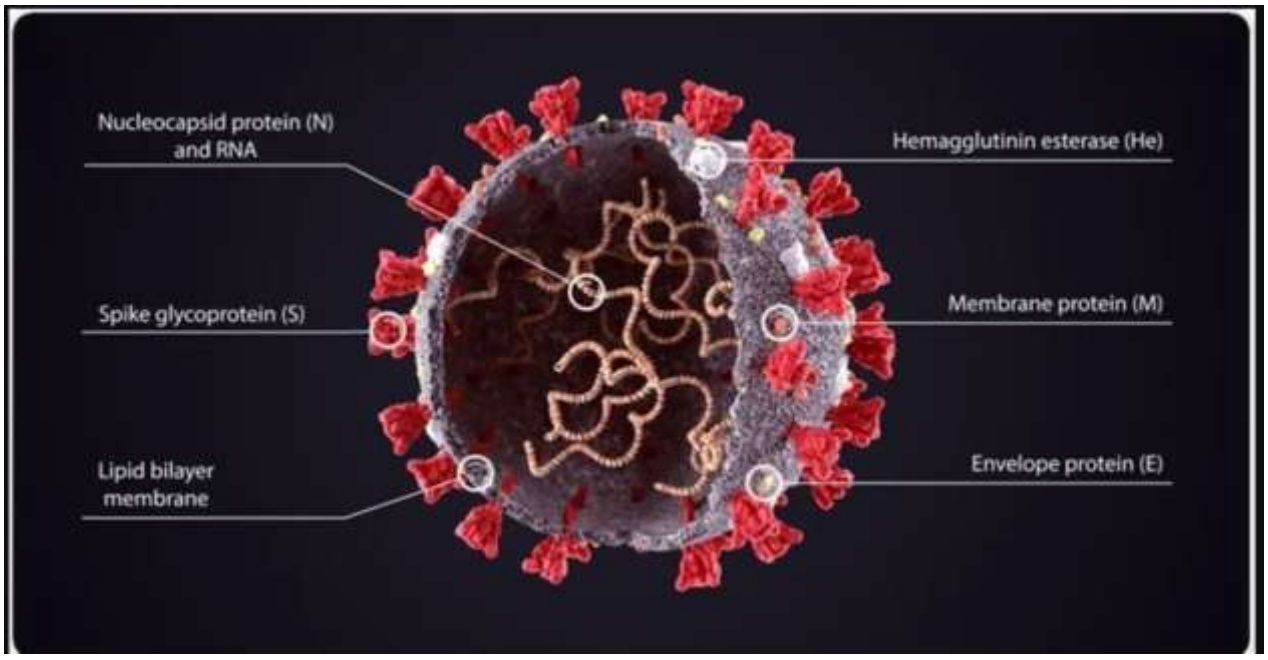


Fig. No.1 Structure of Corona Virus

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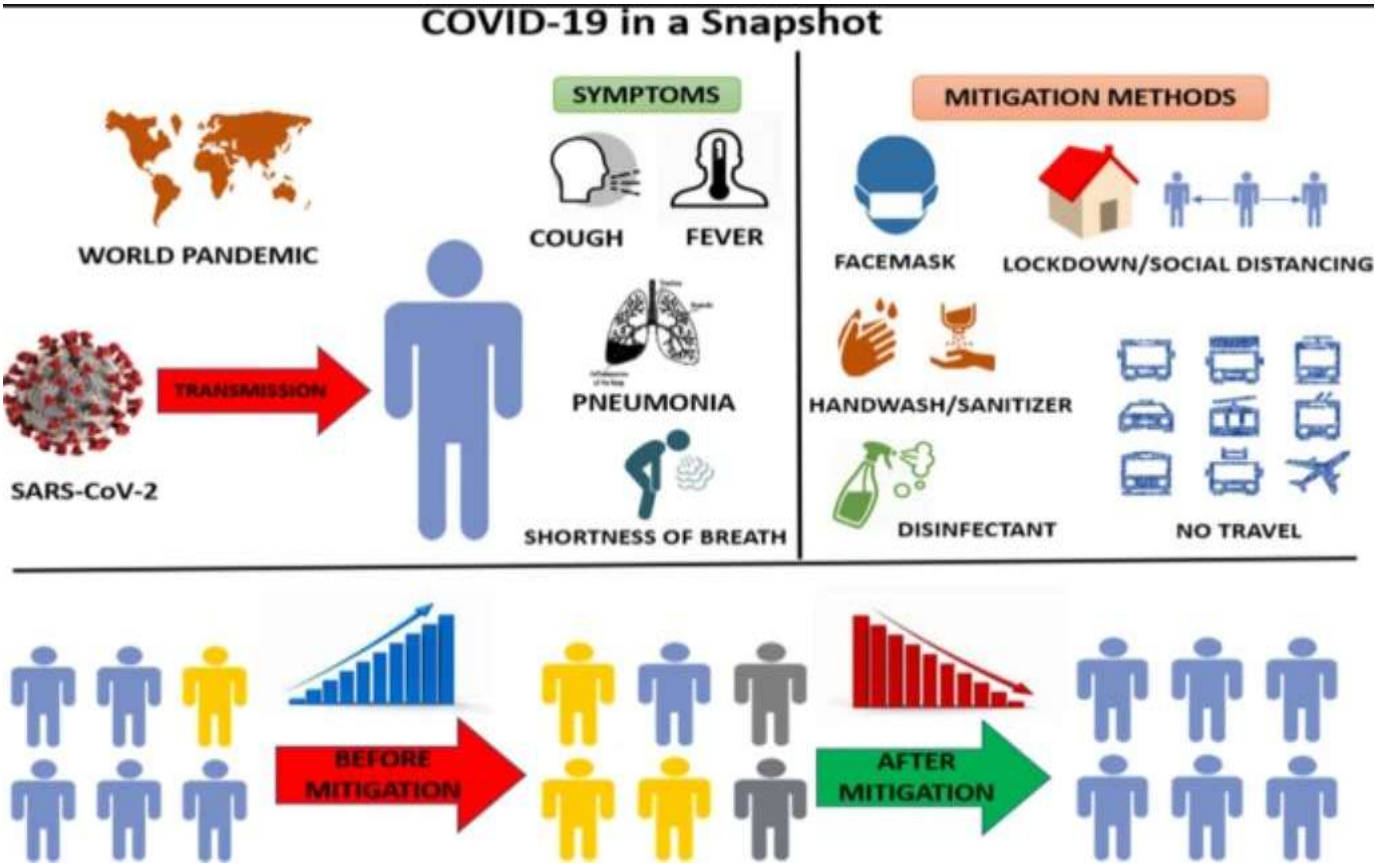


Fig.No.2 Transmission of Covid 19.

Viruses can be released into the environment via unsanitary carriers. The corona virus spike protein's edge and its corresponding cell receptor play a crucial role in determining the free virus's species diversity, tissue tropism, and infectivity. Depending on the kind of coronavirus, they can spread from one host to another through fecal-oral or aerosol routes.

The respiratory tract's epithelial cells are infected by these human viruses, but the digestive tract's epithelial cells are usually infected by animal corona viruses.

1. Principal Mode of Transmission: When an infected individual coughs, sneezes, talks, or breathes, respiratory droplets are the main way that COVID-19 is transferred.
2. Aerosol Transmission: In confined areas with inadequate ventilation, smaller particles, known as aerosols, have the ability to travel farther and remain in the air for longer.
3. Surface Contamination: The virus can endure for variable lengths of time on a variety of surfaces. Infection can result from contacting contaminated surfaces and then touching the face.
4. Asymptomatic Spread: Attempts to stop the virus's spread are made more difficult by the fact that infected people who do not exhibit symptoms can still infect others.
5. Close Contact: The risk of transmission is increased when one is within 6 feet (2 meters) of an infected individual, particularly in crowded or poorly ventilated areas.
6. High-Risk Settings: Higher transmission rates are linked to locations such as medical facilities ,assisted living facilities, and crowded indoor spaces.
7. Preventive Measures: The danger of transmission can be considerably decreased by wearing masks, increasing ventilation, practicing physical distance, and washing your hands frequently.
8. variations: The rate at which the virus spreads among populations may be impacted by new virus variations' varying transmissibilities
9. Impact of Vaccination: Vaccination can lower general transmission rates in populations and lessen the chance of serious illness.
10. Community Spread: Because COVID-19 can spread quickly among communities, outbreaks must be controlled through public health interventions.

CERTAIN COVID-19 TYPES

1. Original Strain: The initial epidemic was caused by the first strain discovered in Wuhan, China, at the end of 2019.
2. Variants of Concern (VOCs): Variants that exhibit heightened virulence, transmissibility, or diminished efficacy of therapies and vaccines. Important VOCs consist of:

• Alpha (B.1.1.7): More contagious than the original strain, initially discovered in the UK.
• Beta (B.1.351): Initially discovered in South Africa, this mutation may impact the effectiveness of vaccines.
• Gamma (P.1): Linked to greater transmissibility, initially discovered in Brazil.
• Delta (B.1.617.2): Initially discovered in India, this virus is much more contagious and associated with more serious illnesses.

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• Omicron (B.1.1.529): Originally discovered in South Africa, this virus has several mutations that cause it to spread quickly, impair the efficiency of vaccinations, but normally cause a milder form of the illness.
• Subvariants: Variants that develop from preexisting variants, frequently include alterations that impact immune escape or transmissibility. Omicron, for instance, has many subvariants (e.g., BA.1, BA.2, XBB).
• Variants: Variants that might appear in particular regions and have an effect on the dynamics of local transmission.
• Mutations: Changes in the virus's genetic makeup give rise to variations. Certain mutations might improve the virus's ability to spread or evade immunity.
• Monitoring: To track the appearance and dissemination of novel variations, ongoing genomic surveillance is essential. Variants: Variants that could surface to guide public health measures.
• Effect on Vaccines: Although certain variations may partially circumvent vaccine protection, vaccination is still a vital strategy for lowering hospitalization and serious illness
• Mental Health Support: To provide easily available support services and community initiatives to address the mental health issues brought on by the epidemic.
• International Cooperation: To promote global collaboration in vaccine distribution, research, and response tactics to control and avoid new outbreaks

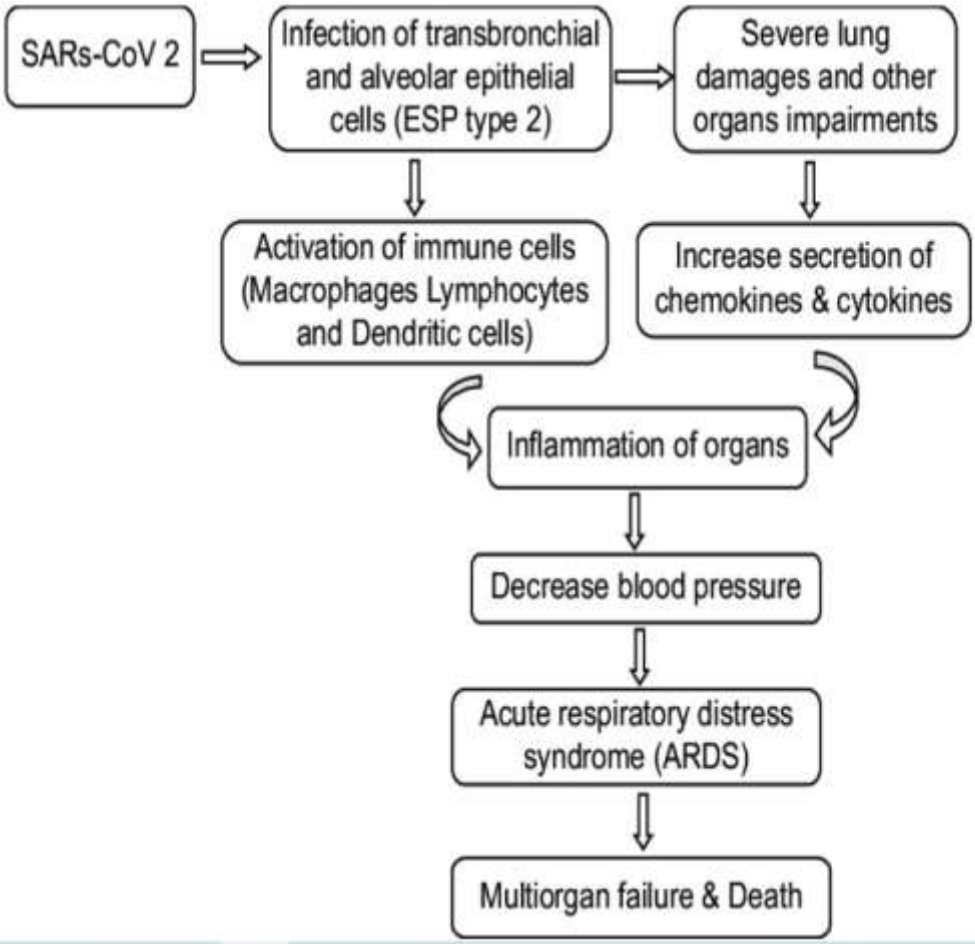


Fig.No.3 Showing the Pathophysiology of Covid -19.

The Study of Epidemiology

Early responses usually prioritize caring for infected individuals, tracking serious cases, and sharing updates about clinical developments. Insights gained from outbreaks such as Middle East Respiratory Syndrome (MERS), pandemic influenza, and other recent epidemics have emphasized the importance of strengthening public health measures to better understand the epidemiology of emerging viruses and assess their potential impact in order to prevent uncontrolled spread.

The severity of any epidemic is shaped by several factors, including how widely the infection circulates, how many people become infected, and the spectrum of clinical outcomes. COVID-19 was first identified during an outbreak of viral pneumonia in Wuhan, China, in December 2019. What began as a cluster of local cases quickly escalated into a global pandemic affecting more than 124 countries.

These events highlight the urgent need to enhance public health strategies to accurately describe the transmission patterns and potential risk posed by this new virus, just as earlier experiences with MERS and influenza had previously taught us. The magnitude of an epidemic is influenced by the number of infected individuals as well as the associated levels of illness and death. At the time the data were reported, the complete impact on global health remained uncertain. More than 438,749 people worldwide—including 55,243 in the United States—had been infected, and 19,675 had died as a result

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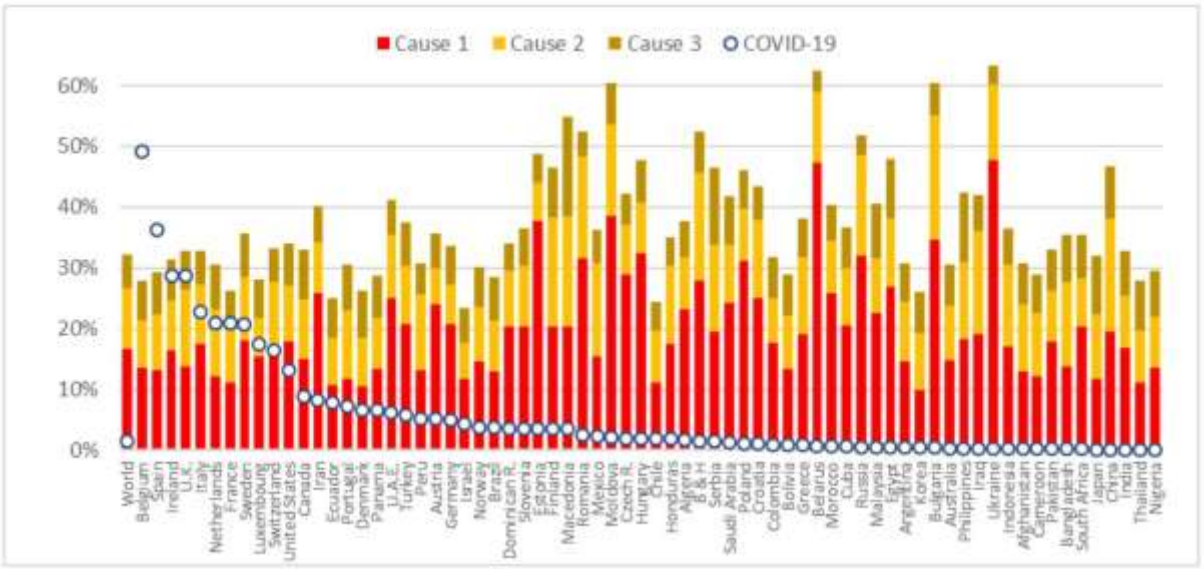


Fig.No.4 Death Ratio In 2020 Pendamic Condition

3) DAIGNOSIS

Since COVID-19 has been deemed a pandemic, any patient exhibiting any of the previously mentioned symptoms, a history of travel to one of the impacted nations, or a history of contact with sick individuals should raise the possibility of SARS-CoV2 infection. The WHO advises obtaining samples by bronchoalveolar lavage, endotracheal aspirate, or expectorated sputum. Viral RNA is detected using the real-time polymerase chain reaction (RT-PCR) technique. It is occasionally necessary to repeat the test for confirmation if the results are negative but there is a high suspicion of COVID-19.

The diagnosis of COVID-19, or corona virus

A. New COVID-19 Diagnostic Test The WHO states that the creation of protein and nucleic acid assays as well as point-of-care detection are the top priorities for COVID19 diagnostics research. [39] Combining these tests into multiplex panels is a longer-term priority.

B. RNA detection of viruses The most crucial test has involved using PCR to directly detect SARS-CoV-2 virus RNA. In January, WHO created and disseminated the first quantitative reverse transcript PCR (RT-qPCR) tests for SARS-CoV-2 to labs worldwide. However, the density and expense of these widely used tests have made the development of a different PCR-based testing approach on a more targeted scale necessary. Furthermore, as these tests are still relatively new, it is important to remember that the genuine clinical sensitivity is indefinite; a negative test does not negate the danger of infection.

Tests for serology Immunoglobulins, which are typically found in blood, are being detected by an increasing number of assays. These tests use antibody–antigen recognition to determine if the host has been exposed to the virus. These tests can help cover a picture of the viral spread throughout populations and deal with social limits from side to side. They also supply diagnostic facts and spectacular information about a viral limelight when more people get the sickness and then recover from it.

VACCINATION AND VACCINES

The Can Sino anti-coronavirus vaccine has been approved by China and is being tested for military usage in small quantities. Additionally, on June 24, 2020, more than two other virus vaccinations that must be inactivated in an emergency will be utilized in high-risk jobs. Following the production of the Sputnik V vaccine by Russia, which was also utilized to quell the crisis, his scientists used the vaccine for a month before distributing small doses to the public during phase three testing on August 11, 2020.

The World Health Organization determined on April 8, 2022, that the following COVID-19 vaccinations have satisfied the mandatory safety and value requirements.

1. The Oxford/AstraZeneca vaccine
2. Johnson and Johnson
3. Contemporary
4. BionTech/Pfizer
5. Sinopharm
6. The Sinovac

7COVAXIN
8. COVOVX
9. Nuvaxovid
10. CanSino and associates

CORONA VIRUS PREVENTION (COVID-19)

• To keep two miters apart and refrain from interacting with anyone who is ill or exhibiting symptoms.
• If at all possible, stay at home and maintain your distance.
• Steer clear of large events such as conferences, seminars, parties, and large gatherings.
• When in public, cover your face with a handkerchief, especially if you're in an area where population growth is ongoing.
•. Avoid touching your lips, nose, or eyes.
• Every day, sterilize and clean high-touch surfaces.

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• Mostly wash your hands at least 20 seconds from alcoholbased hand sanitizer, and you can also use any other shop.
• To avoid winning public transportation if you're sick.
• Covid-19 vaccines also take pregnant women. It's totally safe.
• No side effects of covid19 vaccine are used for all people.

4) AIM

REVIEW ON WORLD WIDE PANDEMIC SITUATION OF COVID-19 ACTIVITIES FROM BEGINNING 2019 TO CURRENT SCENARIO 2025

OBJECTIVE

• Public Health Protection: To study minimize the spread of the virus through effectivevaccination campaigns, public health guidelines, and testing protocols.
• Healthcare System Capacity: To understand ensure healthcare systems can manage the number of cases, including adequate staffing, resources, and facilities
• .Economic Stability: To understand mitigate the economic impact of the pandemic by supporting businesses, providing financial assistance, and encouraging safe reopeningpractices.
• Community Education: To inform the public about COVID-19 prevention, symptoms, and vaccination benefits to encourage responsible behaviors
• Research and Development: To study advance research on COVID-19, including treatments, vaccines, and understanding of the virus itself
• Equity in Healthcare: To ensure equitable access to vaccines and healthcare
• Protection of Public Health: To investigate ways to reduce the virus's transmission through efficient vaccination programs, public health recommendations, and testing procedures.
• Capacity of Healthcare Systems: To make sure that healthcare systems can handle the volume of cases, including enough resources, especially for disadvantaged and vulnerable populations.

5) ASPECT OF THE FUTURE

Future COVID-19 Aspects: Important Things to Think About
• Vaccine Development and Distribution: Ongoing studies on the accessibility, safety, and effectiveness of vaccines.
• Management and Treatment: creation of potent remedies, such as monoclonal antibodies and antivirals.
• Public health infrastructure: enhancing surveillance, response, and global health systems
• Global Governance and Cooperation: Improved data exchange, policy coordination, and international cooperation.
• Economic and Social Recovery: Resolving the effects of the epidemic on the economy, society, and mental health.

6) OUTCOME

Nobody is able to forecast the future despite all of the experiments and cures. According to some studies, the virus's ability to recombine and reassort makes it more susceptible to mutation, which causes it to fluctuate from mild to severe depending on the environment. Lockdowns, sanitization, and social isolation don't seem to be enough to keep the infection at bay. The recovery rate is also higher than that of any previous virus outbreak worldwide, in spite of all of these factors. This has a significant impact on the USA, India, Russia, and Italy.
Due to limited testing, the precise number of COVID-19 deaths is yet unknown.

7) FINAL RESULTS • Public Health Response: Due to high immunization rates in many nations, hospitalization rates and case severity have dropped. Maintaining the focus on immunization, including booster shots, has been essential to controlling outbreaks. Societal Adaptation: By implementing strategies like remote employment, digital health solutions, and enhanced public health infrastructures, societies have adjusted to life with the virus. Health and hygiene awareness has permeated every aspect of daily life.
• Persistent Difficulties: Although the pandemic has improved in many ways, difficulties still exist. The virus is still evolving, and constant monitoring and preparedness to handle any new outbreaks are necessary.
• Impact on Mental Health: The epidemic has brought attention to the significance of mental health, which has raised awareness of the need for resources and assistance
• Global Inequities: The epidemic brought attention to health inequities around the world, which sparked conversations about fair access to healthcare and vaccines—two persistent issues that require attention.

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