

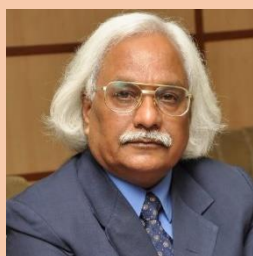
AUH COVID 19 Mental and Physical Recovery Guide



Academic Staff College

COVID 19 Mental and Physical Recovery Guide

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AUH COVID 19 Mental and Physical Recovery Guide

List of Contents

| | Page |
|--|------|
| Introduction | 4 |
| Dr. Kumar Krishen, Honorary Distinguished Professor, AUH | |
| Chapter I | 7 |
| Current Statistics and Future Predictions | |
| Dr Arvind Chhabra, Professor & Director, Stem Cell Institute, AUH | |
| Chapter II | 13 |
| Brief Description of COVID 19 Biological Manifestations | |
| Dr Arvind Chhabra, Professor & Director, Stem Cell Institute, AUH | |
| Chapter III | 19 |
| Current Prevention, Treatment & Vaccination | |
| Dr Sanjna Vij, Program Director, Academic Staff College, AUH | |
| Chapter IV | 27 |
| The Fear and Trauma Factor- Lockdowns and Isolation | |
| Dr. Arya Nair, Assistant Professor, Organizational Behavior, Faculty of Management Studies & Behavioral Sciences, AUH | |
| Chapter V | 32 |
| The Strategy for Physical Recovery | |
| Dr. A. Tamil Selvi. Principal & Professor, Amity College of Nursing. Amity College of Nursing, AUH | |
| Chapter VI | 39 |
| Managing Mental Health During COVID 19 | |
| Prof. Dr. Rajesh Nair. Director, Amity Institute of Behavioral & Allied Sciences, AUH | |

AUH COVID 19 Mental and Physical Recovery Guide

List of Contents (Concluded)

| | |
|---|-----------|
| Chapter VII | 51 |
| Post-COVID 19 Cardiac Distress | |
| Dr. Yugal Kishore Mishra, Chief of Clinical Services, Head of Cardiac Sciences, and Chief Cardiovascular Surgeon, Manipal Hospitals, Dwarka | |
| Chapter VIII | 54 |
| The World After Covid-19 – Creating New India of our Dream | |
| Prof. Dr. P. B. Sharma, Vice Chancellor, AUH | |
| References | 62 |
| Possible Support from Amity University Counselling Service | 67 |
| Acknowledgements | 67 |

AUH COVID 19 Mental and Physical Recovery Guide

Introduction

Dr. Kumar Krishen, Honorary Distinguished Professor, AUH



Photo of hospital patients during COVID-19 pandemic

<https://www.11alive.com/article/news/health/coronavirus/behind-the-scenes-of-healthcare-workers-fight-against-covid/85-ad9329c3-d50d-4ea1-ad4a-19847729def0>

A new coronavirus emerged in Wuhan City in China toward the end of 2019, resulting in corona virus disease (COVID 19) in humans. The World Health Organization (WHO) declared on January 30, 2020, that the virus represents a public health emergency of worldwide concern.



https://unsplash.com/photos/Ei46GUcG_y4

The U.S. Department of Health and Human Services declared it as a health emergency for the United States on January 31, 2020. In India, the start of COVID 19 can be traced to the first case reported on January 27, 2020, as that of a 20-year female presented to the Emergency Department in the General Hospital, Thrissur, Kerala, with a one-day history of dry cough and sore throat.

AUH COVID 19 Mental and Physical Recovery Guide

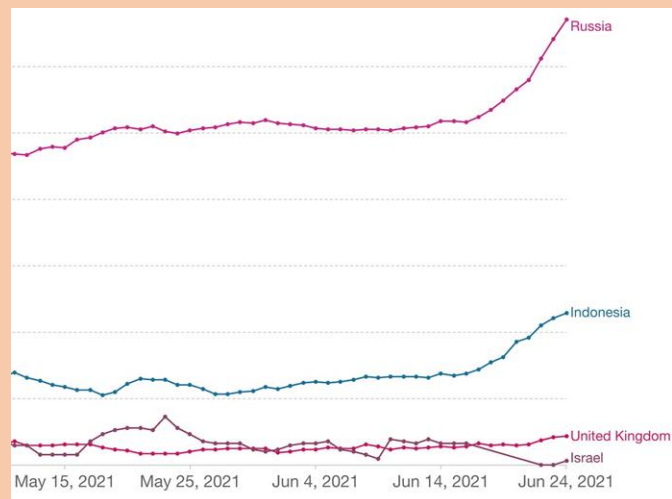
According to WHO, as of July 12, 2021, there have been 186,411,011 confirmed cases of COVID-19, including 4,031,725 deaths globally. As of July 8, 2021, a total of 3,078,787,056 vaccine doses have been administered per WHO reports.



<https://www.shutterstock.com/image-photo/close-doctor-making-vaccination-shoulder-patient-1740628409>

In the United States, there have been more than 33.5 million confirmed cases with more than 600 thousand deaths and a total of 330,160,573 vaccine doses have been administered. In India, there have been more than 30.8 million confirmed cases with more than 408 thousand deaths and more than 357.5 million vaccine doses have been administered.

It is well known that viruses constantly change through mutation. Multiple variants of COVID 19 have already been reported. At times, the new variants emerge and disappear with some persisting. A variant known as Delta has multiple mutations. The most important consequence of these mutations is that it makes the strain more transmissible than any other variant. This makes it the most dangerous variant yet. The number of infections has been rising across most regions of the world with the spread of the Delta variant of COVID-19 per WHO. Delta variant deaths are rising in countries with low vaccination rates, but deaths in high vax areas remain low (Graph from <https://www.businessinsider.com/graph-delta-variant-deaths-rise-countries-low-vaccination-rates-2021-6>)



AUH COVID 19 Mental and Physical Recovery Guide

The faculty of the Amity University Haryana (AUH) is deeply concerned about the consequences of COVID 19. This concern resulted in the faculty developing the publication titled, “COVID 19 Mental and Physical Recovery (COMPR) Guide.”

The purpose of the publication is to provide readers with current knowledge related to the disease and easy to follow practices/techniques/methods that can keep us and the people around us safe.

The topics covered by AUH faculty are as follows: Current Statistics and Future Predictions; Brief Description of COVID 19 Biological Manifestations; Current Prevention and Treatment Practices; The Fear and Trauma Factor- Lockdowns and Isolation; The Strategy for Physical Recovery; Managing Mental Health During COVID 19 and The World After Covid-19 – Creating New India of our Dream.

Cardiac symptoms among patients infected with COVID 19 and its mutations are becoming difficult to deal with. Another disturbing observation is that younger COVID-19 patients are developing heart problems. In view of this, another topic titled, “Post-COVID 19 Cardiac Distress,” authored by Dr. Yugal Kishore Mishra, Chief of Clinical Services, Head of Cardiac Sciences, and Chief Cardiovascular Surgeon, Manipal Hospitals, Dwarka, is included in this Guide.

COVID 19 has left humanity in an enormous state of physical and mental health turbulence. On a personal level, I feel that one way to reduce or alleviate the negative effects of this turbulence can be the unconditional adoption and practice of kindness. This kindness on the part of the AUH faculty has resulted in dedicating time and effort in their sharing knowledge given in this Guide.

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Chapter I

Current Statistics and Future Predictions

Dr Arvind Chhabra, Professor & Director, Stem Cell Institute, AUH

Human Coronaviruses (Hu-CoVs) and COVID-19 Pandemic Timeline

The COVID-19 pandemic started in late 2019 in Wuhan city in China, with its causative agent being subsequently identified as the single stranded RNA (ssRNA) containing human coronavirus (Hu-CoV). With regards to the timeline of disease outbreak and its progression to pandemic proportion, as per official account, first symptomatic patient was reported in late 2019 December.

- ❖ On December 31st, 2019, World Health Organization (WHO)-China country office was intimated of sporadic cases of pneumonia of unknown etiology, in Wuhan city.
- ❖ On January 8th, 2020, Chinese Center for Disease Control and Prevention reported isolation of a novel coronavirus from a Wuhan pneumonia patient.
- ❖ The origin of the disease was linked to Huanan Seafood Market in Wuhan, as 27 or the first 41 infected patients were reported to be exposed to the market. The bats being linked to SARS-CoV and MERS-CoV, were again implicated to be the potential host of n-CoV.
- ❖ On January 12th, 2020, WHO named the virus as the 2019 novel coronavirus (2019-nCoV).
- ❖ On January 30th, 2020, WHO declared 2019-CoV epidemic as public health emergency of international concern, and on same day, India reported its first confirmed case in the State of Kerala.
- ❖ On February 11th, 2020, WHO formally named the disease by 2019-nCoV virus as COVID-19, and International Committee on Taxonomy of Viruses (ICTV) named 2019-nCoV as SARS-CoV-2.
- ❖ On March 11th, 2020, WHO declared COVID-19 outbreak as a pandemic.

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Clinical Features of COVID-19 Disease and Treatment Options

- ❖ COVID-19 disease transmission happens via respiratory route, through aerosol of infected patients to the non-infected individuals.
- ❖ Virus enters the host cells via angiotensin-converting enzyme-2 (ACE-2) receptors that are expressed on several different types of human cells.
- ❖ The virus has an average incubation period of 14 days, followed by onset of clinical features.
- ❖ Clinical features of the COVID-19 disease may vary from sneezing, running nose and common cold symptoms to high fever, dry cough, persistent pressure in the chest and shortness of breath.
- ❖ Some patients may also experience gastrointestinal symptoms such as diarrhea.
- ❖ The disease may rapidly progress to acute respiratory distress syndrome (ARDS), may involve immune cell hyperactivation causing “cytokine storm”, and may result in multi-organ failure that could even lead to the death of the patient.

Diagnosis of the Disease

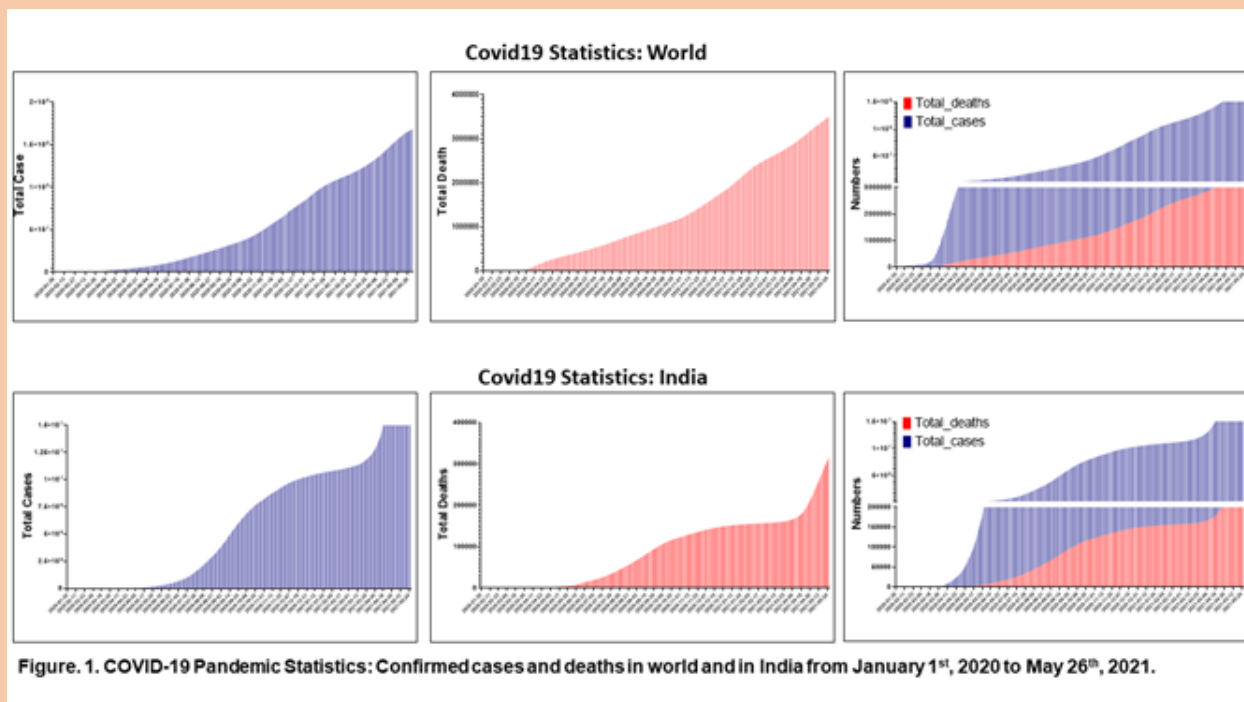
- ❖ The disease is diagnosed by detection of viral particles in nasal and pharyngeal swab specimens by reverse transcriptase polymerase chase reaction (RT-PCR).
- ❖ Chest imaging, showing ground glass opacity in the lungs, is used for progression of the disease, as well as for diagnosis of the disease when RT-PCR test is negative, but clinical features are present.

The disease disproportionately affects men more than women (12.7% mortality rate in males versus 7.8% in females), and individuals with comorbid conditions, such as diabetes, asthma, cardiovascular complications, chronic obstructive pulmonary disease (COPD), liver and kidney ailments are at increased risk of acquiring severe disease.

AUH COVID 19 Mental and Physical Recovery Guide

COVID-19 Disease Burden

In terms of real numbers, 2019-n-CoV has 174,052,215 confirmed cases and 3,744,029 deaths across the world, and 28,909, 975 confirmed cases and 349,229 deaths in India, as of May 26th, 2021 (Fig. 1).



- ❖ The mortality rate of 2019 n-CoV is 1-3%.
- ❖ Initially it was believed that the older people (>65 years) are more susceptible to n-CoV-2 virus, especially people with comorbid situations, such as diabetes, cardiovascular complications, asthma etc.
- ❖ However, we now know that the younger people and even children can get infected with the virus and develop serious diseases.

Impact of COVID-19 Pandemic on World Economy

- ❖ The COVID-19 pandemic has also put a devastating impact on the world economy.
- ❖ The International Monetary Fund (IMF) has predicted the long-term impact of COVID-19 pandemic to be felt from 2020 to 2025, and has projected world GDP to contract by over \$22 trillion.

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Fig. 2 shows economic impact of COVID-19 pandemic on world economy. The pandemic resulted in lockdowns across the world as well as disruptions in national and international travel, to prevent the spread of the virus.



- ❖ All the sectors of world economy were deeply impacted by the pandemic, especially the hospitality, art, cinema, tourism, travel, cruise, and sports industries.
- ❖ All outdoor activities and sporting events were postponed, including the 2020 Summer Olympics, scheduled for June 2020 in Tokyo.
- ❖ The COVID-19 pandemic led to wide-spread job losses across the world, with 30 million jobs losses in the first quarter of 2020, as per the International Labor Organization (ILO) estimates, which was greater than the 25 million job losses caused by the 2008 financial crisis.
- ❖ At the height of the pandemic, more than 10 million Americans applied for unemployment benefits in March 2020.
- ❖ At the same time, 4 million French workers also applied for unemployment benefits, 1 million British workers applied for universal credit scheme, and 44% Canadian households reported experiencing job losses.
- ❖ In China, approximately 5 million people lost their jobs in Wuhan, from January to March 2020.
- ❖ India also witnessed job losses in millions because of the lockdown, and also witnessed migrant worker crisis at the height of the pandemic.

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Evolution of COVID-19 Virus

- ❖ SARS-n-CoV-2 virus genome is 26-32Kb in size, harboring 14 open reading frames (ORFs), encoding for 27 proteins.
- ❖ Comparative analysis of the genomes of SARS-nCoV-2, SARS-CoV and MERS-CoV viruses at amino acid level revealed that SARS-n-CoV-2 virus is more closely related to SARS than the MERS-CoV.
- ❖ Furthermore, the virus is continuously evolving by accumulating mutations, and several newer variants have been identified across the world, of which a few variants have exhibited greater infectivity and ability to cause more severe disease.
- ❖ The original hypothesis of origin of virus is that its natural host is bats and it was transmitted to humans.
- ❖ Rapid spread of virus to pandemic proportion established in humans-to-humans transmissibility.
- ❖ In addition, it has also been suggested that the virus can transmit from humans to animals as well, which can then serve as reservoirs for development of newer variants.

Future Predictions

- ❖ The COVID-19 pandemic has brought upon once in a lifetime catastrophe on the world, health wise as well as on the economic front.
- ❖ Several approved drugs were repurposed to treat COVID-19 patients, in light of the fact 2019-n-CoV is a new virus and no specific drugs are yet available against it.
- ❖ Among these include virus host cell entry (e.g., ACE-2 receptor blockers, lipinavir-ritonavir), drugs targeting virus replication machinery (e.g., remdesivir, favipiravir), and the drugs targeting effect of virus on host cells (e.g., tocilizumab, baricitinib). These drugs have helped keep mortality rate low.

AUH COVID 19 Mental and Physical Recovery Guide

Development of vaccines has provided hope that soon the vaccination of all would put this tragedy behind us and bring normalcy back in our lives. However, as mentioned before, the virus is evolving as well and newer and newer variants are being discovered in different parts of the world, with varied infectious potential and varied severity to cause disease, as has been observed in recent surge in cases in India as well as in several other countries.

Therefore, it is imperative that on one hand we must ensure vaccination of all in short term to contain the ongoing pandemic, while on the other hand we must also devise long term strategy to identify virus hotspots quickly to effectively contain the epidemics caused by newer variants, before they grow to pandemic proportions

AUH COVID 19 Mental and Physical Recovery Guide

Chapter II

Brief Description of COVID 19 Biological Manifestations

Dr Arvind Chhabra, Professor & Director, Stem Cell Institute, AUH

Human novel coronavirus-2 (Hu-n-CoV-2)

Human Coronaviruses (Hu-CoVs) are RNA viruses, belonging to the family Coronaviridae, within the order Nidovirales, that includes two sub-families, Coronavirinae and Torovirinae. Coronavirinae sub-family contains four genera, alpha(α), beta(β), gamma(γ), and delta(δ) coronaviruses, with thirty-eight species identified to date. The α and β -CoVs cause disease in humans, while γ and δ CoVs mainly infect birds. However, due to their zoonotic origin, animal CoVs can reside in animals and upon undergoing further recombination and mutations, could subsequently cause ailments in humans.

- ❖ Hu-Covs were first identified from cold respiratory epidemics in 1960s winters, that resembled avian infectious bronchitis virus (AIBV) and mouse hepatitis virus (MHV) and because of its surface resembling corona of sun was named coronavirus.
- ❖ Several AIBV like Hu-CoVs were isolated, however, since these viruses caused mild cold symptoms, not much attention was given to them.
- ❖ This changed in early 2000s, with the onset of first Hu-Cov-mediated pathogenic epidemic outbreak in China, caused by severe acute respiratory syndrome (SARS) virus, that resulted in 8422 confirmed cases and 916 deaths.
- ❖ The SARS epidemic was followed by another outbreak in middle east countries, caused by Middle East Respiratory Syndrome coronavirus (MERS-CoV), that resulted in 2494 confirmed cases and 858 deaths.
- ❖ However, these early pathogenic Hu-CoVs, and epidemics caused by them, were nowhere close to the newest variant, named novel-coronavirus-2 (n-Cov-2), that is behind the onset of the current COVID-19 pandemic, resulting in loss of lives (174,052,215 confirmed cases and 3,744,029 deaths, as of June 7th, 2021) not seen since the Spanish flu pandemic in 1918, and loss of job not seen across the world since the Great Depression of 1926.
- ❖ Furthermore, the overall impact of the n-COV-2 virus does not go away with the recovery of the patients, but recovered patients continue to experience lingering health complications, compromising their quality of life.

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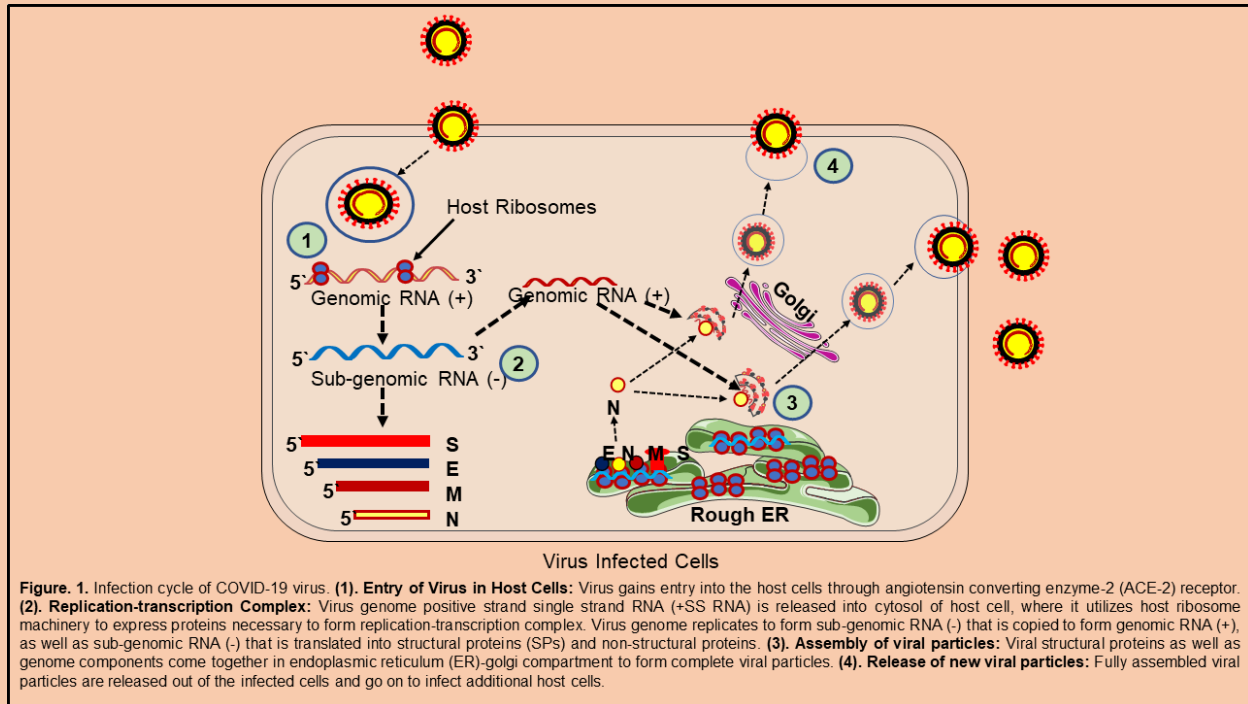
We here examine the biological manifestations of Hu-n-Cov-2 virus, its mode of transmission, disease pathogenesis mechanism, and underlying reasons why it exhibits much more severe impact on patients with underlying comorbid situations. Finally, we provide recommendations on dos and don'ts, to avoid getting infected from n-CoV-2 virus, and dos and don'ts if one does get infected with it, to successfully recover from it.

Hu-n-CoV-2 Pathogenesis Mechanisms

- ❖ The n-CoV-2 virus transmits mainly via respiratory route, though virus has been found in sewage and untreated wastewater as well which could serve as reservoirs and subsequently lead to transmission of the virus in animals and humans.
- ❖ The virus enters host cells via angiotensin converting enzyme-2 (ACE-2) receptor, that has wide expression in human organs, such as lungs, heart, kidney, and intestine, with viral spike protein (S) serving as the primary ligand for ACE-2 receptor on host cells, while neuropilin recently being recognized as another receptor for virus entry into host cells, that acts synergistically with the ACE-2 receptor.
- ❖ Once inside host cells, viral genome is released into cytosol, and serves as a template for not only making more copies of viral genome, but also for synthesizing four viral structural proteins (SPs) and 16 non-structural proteins (NSPs), utilizing host cellular machinery.
- ❖ NSPs are associated with several functions, including formation of viral replicase-transcriptase complex (RTC), which is necessary for synthesis of dsRNA genome from (+) single strand RNA (ss-RNA) genome.
- ❖ The viral structural proteins include Spike (S), Nucleocapsid (N), Membrane (M) and Envelop (E) proteins, of which S, M and E proteins are embedded in viral envelop, while the N protein interacts with viral genome.

These components of viral structure assemble into viral particles in ER-Golgi compartments and are released from the infected cells, which then go on to infect more host cells. Fig. 1 schematically shows virus life cycle in host cells.

AUH COVID 19 Mental and Physical Recovery Guide



Clinical Manifestations of COVID-19 Disease

- ❖ The mean incubation period of n-CoV-2 virus is 5.6 days, and disease symptoms are manifested by day 14 post infection.
- ❖ The clinical symptoms of COVID-19 disease include, high fever, shortness of breath, dry cough, muscle pain, sore throat, loss of smell or taste, gastrointestinal symptoms (nausea, diarrhea and/or vomiting), and bilateral lung infiltrates and ground glass opacity of lungs on imaging.
- ❖ In severe patients, disease rapidly progresses to acute respiratory distress syndrome (ARDS) that may result in respiratory failure, microthrombi formation and multi-organ failure, and could even result in death of the patient.
- ❖ Older individuals (>65 years), especially individuals with comorbid conditions, are more likely to get advanced disease with severe clinical pathologies and increase risk to have fatal outcomes. Among the pre-existing conditions associated with greater risk to succumb from COVID-19 includes asthma, chronic obstructive pulmonary disease (COPD), hypertension, cardiovascular complications, diabetes and neurological conditions, to name a few.

AUH COVID 19 Mental and Physical Recovery Guide

- ❖ Although younger cohorts and children are generally believed to exhibit mild symptoms of the disease, a significant number of younger individuals have also now been found to contract virus and even succumb from it, recently.

One of the reasons for increased susceptibility of people with comorbid situation to develop severe COVID-19 disease is increased expression of ACE-2 receptor on underlying organs, due to the underlying disease, for example in diabetes, COPD patients, or due to the effect of drugs being taken to treat the underlying disease condition, for example hypertension patients are given ACE-2 inhibitors and angiotensin receptor blockers (ARBs) that in high dosages can upregulate ACE-2 expression levels.

Recommendations for Prevention, Treatment and Cure of COVID-19 Disease

- ❖ As mentioned before, the virus spreads through respiratory route, via aerosols, where it can survive for approximately 3 hours.
- ❖ Physical distancing, steam inhalation, use of facemasks, regular washing of hands with soap, and use of hand sanitizers are some of the preventive measures that are recommended to reduce the chance of getting infected by the virus.
- ❖ If someone develops symptoms of the disease, mentioned above, one should immediately consult the doctor and get tested for n-CoV-2 virus infection.
- ❖ Among the available diagnostic tests, RT-PCR-based detection of viral particles in Naso-pharyngeal samples is quite reliable, however, chest X-ray and chest HRCT scans are used as confirmatory tests with negative RT-PCR test, but prevailing disease symptoms, such as pulmonary complications and drop in SPO2 levels below 94.

There are no anti-n-CoV-2-specific drugs yet available, however, several approved drugs have been repurposed to treat COVID-19 infected patients, either targeting viral host cell entry or replication machinery or effect of virus on host cells.

- ❖ Among the drugs targeting viral host cell entry mechanism include, lipinavir-ritonavir, arbidol and ACE-2 receptor blockers. Among drugs targeting viral replication mechanism includes, remdesivir, favipiravir, ribavirin.

AUH COVID 19 Mental and Physical Recovery Guide

- ❖ In addition to the above-mentioned drugs, several drugs targeting disease symptoms, such as “immune cell hyperactivation” coupled with “cytokine storm”, and “blood coagulation” are also used.
- ❖ Among drugs targeting immune hyperactivation includes cortico-steroids and drugs targeting “cytokine storm” includes tocilizumab, baricitinib. Anti-coagulant drugs are also used to prevent blood coagulation in hospitalized patients.

In addition to drugs to treat disease symptoms in infected patients, discussed above, several prophylactic vaccines are also now available to provide protection from n-CoV-2 virus infection.

- ❖ Among these include RNA-based vaccines (BioNTech/Pfizer and Moderna vaccines), Adenovirus-based vaccines (Covishield from Serum Institute/Oxford/AstraZeneca, Sputnik V vaccine from Russia, Convidicea from CanSino Biologics, China), and whole inactivated virus-based vaccines (Covaxin from Bharat Biotech, India; CoronaVac from China), to name a few.
- ❖ All these vaccines have excellent safety and efficacy profiles (more than 80% efficacy). So far, 2.12 billion people have been vaccinated across the world, and 225.7 million in India, as of June 5th, 2021.

From limited data available, it is reassuring to note that people having received complete vaccine dosage are less likely to develop severe disease. Therefore, it is highly recommended that we achieve full vaccination of the world population, as soon as possible to control the COVID-19 pandemic.

Towards this, formation of COVAX initiative, coordinated by Gavi, the Vaccine Alliance (formerly the Global Alliance for Vaccines and Immunization, or GAVI), the Coalition for Epidemic Preparedness Innovations (CEPI), and the World Health Organization (WHO) is a welcome step.

It is highly recommended that appropriate funding is provided to it so that the goal of “vaccination for all” can be achieved. Towards this, increased participation of developed countries and increased vaccine manufacturing capacity is recommended.

AUH COVID 19 Mental and Physical Recovery Guide

Home Treatment Do(/s) & Do Not(/s)

We conclude with recommendations for in-home treatment for patients with mild disease symptoms.

- ❖ Individuals developing any of the mild symptoms, such as fever, gastrointestinal complications etc., must follow physical distancing and self-isolate themselves in room with cross-ventilation, potentially a room with attached bathroom.
- ❖ Suspected patients must get remote consultation with physician, get themselves tested for COVID-19, must wear facemask, and continuously observe their pulse oxygen concentration and pulse-rate with pulse oximeter.
- ❖ For symptomatic management, patients must gargle with saline water 2-3 times a day, perform stem inhalation 2-3 times a day, and may consume vitamin C and zinc tablets.
- ❖ Any worsening of symptoms or unusual drop in SPO2 levels must be brought to the notice of the attending physician, and any prescription medications, such as oral steroids, ivermectin etc., must be taken upon prescription by the attending physician.
- ❖ For serious complications, timely hospital admission must be sought, instead of continuing to remain in home isolation and treatment.

Finally, all eligible adults as well as juveniles must get vaccinated, as soon as possible, as per government guidelines, to remain protected from the disease.

AUH COVID 19 Mental and Physical Recovery Guide

Chapter III

Prevention, Treatment and Vaccination

Dr Sanjna Vij, Program Director, Academic Staff College, AUH

Prevention Practices

Healthy Diet

There is a popular saying *Health is Wealth*. The food we eat plays a vital role in determining our overall health and providing protection against diseases. It is imperative for all of us to pay attention to our diet that should be nutrient-dense during the ongoing COVID-19 pandemic.

- ❖ A diet consisting of fruits, vegetables, pulses, grains, pulses, nuts, seeds, fish and dairy products is considered as a rich and healthy diet.



- ❖ Consumptions of high-quality sources of carbohydrates, protein, fat and essential vitamins and minerals help in maintaining a healthy weight and in building strong immunity.

Supplements

Multi Vitamins, Vitamin C, Zinc, Vitamin D are highly recommended because we are not able to bridge the gap between good nutrition and the body requirements and these supplements help cover the nutrients gap, the supplements should be taken in consultation with a doctor.

Healthy Tips

- ❖ Eat well-cooked food, which is essential to kill any virus
- ❖ Avoid skipping meals and divide your regular meals and calories in to 5-6 small meals
- ❖ Use whole grain cereals, whole grams and pulses, whole wheat porridge, whole wheat bread, oats etc. to incorporate fiber in your diet

AUH COVID 19 Mental and Physical Recovery Guide

- ❖ Proteins like dal, soya, kidney beans, quinoa for vegetarians are recommended and for non-vegetarian eggs, fish or poultry can be taken
- ❖ It's very important to have plenty of fluids to maintain adequate hydration. Coconut water, Lemon water and electrolytes help with diarrhea and nausea. Ginger tea with 2-3 drops of honey is a good option for those who have cough
- ❖ Milk and milk products are a great source of energy. Soya milk or almond milk are recommended to take. Yoghurt and probiotics would also be of great help
- ❖ Avoiding white sugar and white salt. Limit intake of excess salt, processed and preserved foods. (Better to shift to rock salt and brown sugar/jaggery)
- ❖ Eat home-cooked food. Avoid eating outside food
- ❖ Avoid or Restrict alcohol, tobacco and smoking

Maintaining Physical Distance

Maintaining distance means keeping a safe space between yourself and other people.

This should be practiced along with other precautions including:

- ❖ wearing masks (good quality with triple layers)
- ❖ avoiding crowded places
- ❖ avoiding touching your face with unwashed hands
- ❖ frequently washing your hands with soap and water for at least 20 seconds.

Use of Masks - Covering Nose and Mouth

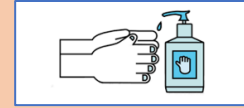
Instructions for Mask

- ❖ The person should wear a triple layer medical mask
- ❖ Facemask should cover nose and mouth
- ❖ Mask must be changed if it gets wet or dirty
- ❖ Throw the mask after use and wash hand with soap and water after disposal of the mask or use sanitizer



AUH COVID 19 Mental and Physical Recovery Guide

Using Sanitizer and Germ Killers



Sanitizers are alternate way to clean the hand where soap and water are not readily available. Sanitizers are liquid that take away dust and germs from your hands immediately. Sanitizers are important because it keeps us safe during the coronavirus outbreak.

Recommended Mixture

- ❖ According to the Centers for Disease Control and Prevention's study, sanitizers with an alcohol concentration of 60–95% are effective in killing germs. If you are planning to buy a hand sanitizer that can protect you from coronavirus contamination, check for these ingredients on the label: ethyl alcohol/ethanol - should be above 60% concentration.

Hand Hygiene

Hand hygiene a very simple act and effective tool to prevent COVID-19 and from other diseases.

Regular washing of hands help to keep always healthy and prevent spreading of the infections from one person to the another.



When to Wash Hands

Virus spread from one person to another person when we do not follow the below:

- ❖ Coughing and sneezing in hands and touching other individual and common stuffs with the same hands
- ❖ Before and after caring for someone at home who is not well
- ❖ After using the uncleaned toilet/washrooms
- ❖ Touch your face, eyes, nose, and mouth with dirty hands
- ❖ Before and after cooking and eating food
- ❖ After touching an animal
- ❖ After touching and moving garbage

AUH COVID 19 Mental and Physical Recovery Guide

Cleaning practices



- ❖ It is must to clean the house which would help us long way in keeping ourselves and family healthy.
- ❖ Good practices to follow includes removing your shoes when you enter your home and wash your hands with soap and water immediately and changing clothes when you return home after being in crowded places.
- ❖ Clean frequently touch surfaces with disinfectant at least once a day or as necessary. Examples of frequently touch surfaces includes- Tables, chairs, doorknobs, mobile phone, light switches, laptops, tablets, stair rails, elevator buttons, desks, keyboards, kitchen and bathroom surfaces, faucets, sink, bedsheets, towels
- ❖ Keep your towels separate and make it a habit of washing them frequently. Do not use others or wet towels, replace them immediately.

Treatment Recommendation

- ❖ In an unfortunate event of contracting with Covid-19 or suspecting of developing symptoms like Cold, Soar throat, Cough, fever, individual should go into isolation and take various precautions and treatment as mentioned below
- ❖ The person suspected of Covid should get either Rapid Antigen Test or RTPCR test done for confirmation of Covid
- ❖ Sometimes these tests give negative results but in case Covid symptoms exists, the person should still take precautions, healthy diet and go for home isolation as highlighted in this chapter
- ❖ The person should remain in home isolation for 14 days from the onset of symptoms/ testing positive for Covid as per Indian Council for Medical Research

AUH COVID 19 Mental and Physical Recovery Guide

Physician Consultation

The person having tested Covid positive or suspected to having Covid symptoms should immediately consult Doctor/ Physician using online consultation so that correct and timely treatment can be started.

- ❖ The person should take medicine and supplements as prescribed by the doctor. Initially, doctor might start with paracetamol to handle fever and some antibiotics for cold or throat infection
- ❖ Doctor may prescribe various supplements like Multivitamins, Vitamin C, Zinc, Vitamin D which is highly recommended to boost immunity
- ❖ It is important to take the medicine at the same time every day
- ❖ Paracetamol is to be taken SOS to control fever
- ❖ Some Medicine need to be taken empty stomach and before meal and some medicines after meal – the doctor will mention the same in the prescription
- ❖ In addition, the person should do warm, saline water gargles and steam inhalation 2-3 times a day which should give relief to throat and chest
- ❖ The doctor may also prescribe some laboratory tests to check vital body parameters
- ❖ Do not take any strong medicine like steroids, ivermectin on your own, The doctor will prescribe this based on your symptoms and medical reports
- ❖ In case of any respiratory symptoms or Oxygen level going down less than 40%(as described in next section), the doctor may advice further tests like X-Ray, High Resolution CT Scan test to check the intensity of damage to the lungs and then accordingly prescribe additional medication
- ❖ Incorrect / excessive use of steroids or strong medications may lead to further complications

Self-Monitoring

Self-monitoring is especially important to keep a check on various parameters. In case of any extreme readings, the person should immediately consult doctor.

- ❖ Fever should be measured at regular intervals using thermometer
- ❖ It is always advisable to keep a pulse oximeter at home. Oximeter will help monitor the heart/pulse rate and oxygen levels during walking, yoga activities and exercises

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- ❖ Check and record your heart rate and oxygen level before, during, and after exercises to screen how your body is responding to your exercises



- ❖ Normal oxygen saturation is 96-100%. Doctors advise to check oxygen saturation level before and after 6 minutes of walk to check that saturation level doesn't go down. If any deterioration of symptom seen, stop exercising and consult your doctor immediately
- ❖ In case a person has any lifestyle diseases like Hypertension, diabetes, heart related complications- regular monitoring of Blood Pressure and sugar levels should also be done at home
- ❖ It is recommended to maintain a daily chart of all these readings on a sheet of paper and share with doctor as this will help a doctor to understand the daily/weekly trend of vital parameters and any further medication is prescribed accordingly

Exercise and Yoga

Physical activity is most necessary for good health. It can help to lessen the risk of heart disease, stroke, type 2 diabetes, cancer, depression. Physical activity also helps improves sleep.

Walking- During your recovery period, walking is advisable, even inside home, to improve your overall health. Doctors advise to start with 6 minute walk and slowly increase the time day by day which will help individual to feel good and energetic



COVID has impacted the entire respiratory tract and oxygen flow in the human body. It can stimulate acute respiratory distress syndrome (ARDS). Deep breathing exercises would be helpful for the lungs and for the whole body.

- ❖ Deep Breathing exercises get oxygen deep into the lungs, which helps to clear out mucus and other fluids and strengthen lung function

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- ❖ Yoga helps to develop a strong body and a strong mind, good immunity, and high spirits. Yoga also helpful in immunity boosting and calming the mind.

Exercise & Yoga Safety Measures

- ❖ Start the exercise activity while at home recovering from Covid or once the person is discharged from the hospital
- ❖ Give pause in between each exercise
- ❖ Stop exercise immediately if you feel chest pain, overtiredness, dizziness, palpitations, lightheadedness
- ❖ It is always better to learn Yoga from a trained teacher
- ❖ It is important to do exercise activities in well-ventilated room with cross ventilation to allow fresh air to come in



Vaccination

Use of Vaccines and other Invasive Protocols



- ❖ Safe and effective vaccines to prevent coronavirus disease are perhaps the best hope to prevent being severely affected but for the foreseeable future we must continue
- ❖ Cleaning protocols, physical distancing and avoiding crowds, wearing masks and good ventilation home
- ❖ Being vaccinated does not mean that we should stop taking precautions and keep others at risk, as intense research is still ongoing into how much vaccines protect against infection and spread of virus

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COVID19 Vaccine might Prevent from

- ❖ Getting COVID-19 or from becoming seriously ill or affected
- ❖ The body will take a few weeks to build immunity after getting a COVID-19 vaccination. As a result, it's possible to become infected with the virus that causes COVID-19 just after being vaccinated, so you need to take precautions for few days

Possible Side Effects of a COVID-19 Vaccine

The side effects after the first and second dose of COVID 19 vaccine as reported are:

- ❖ Fever
- ❖ Pain, stiffness, redness or inflammation where the shot was given
- ❖ Headache
- ❖ Fatigue
- ❖ Anxieties
- ❖ Nausea and vomiting
- ❖ Feeling unwell

Safety Precautions After Getting a COVID-19 Vaccine

- ❖ Drink lots of fluids and keep your body hydrated after the vaccine dose
- ❖ Take precautions and rest for 2-3 days and do not exert your body
- ❖ Resume your daily routine, exercises after 2-3 days
- ❖ It could take upto 15 days for the antibodies to develop after the vaccination
- ❖ It is important to wear mask, while using public transport, planes, trains, and buses
- ❖ Take both doses according to the schedule and encourage other people to get vaccinated. Stay safe, stay strong!

However, point to be noted that there are still chances that someone may catch Covid-19 after getting vaccinated, but the overall risk of hospitalization and death due to Covid-19 is much lower as compared to unvaccinated people with similar risk factors.

AUH COVID 19 Mental and Physical Recovery Guide

Chapter IV

The Fear and Trauma Factor- Lockdowns and Isolation

Dr. Arya Nair, Assistant Professor, Organizational Behavior, Faculty of Management Studies & Behavioral Sciences, AUH

After over a year of battling the novel Coronavirus, it is evident that this pandemic and the lockdown have the potential to deteriorate our mental health, if not managed well. As the information on the virus and its impact on the patients are becoming more available to the people, it has caused distress and a prominent rise in the fear factor. Fear of death, Fear of losing our loved ones, fear of draining finances, and fear of unavailability of health facility or essential commodities can be listed as the most common fear among people.

When India got hit by the second massive wave of COVID19, the news about the continuous mutation of the virus started floating in the media. This has sprouted the fear of uncertainty among the masses. Social media and News channels are flooded with information which has been overpowering and has further reduced the optimism and hope of recovery. Media's presentation of Covid19 related information has been exaggerated with repetition and disturbing footage along with emotional presentation. This has further fueled the fear and distress among the people.

Fear and trauma are often related. Extreme fear can lead to trauma and the traumatic response can vary based on individual differences and coping mechanism.

The pandemic which has led to human crisis is a burning concern across the globe and continuous efforts are being made to contain the spread and save people from infection. Successful production of Vaccination and rigorous vaccination drives is one significant positive step. Though the administration and the governing bodies are effervescently working, the battle against the virus cannot be won without the citizens playing the small yet significant role i.e. of Compliance. At micro level the most significant role is of the people. In the beginning there was alarming rise in fake news on the side-effect of the vaccination hence the people were skeptical about getting vaccinated.

The fear of getting infected by the vaccination or fear of the vaccination leading to death was on its peak. Though mild side effects like fever and body ache are common but the vaccination is not at all life threatening. It has been clinically tested and we need to trust the process.

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While visiting a vaccination center being mindful about taking precaution by wearing mask, continuous sanitization and maintain social distancing can make the process hassle free. Compliance with the government guidelines and adhering to the COVID19 protocol can significantly contribute towards our victory against the virus. We all are in this together. By following simple guidelines, we can save ourselves from succumbing to heightened fear, distress, and trauma.

Lockdowns/isolation

Human beings are social beings and socializing with our near and dear ones has always been a way to connect and unwind from daily stress. With the onset of pandemic and nation-wide lockdown, the movement of people has been restricted and most of us are staying indoors in our homes. Though physical distancing is the key to contain the spread of COVID19, but it has been wrongly interpreted as disconnecting from people. Communication is the key and staying connected with our family members and closed circle is very important during lockdown.

- ❖ Playing indoor games like board games (chess, ludo, scrabble etc) can be a great way to bond with the family members at home.
- ❖ Phone calls, video calls with friends can be a great way to share, care and feel good.
- ❖ Reading good books of the genre you like.
- ❖ Listening to music
- ❖ Enrolling on E-learning portals for the online courses is a great way to utilize the lockdown.

Travel Restrictions

Though everybody is avoiding travel in this lockdown but sometimes there can be emergency or unavoidable situations when there is need to travel.

- ❖ Check the travel guidelines of the place you are travelling to.
- ❖ It is preferable to get your RTPCR test done before travelling. The result is considered valid for 48 hours in most places.
- ❖ In some states it is compulsory to take the E-pass to move within the state.
- ❖ During travel either use double mask i.e. first wear the surgical mask and layer it with a cloth mask or just use one N95 mask. Use of face shield along with the mask can give additional protection.
- ❖ Keep sanitizing your hands and avoid unnecessarily touching your face.

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- ❖ Most airlines have restricted the luggage to 1 check-in and 1 cabin baggage so plan accordingly.
- ❖ It is important to web check-in and carry your E-boarding pass either in soft copy or printout on the day of travel.

Gathering and Social Function Restrictions

India is a land of festivities and colorful celebration. Indian marriages are known for being pompous. One of the grave consequences of the pandemic has been the restriction on marriage function. While some people chose to postpone the marriage, others modified the program as per the government guidelines. Technology has been a savior during pandemic with respect to celebration as well.

We could witness marriage or any other important celebration virtually by connecting through Zoom calls or by the function being aired live on YouTube.

- ❖ Blessings of our loved ones are most important and technology has made it possible for all the guests to attend the ceremony safely from the comfort of their homes. Do not get disheartened on missing the physical presence of people at the ceremonies.
- ❖ There is a high risk of putting our near and dear ones in danger by demanding their physical presence for marriage and related ceremonies during this pandemic so it is our responsibility to ensure their safety by allowing them to witness the ceremony virtually.
- ❖ Virtual gatherings are equally fun if taken in the right spirit. Remember it is all in our mind.
- ❖ The discomfort of changing the wedding program or any other celebration is much lower than the pain of losing someone dear due to the Coronavirus, so be mindful and reasonable with your expectation.

Lack of Resources

In the past one year the world has witnessed the global shortage of resources. All the countries have faced the wrath of this pandemic in the form of economic crash-down and bargaining for their share in the global supply chain.

India being a developing country and a largely populated nation had the greatest challenge of reaching out to every citizen in need, be it essential supply, medical care or financial support for a large section which lost their jobs during the pandemic.

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The crisis has come as a gentle reminder that though technology is essential, the most integral role in the crisis can be of Humanity. Many people have selflessly contributed to help those in need. Not just the government agencies but also the youth has come forward in a big way.

There have been non-governmental groups that have strived day and night to help people to the best of their abilities. The global crisis is a gentle reminder that together we can and we will make a difference.

- ❖ Every contribution makes a difference so do whatever you can to help the people in need.
- ❖ While sharing information on social media it is important to be mindful.
- ❖ Verify the contact details of plasma banks or donors before sharing it on social media. False information can cause damage.
- ❖ Check on people known to you if they are in need and try to help if possible.
- ❖ Be empathetic. Do not judge if a person reaches out to you for help. If you are unable to help then kindly connect the person in need to someone who can provide support.
- ❖ Those in need should not shy away from seeking support.

Coping and Altered Routine, if Effected

The lockdown and the home bound life have resulted in staggered timing, lack of a routine and lethargy. Some people have successfully maintained a healthy regime whereas majority experienced their routine has been hampered. Though adapting an altered schedule was important to strike a work life balance in lockdown, binge watching web series and eating unhealthy at odd hours without any physical activity has gravely affected the health. Not stepping out of home due to lockdown does not mean that you become a couch potato with unhealthy eating habits.

- ❖ Being at home during lockdown is the golden opportunity to spend time and bond with family so try having food with family members rather than eating in front of television.
- ❖ It is important to be disciplined and follow a routine which includes good sleep, healthy food, home workout and leisure activities. Weekends can have relaxed schedule.
- ❖ Sleeping on time and waking up on time is the key to start the day on the right note.

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- ❖ Increased screen time has caused strain to the eyes and issues like headache and dry eye syndrome so be mindful about taking breaks in between to give rest to the eye.
- ❖ Say no to lethargy and try low impact fitness activity at home to keep fit. Remember that healthy eating, adequate sleep and being active are key to boost our immunity which is integral to fight the virus.

Helping Near and Dear Ones

The lockdown might have made us physically distant but technology has helped us stay connected with our near and dear ones. Reaching out to the people is especially important. A simple conversation with a friend or family member can help put out any anxiety or stress caused by the negativity and the death news floating around. Bottling up emotions can lead to a mental breakdown so it is especially important to express your emotions. Remember that It is ok to be not ok at times but suppressing your emotions is the worst you can do to yourself.

- ❖ If you feel low it is important to reach out to someone close and vent out.
- ❖ If consistently you feel low then seek professional help by speaking to a psychologist or counselor.
- ❖ Physical distancing does not mean that you have to disconnect. Stay connected with your loved ones by phone calls or video calls.
- ❖ Check upon your friends living alone away from their family if they are in need.
- ❖ Do not stock upon grocery more than what is required fearing the shortage of supplies. Be kind towards others.

This is the time when we need to support each other in all possible ways.

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Chapter V

The Strategy for Physical Recovery

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Physical Health Challenges – Insights to be Stronger and Resilient

Coronavirus disease 2019 (COVID-19), first recognized at Wuhan, Hubei province, China, in December 2019, is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), positive-sense single-stranded RNA virus that is contagious in humans.

Symptoms of COVID 19 infection are fever, cough, fatigue, anorexia, myalgia, sore throat, nasal congestion, loss of smell, loss of taste, headache, diarrhea, nausea, vomiting, dizziness, agitation, shortness of breath, reduced alertness and shock etc.

It is important to maintain physical health to have good immunity which helps to prevent COVID 19 infection. Physical health is maintained by early diagnosis and proper treatment of COVID 19, immunization, food and hydration, exercises, yoga, meditation and practicing Hobbies like Art.

Early Diagnosis and Proper Treatment of COVID 19

As soon as the person is suspected or confirmed for Covid 19 positive, the following measures are to be taken.

- ❖ Isolate suspected or confirmed COVID 19 positive persons at Home or COVID 19 Health care facility or community facility
- ❖ Symptomatic treatment should be given such as Antipyretics for fever and pain
- ❖ Counselling should be given to Home isolated persons or care givers on signs or symptoms of COVID 19 disease progression such as breathing difficulty, chest pain and others.
- ❖ Oxygen can be administered to the patients with Oxygen saturation less than 95% which is measured by using pulse oximetry, If Home oxygen cylinder is available.
- ❖ If patient's symptoms progress, they should seek immediate proper medical help and need to be hospitalized.

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- ❖ Highly Nutritious diet such as protein rich foods, green leafy vegetables, vegetables and fruits are to be given to them.
- ❖ Antibiotics should not be used for patients with mild covid19 patients

Immunization

As per guidelines given, it is essential that everyone need to be immunized against covid 19 infection. Common vaccine names are Covaxin, Covishield, Pfizer and Sputnik.

Food and Hydration

- ❖ Well balanced nutrition and adequate hydration are vital to have strong immunity and lower the risk of chronic diseases and infectious diseases. We should include variety of fresh unprocessed foods every day to get adequate amount of proteins, minerals, vitamins, dietary fibers and antioxidants.
- ❖ Eat fresh fruits, vegetables, legumes such as lentils and beans, nuts, whole grains (e.g. unprocessed maize, millet, oats, wheat, brown rice, potato and others) and food from animal sources (e.g. meat, fish, eggs and milk) to maintain physical health.
- ❖ Choose raw vegetables and fruits for snacks.
- ❖ Include pepper and ginger in food preparation.
- ❖ Avoid food high in sugar, salt and fat.
- ❖ Eat home prepared foods and avoid eating outside foods.
- ❖ Water is essential to transport nutrients and compounds in blood, regulates body temperature, removes waste products from our body and lubricates the joints.
 - Drink adequate water (8–10 cups) daily.
 - Also take fresh fruit juices (e.g. lemon juice) and vegetable soups frequently.

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Exercise

There are strong evidences that regular Physical activity gives wide range of health benefits not only for physical health but also for mental health. It is well known fact that regular physical activity improves immune function, lower the incidence rates, intensity of symptoms and mortality from various viral infections.

Regular physical activity benefits cardiovascular health increases lung capacity increases muscle strength and improves respiratory health by reducing the risk of systemic inflammation, which is a main contributing factor to lung damage.

Thus, in addition to social distancing, wearing mask, immunization, regular hand washing, and regular physical activity or exercise helps to reduce the risk of getting COVID 19 infection. Walking at least 30-40 minutes a day for at least 5 days in a week is more beneficial. The following exercises may be done to relax all joints.

- ❖ Neck rotation
- ❖ Shoulder Stretching and rotation
- ❖ Hip rotation
- ❖ Knee rotation
- ❖ Ankle rotation

Yoga and Breathing Exercise

Deep Breathing (belly breathing/diaphragmatic breathing)

Deep breathing exercises help to restore diaphragm function and increase lung capacity and play an important role in COVID 19 prevention and recovery process.

Steps

1. Sit upright in a chair or on a yoga mat on floor or on the edge of a bed.
2. Place your palms around the sides of your stomach.
3. Close lips and place your tip of your tongue on the roof of your mouth.
4. Take deep breathe in through nose and inhale air down to stomach.
5. Slowly exhale through nose.
6. This cycle can be repeated for at least one minute

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Humming

Breathing in through nose and Humming while exhaling helps increase nitric oxide production in the body. Nitric oxide dilates blood vessels, enabling more oxygen to be delivered throughout the body and helps with neural plasticity (building and repair of the nervous system). Humming reduces stress, it is also calming and soothing effects.

Steps

1. Sit upright on the edge of your bed or in a sturdy chair.
2. Place your hands around the sides of your stomach.
3. With your lips closed, breathe in through your nose and pull air down into your stomach where your hands are. Try to spread your fingers apart with your breath.
4. Once your lungs are full, keep your lips closed and exhale while humming, making the “hmmmmmm” sound. Notice how your hands lower back down.
5. Again, inhale through your nose, then exhale through your nose while humming.
6. Repeat for one minute.

Bhramari Pranayama

Bhramari pranayama is the simple breathing technique and effective in calming the mind. It also helps to reduce the anxiety, or frustration or agitation. It can be practiced at anytime and anywhere.

Steps

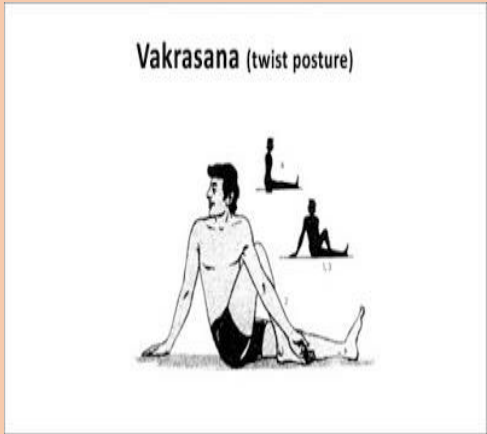
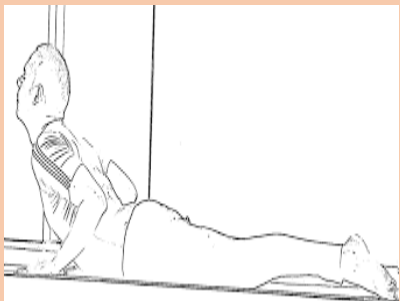
1. In a quiet, well-ventilated room, sit up straight with eyes closed and keep a gentle smile on your face.
2. Place your index fingers on the cartilage present between the cheek and ear.
3. Take a deep breath in and as you breathe out, gently press the cartilage while making a loud humming sound like a bee.
Breathe in again and continue for 3-4 times.

AUH COVID 19 Mental and Physical Recovery Guide

Asanas

| Asanas | Steps |
|--|---|
| <p><i>UtthanaMandukasana</i></p>  | <p>Sit on your knee and sole facing the ceiling.</p> <p>Buttocks are placed over your sole and toes are kept together</p> <p>Separate knees wide apart</p> <p>Raise your left arm, flex elbow and place it on your right shoulder</p> <p>Raise your right arm, flex elbow and place it over left arm on your left shoulder.</p> |
| <p><i>Tadasana (Mountain Pose)</i></p>  <p>Tadasana</p> | <p>Stand straight with feet slightly apart</p> <p>Raise your hands above your head</p> <p>Interlock your fingers above your head, palm facing ceiling</p> |
| <p><i>Trikonasana (Triangle pose)</i></p>  | <p>Stand straight with feet comfortably wide apart (about 3 1/2 to 4 feet).</p> <p>Turn your right foot out 90 degrees.</p> <p>Ensure that your feet are pressing the ground and the weight of your body is equally balanced on both the feet.</p> <p>Inhale deeply and while exhale, bend your body to the right, downward from the hips, keeping the waist straight, allowing your left hand to come up while</p> |

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| | |
|---|--|
| | <p>your right hand comes down towards floor.</p> <p>Keep both arms are in straight line.</p> <p>Rest your right hand on your shin, ankle, or the floor outside your right foot, whatever is possible, eyes gazing at the left palm.</p> <p>Take long deep breaths.</p> <p>while inhale, straighten up your body and bring your arms down to your sides.</p> <p>Repeat the same on the opposite side.</p> |
| <p><i>Vakrasana</i></p>  | <p>Sit straight with legs outstretched in front of you</p> <p>Bend the right leg and keep the right feet near the left knee</p> <p>keep the left hand on left knee and right hand behind you</p> <p>Twist to the right and look over the right shoulder</p> <p>Breath out and come back to the front</p> <p>Repeat for opposite side</p> |
| <p><i>Bhujangasana</i></p>  | <p>Lie down on abdomen or prone position</p> <p>Palms to be placed under the shoulders.</p> <p>Legs to be outstretched and the backs of the feet together on the ground</p> <p>Pushing down the hips, lift slightly, bring head and shoulder up.</p> <p>Gaze to be directed forward and the legs remain on the ground,</p> <p>After 2-3 breaths, bring down your shoulder and head.</p> |

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Note: All asanas need to be practiced under the guidance / supervision of a trained Yoga Teacher.

Meditation

Meditation helps to reduce stress anxiety by decreasing the cortisol level and increasing alpha brain waves. Also, it helps to balance the body and calm the mind. Immunity is increased by balancing the functions of Neuro Endocrine System.

Steps

1. Sit on bed or yoga mat on floor comfortably and close your eyes.
2. Breath normally; do no effort to control the breath.
3. Keep attention on the breath and notice how the breath moves with each inhalation and exhalation.
4. If your mind wanders, bring your attention back to your breath.
5. Sit still for few minutes (5-10 Minutes)

Art

Art is nothing but an outlet for our emotions, even for those emotions which are stuck and not expressed properly. Practicing Hobbies like arts such as painting, music or dance will help to restore the natural balance in life.

AUH COVID 19 Mental and Physical Recovery Guide

Chapter VI

Managing Mental Health During COVID 19

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Background

The issues related to mental health can affect day today life of an Individual. It can poorly affect a person's daily living, his/her relationships, and physical health. Mental health refers to the cognitive, behavioural and emotional wellbeing of an individual. It mainly refers to how people think, feel, behave and remain productive in accordance to their social contexts and age group. According to the World Health Organization (WHO), "Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community."

Mental health is about enhancing competencies of individuals and communities and enabling them to achieve their self-determined goals. Concepts of mental health include subjective well-being, perceived self-efficacy, autonomy, competence, intergenerational dependence, and recognition of the ability to realize one's intellectual and emotional potential

Difficulties related to mental health can impact an individual's functional capacity, potential and productivity in several ways throughout their life cycle. According to the World Health Organization (WHO), "Long-term mental health problems are one of the three leading causes of disability in addition to the cardiovascular disease and musculoskeletal problem among people in the productive age group."

The functionality and productivity of person can get significantly reduced depending on the onset of mental health problem at the specific age of an individual. At any academic institutions or a workplace, this can lead to increased absenteeism and reduced productivity. This may negatively affect the learning cycle of a person with mental disabilities and thereby badly effecting their future Quality of Life (QoL) and overall well-being.

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Even the life of care givers of people having mental health issues remain negatively affected due to the prevailing social taboos, stigma, myths & misconception, poor health systems response and abysmal economic opportunities available for such people.

Mental health is an ability to effectively deal with life's challenges, enjoy dividends of life and achieve satisfaction. At times our mental health gets challenged by different types of stressors such as – Internal, life events, physical, lifestyle, environmental and others.

People have varied levels of capacities and thresholds for how much we can cope with before our mental health sufferings. Mental health is the foundation for emotions, thinking, communication, learning, resilience, and self-esteem. Mental health is also key to relationships, personal and emotional well-being and contributing to community or society.

Mental illness is different to mental health. Mental health is more than not having any symptoms of mental illness or discord. Mental illness includes a range of conditions for which there are standard criteria used to diagnose them, such as depression, anxiety, and substance use disorders.

A mental illness significantly affects how a person feels, thinks, behaves, and interacts with other people. According to the United Nations (UN) “nearly 25% of the entire population is negatively affected in one way or another because of mental health illnesses and disabilities.”

Mental health problems do not just affect the individual, but they impact the entire community. They can impose a heavy burden in terms of social exclusion, stigmatization, and economic costs for people with mental health difficulties and their families.

According to the International Labour Organization (ILO), “People challenged with mental health difficulties face routinely barriers such as- environmental, institutional, and attitudinal.” These barriers impede the chances of their finding mainstream career opportunities and employment or returning to work and retaining jobs after treatment. Attitudinal barriers and social discrimination are often the hardest impediments to overcome and usually are associated with feelings of shame, fear, exclusion and rejection.

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Stigma at all levels surrounds people with mental health difficulties, their family members. The entire process of recovery from mental health issues and mental illnesses is often misconstrued. The stigmatization process negatively affects the achievement of professional opportunities.

It has been widely observed and reported that people having mental health issues have adjustment related issues at their academic institutions and workplaces. Due to which either they have to relinquish their academics and work midway or they have to proceed on long-term absenteeism or medical leave. If they join back the same work environment then they may have to face social discrimination, behavioral issues, with their fraternities and employers.

Mental health problems can impose a heavy burden in terms of social exclusion, stigmatization, and economic costs for people with mental health difficulties and their families. Unfortunately, the future burden is likely to grow over time because of the ageing of the population and stresses resulting from social problems and unrest, including violence, conflict, and natural disasters.

COVID 19 Pandemic and Mental Health Issues

Rapid spread of pandemic leading to lockdown affects individuals and society and causes disruption, anxiety, stress, stigma, and xenophobia. The behavior of an individual as a unit of society or a community has marked effects on the dynamics of a pandemic that involves the level of severity, degree of flow, and aftereffects. Rapid human-to-human transmission of the SARS-CoV-2 resulted in the enforcement of regional lockdowns to stem the further spread of the disease,

Isolation, social distancing, and closure of educational institutes, workplaces, and entertainment venues consigned people to stay in their homes to help break the chain of transmission. However, the restrictive measures undoubtedly have affected the social and mental health of individuals from across the board.

As more and more people are forced to stay at home in self-isolation to prevent the further flow of the pathogen at the societal level, governments must take the necessary measures to provide mental health support as prescribed by the experts.

Quarantine and self-isolation can most likely cause a negative impact on one's mental health. A review published in The Lancet said that the separation from loved ones, loss of freedom, boredom, and uncertainty can cause a deterioration in an individual's mental health status.

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To overcome this, measures at the individual and societal levels are required. Under the current global situation, both children and adults are experiencing a mix of emotions. They can be placed in a situation or an environment that may be new and can be potentially damaging to their health.

Children, away from their school, friends, and colleagues, staying at home can have many questions about the outbreak and they look toward their parents or caregivers to get the answer. Not all children and parents respond to stress in the same way. Kids can experience anxiety, distress, social isolation, and an abusive environment that can have short- or long-term effects on their mental health.

Some common behavioural changes among Children and Adolescents are:

- ❖ Excessive crying and annoying behavior
- ❖ Increased sadness, depression, or worry
- ❖ Difficulties with concentration and attention
- ❖ Changes in, or avoiding, activities that they enjoyed in the past
- ❖ Unexpected headaches and pain throughout their bodies
- ❖ Changes in eating habits

To help offset negative behaviors, requires parents to remain calm, deal with the situation wisely, and answer all the child's questions to the best of their abilities. Parents can take some time to talk to their children about the COVID-19 outbreak and share some positive facts, figures, and information.

Parents can help to reassure them that they are safe at home and encourage them to engage in some healthy activities including indoor sports and some physical and mental exercises. Parents can also develop a home schedule that can help their children to keep up with their studies. Parents should show less stress or anxiety at their home as children perceive and feel negative energy from their parents.

The involvement of parents in healthy activities with their children can help to reduce stress and anxiety and bring relief to the overall situation. Elderly people are more prone to the COVID-19 outbreak due to both clinical and social reasons such as having a weaker immune system or other underlying health conditions and distancing from their families and friends due to their busy schedules.

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According to medical experts, people aged 60 or above are more likely to get the SARS-CoV-2 and can develop a serious and life-threatening condition even if they are in good health.

Physical distancing due to the COVID-19 outbreak can have drastic negative effects on the mental health of the elderly and disabled individuals. Physical isolation at home among family members can put the elderly and disabled person at serious mental health risk. This can cause anxiety, distress, and induce a traumatic situation for them. Elderly people depend on young ones for their daily needs, and self-isolation can critically damage a family system.

The elderly and disabled people living in nursing homes can face extreme mental health issues. However, something as simple as a phone call during the pandemic outbreak can help to console elderly people. COVID-19 can also result in increased stress, anxiety, and depression among elderly people already dealing with mental health issues.

Family members may witness any of the following changes to the behavior of older relatives:

- ❖ Irritating and shouting behavior
- ❖ Change in their sleeping and eating habits
- ❖ Emotional outbursts

The World Health Organization suggests that family members should regularly check on older people living within their homes and at nursing facilities. Younger family members should take some time to talk to older members of the family and become involved in some of their daily routines if possible. Doctors, nurses, and paramedics working as a front-line force to fight the COVID-19 outbreak may be more susceptible to develop mental health symptoms. Fear of catching a disease, long working hours, unavailability of protective gear and supplies, patient load, unavailability of effective COVID-19 medication, death of their colleagues after exposure to COVID-19, social distancing and isolation from their family and friends, and the dire situation of their patients may take a negative toll on the mental health of health workers. The working efficiency of health professionals may decrease gradually as the pandemic prevails. Health workers should take short breaks between their working hours and deal with the situation calmly and in a relaxed manner.

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The key points to remember are:

- ❖ Understanding the effects of the COVID-19 outbreak on the mental health of various populations are as important as understanding its clinical features, transmission patterns, and management.
- ❖ Spending time with family members including children and elderly people, involvement in different healthy exercises and sports activities, following a schedule/routine, and taking a break from traditional and social media can all help to overcome mental health issues.
- ❖ Public awareness campaigns focusing on the maintenance of mental health in the prevailing situation are urgently needed.

Understanding and Acknowledging Stress and Anxiety

Amid all these changes and disturbances in our ongoing functioning, person is likely to experience varied emotional reactions which may be grouped as follows:

- ❖ Anxiety stemming from a fear of unknown as to what will happen next, a sense of danger
- ❖ Sadness and grief stemming from the sense of hopelessness, helplessness, and loss
- ❖ Frustration and irritation stemming from obstruction in one's goals, and a sense of injustice

The more uncertain and unexpected is the event, the more intense are our emotional reactions. Hence, it becomes essential for all of us to understand as to how we can effectively deal with the current situation.

First and foremost, it is important for all of us to accept the situation and validate our feeling towards it. It is important to reaffirm we that it is okay to be little anxious or sad sometimes. Considering the strange situation, we are put in, it is not a big deal to feel frustrated or anxious at times. However, we must constantly remind ourselves that this situation is transient. It is going to change one day so rather than worrying about what will happen tomorrow, it is best to take each day as it comes.

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Activities to Overcome, Anxiety, Stress, Mental Pain and Agony

| | | | |
|--|---|--|--|
| Follow hobbies, fun time, remain positive | Remain hopeful for a better and secure future | Stay connected and express gratitude | Engage in meaningful and creative tasks |
| Use and share the power of love and friendships | Discover ourselves | Inspire other with your good deeds and creativities, innovations | Participate in home chores and sharing with family |
| Exercising for approx. 30-45 min a day | Meditation for at least 10 minutes a day | Balancing your thoughts | Sound sleep 7-8 hours |
| Dealing with social stigma and discrimination associated with Covid19 | Yoga and pranayama | Listening to music and book reading | Take prescribed medicines if any on time |
| Remain hydrated by taking plenty of water, fresh juices, coconut water, butter milk etc. | Help others in need and stay safe | Abstain from alcohol and nicotine consumption | Take mandatory vaccine jabs |
| Practice Covid19 appropriate behaviours | Maintain a good financial health | Take care of environment, avoid clutter and hoarding around | Give positive energy and healthy feeling |

Dealing with Loss, Grief, and Despair during Covid19 Pandemic

The second wave of Covid-19 ravaged India, killing thousands and leaving families in grief. These people are not mere data points; they had real life with purpose, hopes, dreams and loved ones. As on 19th June 2021, the world over nearly 4 million people have lost their lives to Covid19.

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Many people are experiencing grief during the COVID-19 pandemic. Grief is a normal response to loss during or after a disaster such as Covid19 pandemic or another traumatic event. Grief can happen in response to loss of life, as well as to drastic changes to daily routines and ways of life that usually bring us comfort and a feeling of stability. Common grief reactions include:

- ❖ Shock, disbelief, or denial
- ❖ Anxiety
- ❖ Distress
- ❖ Anger
- ❖ Periods of sadness
- ❖ Loss of sleep and loss of appetite

Some people may experience multiple losses during a disaster or large-scale emergency event. Because of the COVID-19 pandemic, we might be unable to be with a loved one when they die, or unable to mourn someone's death in-person with friends and family. Other types of loss include unemployment, or not making enough money, loss or reduction in support services, loss to celebrate some important life events and other changes in our lifestyle. These losses can happen at the same time, which can complicate or prolong grief and delay a person's ability to adapt, heal, and recover.

People cope with losses in different ways. Adolescents may also experience grief in ways that are both similar to and different than children and adults. Adolescents may experience significant changes in their sleep patterns, isolate themselves more, frequently appear irritable or frustrated, withdraw from usual activities, or engage more frequently with technology.

It is important for parents or caregivers to engage with their adolescents over their grief to promote healthy and proactive coping style and acceptance. Parents may also need to obtain mental health services for the adolescent and family to deal with grief.

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Actions that may Help in Better Coping with Feelings of Grief after Loss of a Loved one

| | | |
|---|--|---|
| Know your feelings are valid | Understand that sudden loss is shocking and difficult to comprehend | It's okay to feel anger |
| Accept your feelings, even you don't like them | Acknowledge your losses and your feelings of grief and do your mourning now | Pray and attend rituals |
| You are not alone, seek help as you need it | Suicidal thoughts are a symptom of your pain, anger, despair- seek professional help | Heal at your own pace and expect relapses |
| Ask help from others in family, friends and neighbors | If needed feel free to seek professional help | You Are Vulnerable, Be Gentle with Yourself |
| Maintain a diary, regular writing helps | Watch out for thoughts that can derail your healing process | Don't let guilt overwhelm you |
| Maintain routines as much as possible | Spend time with your child/ children and other family members | Participate in fun activities, games, exercise etc. |

The loss of someone close can be devastating and a bereavement caused by Covid19 is a very challenging kind of bereavement for many reasons. We all grieve differently and the way we grieve will be unique to ourselves and will depend on many factors including the relationship we had with the person who has died, our cultural and religious beliefs and our support networks such as family and friends.

Our response to loss can change from hour to hour, day to day. Some days will be better than others and it is important to take things one step at a time. Our response to loss may contain a range of emotions, such as sadness, anger, guilt, frustration, emptiness, and anxiety. Everyone experiences grief differently and there is no 'normal' or 'right' way to grieve.

AUH COVID 19 Mental and Physical Recovery Guide

Caring for Someone who is Bereaved

If we are caring for someone who has been bereaved, whether a family member, friend, neighbour, volunteer or a professional, please rest assured that we are undertaking an important role. Simple gestures of kindness and caring acts at this time can be a great comfort to bereaved people.

The Covid-19 global pandemic has and will continue to result in the substantial loss of life across many countries including India and the community around our home, workplace will also experience loss of life. Preparing for and knowing how to manage grief and what to expect can be of help at such a difficult time.

A death from COVID-19 may mean that there has been or will be:

- ❖ Little time to prepare for a loved one's death following a period of illness
- ❖ No time spent in person with a loved one before they died, due to the risk of infection and social distancing rules
- ❖ An inability to say goodbye in the usual manner after death due to restrictions around attending funerals, cremations, public gatherings, and travel
- ❖ Isolation issues as people may be grieving while separated from family or friends, who may also be grieving but in distant locations
- ❖ Practical challenges, for example if the person bereaved was previously receiving care from someone who has died and/or has responsibilities to care for others or has ongoing work or family responsibilities
- ❖ Issues around coping with a shocking bereavement at a time when the bereaved person, or others in their circle of family and friends, may also be unwell with Covid-19.

It is important that people bereaved by Covid-19 are well supported early on in their grief.

Understanding our Emotions

Shock and disbelief Initially we may feel shock or numbness and confusion. Sometimes we may find ourselves carrying on with our life as if nothing has happened. These are all normal reactions and will lessen over time.

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Loss

Coping with the loss of the person's love, friendship, companionship, or intimacy can bring profound sadness. At other times, people feel sad for the loss of a relationship that they were never able to have with the deceased. Allow yourself other comforts that are helpful for you - huddling under a warm quilt, cuddling a pet, having a warm bath, or sitting in some fresh air in a garden or sunshine for a while.

Inability to Cope

Simple tasks become more difficult when we are grieving. Furthermore, ways of coping that would usually be helpful are compromised due to current restrictions. It is not possible to see people to receive comfort and support in managing loss in the way it would be under usual circumstances. We may really miss the experience of being hugged or held, due to social distancing or self-isolation at home. If possible, do try to have regular online support from friends/family.

Fatigue, Loss of Appetite and Sleep Disturbance

Listen to how your body is feeling. Grieving is exhausting and you may well feel more tired than usual, but also have difficulty sleeping and poor appetite. Sleep when you can, even if only for a few hours at a time. Try to eat a little and often to preserve energy. Remember to stay hydrated, drink plenty of water. Avoid too much caffeine and other stimulants such as excessive alcohol or illegal drugs.

Restlessness, Heightened Anxiety, and Tearfulness

We may long for relief from emotional pain and fear losing others that you care about. If you are experiencing heightened symptoms of anxiety we could try some gentle breathing exercises and yoga while listening to some calming music, meditation even for just a few moments a day. Crying can bring relief as it is an outlet for the emotions, tension and strain that have built up.

If we have physical symptoms at this time be aware that some of these may be due to our bereavement, including Covid-19, contact a medical practitioner.

Get Some Exercise

This might be the last thing you feel like doing, but it can help. Exercise uses up excess energy and is a way of releasing some of the frustration we might be feeling. Exercise also releases endorphins, which can help us to feel better and lift our mood.

AUH COVID 19 Mental and Physical Recovery Guide

Take Things Slowly

If we are confined to our home in order to limit the spread of Covid-19, try to make it a place of comfort to us at this important time of grieving. Take things slowly if we can and do things carefully to stay safe, as we may feel preoccupied and have less concentration. Do one thing at a time.

Delay doing any difficult or dangerous tasks that require full concentration, it is easy to make mistakes and injure ourselves at a time of high stress.

Let out your Feelings

Try not to bottle up or push away our painful feelings, allow some quiet/reflective time each day for them to surface. Listening to favourite music can help, as can simple stretching and breathing exercises.

Express Ourselves in Some Other Way

Many people find writing or drawing their feelings really helps clarify the overwhelming mix of emotions. Choose a form that we feel comfortable with - a diary, letter, prose, poetry, song. If we can't find the words to describe what we are feeling try 'speaking' about our experience through dance, song, painting or with textiles. Let shape, form, texture, colour, rhythm be our words.

Over time the emotional swings associated with loss of a significant person lessen in intensity as we learn to adapt to our changed circumstances, but to begin with it can feel overwhelming.

These are all normal reactions to loss and a natural part of the grieving process. Given time, support and understanding they will lessen, and we will gradually begin to feel better able to cope.

Ask for Help

It is not always easy to ask for help and it takes courage. Start by accepting that we need help. Ask someone we feel we can trust - a friend, a teacher, a counsellor or a doctor. A phone conversation, audio or video call with someone we trust can help a lot. Making use of available 24x7 Psychological Counselling Helpline - toll free No. 08046110007 initiated by the Ministry of Health & Family Welfare, Government of India in case of formal help regarding any mental health issue like anxiety, stress, fear and so many other issues wherein professionals from all over the country will be available to help us in dealing with this situation more effectively.

AUH COVID 19 Mental and Physical Recovery Guide

Chapter VII

Post-COVID 19 Cardiac Distress

Dr. Yugal Kishore Mishra, Chief of Clinical Services, Head of Cardiac Sciences, and Chief Cardiovascular Surgeon, Manipal Hospitals, Dwarka

Recovering patients should be alert for symptoms that can lead to heart attacks, and get medical care



Dr. Yugal Kishore Mishra

Cardiac symptoms among patients infected during the second wave of the Coronavirus are getting difficult to deal with. Why are younger COVID-19 patients developing heart problems?

Infection-related heart problems vary from sudden cardiac death to minor problems in heart rate. Sudden cardiac death can be due to a heart attack. There can be a clot formation in heart blood vessels. Clots can also be formed in lung blood vessels causing pulmonary embolism. The virus can also affect heart muscles causing cardiomyopathy and heart failure.

A common problem post-COVID-19 is variation in heart rate. A slow heart recovers in a majority of cases automatically in a few weeks. A heart attack can be caused by oxygen deprivation, a common risk factor with severe Covid-19 infection. Any disruption in healthy oxygenated blood can cause inflammation, weaken heart muscles, and trigger problems. Heart attacks after the infection also happen due to the rupture of the plaques in the heart vessels which leads to the occlusion of the arteries. But this is generally seen in individuals with underlying cardiovascular disease, smoking habits, diabetes, high blood pressure, and obesity.

If one is unable to breathe properly and is experiencing shortness of breath, then it can be a serious issue and needs immediate attention. There is a possibility that your

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vital organs are not getting adequate oxygen. This can not only impact your heart but also your lungs. Chest pain caused by a heart attack is often a sensation of pressure, burning, and squeezing in the middle of your chest and can spread to the chin, left arm, and back. As soon as you experience such pain you should consult your doctor and go to the hospital. Time is of the essence here.



Keep measuring your oxygen levels even after you have recovered from infection as fluctuations in your oxygen levels can be dangerous. It can be a result of irregular heartbeat and other severe issues which cannot be ignored. Therefore, always keep your oximeters near you. Dizziness can be a big warning symptom of a cardiac arrest. If you are feeling lightheaded or fatigued so much that it is getting difficult to stand or sit, immediately seek medical help. Extreme sweating is a major symptom of a heart attack.

Even if you have recovered from COVID-19, make sure to keep a check on your body temperature and seek medical help as soon as possible.

- ❖ Post-infection recovery if you are experiencing a rapid heartbeat or palpitations, contact your doctor.
- ❖ A temporary increase in heart rate can be caused by a lot of things including dehydration.
- ❖ Make sure you are drinking enough fluids, especially when you have a fever.
- ❖ The way to a healthy heart for a COVID-19 negative patient is through COVID-appropriate behaviour, a healthy diet rich in proteins, fibre, vitamin C, and essential nutrients combined with a workout regime.
- ❖ If you are experiencing symptoms like chest pain, breathing difficulty, dizziness, or palpitations, go to your doctor at once.
- ❖ Patients, and in particular cardiac patients, ought to maintain a healthy lifestyle, i.e., eat healthy, quit smoking, restrict alcohol intake, get adequate sleep, and keep physically active.
- ❖ Physical activity should be strongly encouraged either in a home setting or outdoor areas with social space as that will also improve well-being Exercise daily.

AUH COVID 19 Mental and Physical Recovery Guide

- ❖ Stay hydrated Get enough sleep Social networking should be encouraged in person id safe, or virtually Patients should seek medical help immediately and not neglect symptoms.
- ❖ Cardiac follow-up needs to be continued and advice of your doctor should be sought promptly in case of deterioration of the heart condition.

AUH COVID 19 Mental and Physical Recovery Guide

Chapter VIII

The World After Covid-19 – Creating New India of our Dream

Prof. Dr. P. B. Sharma, Vice Chancellor, AUH

The Corona pandemic has badly devastated the life and economies of the nations around the world. It all began from the start of the year 2020 and soon caught like a fire by March 2020 forcing unprecedented lockdowns and causing rapid loss of life. 220 nations of the world that included the high and mighty like US, UK, Russia, countries of Europe and the countries of the east including India and Japan came under severe attack of this unknown virus about which we are still at a loss to ascertain whether it is natural or manmade. The WHO declared pandemic in February 2020 and till date we are struggling to find the best ways to fully defeat the spread of the virus and prevent its new mutations.

Just to recap as per WHO Covid-19 Dashboard, Covid positive cases tally rose to 187,519,798 till 14th July 2021 and resulted into 4,049,372 deaths worldwide, highest being in US 6,02,409 followed by Brazil 5,34,233 and India 4,11,408. The healthcare services came under severe pressure, and often were seen helpless to cope up with the rapidly rising cases during the first and the second wave.

In fact, the second wave in India was the worst and a great many lives were lost as there was a severe shortage of ICU beds and oxygen. The situation was made even more severe due to mismanagement of oxygen supplies to hospitals despite the government having pledged adequate investment in new oxygen plants. Thanks to international support for oxygen concentrators and other essentials like ventilators that the situation could be controlled to a great extent. The lesson learnt was that the greed of black marketers does not spare even those crying for help to save lives.

Covid-19 Impact on Economy

As per World Bank Global Economy Outlook during Covid-19 pandemic, June 2020 the baseline forecast envisioned a 5.2 percent contraction in global GDP in 2020 causing the deepest global recession in decades. Over the longer horizon, the deep recessions triggered by the pandemic were expected to leave lasting scars through lower investment, an erosion of human capital through lost work and schooling, and fragmentation of global trade and supply linkages, the report said.

AUH COVID 19 Mental and Physical Recovery Guide

As far as India is concerned, the Indian economy during the Corona first wave nationwide lock down resulted in an estimated economy loss of Rs 45000 Crores per day, plunging the GDP growth to whopping -23.9% in the first quarter of the financial year 2020-21 that of course bounced to -7.5% in the second quarter and 0.4% growth in October- December 2020, after the nationwide lockdown was lifted in June 2020.

But the good news is that the WEF outlook for 2021 has projected the global economy to bounce back with high growth wherein India is projected to grow at 7.4% in 2021. This positive growth for India would however, require robust policy interventions to help the crippled industry, business and service sector to regain the necessary buoyancy to sail and swim with a positive outlook during the time of deep global recession.

Covid-19 Impact on Future of Work

While revival of economic growth is important, equally important would be to mitigate the impact of COVID-19 on the future of work that predicts that over half a billion people around the globe could be pushed into poverty, half of these in East Asia Pacific as per the recent report of World Economic Forum, WEF 2020. The Indian government has no doubt announced a number of economic stimulus to boost economic recovery. But it must be ensured through policies and strict guidelines that much of the benefit should go to revive the “fortune at the bottom of the pyramid”.

The poor, middle class, and daily wagers at the bottom of the pyramid need to be supported such that the financial stimulus results in a productive utilization and in improving the purchasing power of the middle class and the poor to boost the domestic demand. This becomes more important as we already have a massive disruption of economy caused by increased automation and smart and intelligent systems for industry 4.0 technologies that have pushed human workforce out of many jobs that are increasingly being taken over by their robotic co-workers on the strength of AI and Machine Learning Technologies.

It would therefore be wiser to invest in creating new jobs through strengthening the supply chain and the value chain to take the fullest advantage of Industry 4.0 in India by accelerating massification of entrepreneurship and startups in plenty, now that the power of innovation and the spirit of entrepreneurship has been unleashed by the young India.

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It goes without saying that the work force of tomorrow shall increasingly submit largely to work from home in great many sectors of economy as the age of flexible work hours and working for a number of employers has arrived. Thanks to Covid-19 to accelerate our acceptance of digital technologies for facilitating the work environment.

Covid-19 Impact on Education

Covid-19 has caused a massive disruption in the educational land scape in all the nations around the world. Even the strongest and world reputed universities have been badly shaken by Covid-19 that forced closure of university campuses and almost brought to a halt the cross-border mobility of students during the academic session 2020-21. It has also become clear that in the Digital era of higher education, the grandness of the brick-and-mortar universities is becoming highly questionable as the values and worth of digital learning in respect of online classes, collaborative teaching, group learning and autonomy of learning have emerged as more important consideration for quality of education than the structured tutoring that marked the identity of the brick and mortar universities in the Pre-Covid times.

But the moot question is whether the industries in the post Covid era would care more for the paper degrees or the capabilities, competence, character and attitude of the graduates to tomorrow? The bells for a massive disruption were well sounded in the prophesy made by the renowned management guru Peter Ducker who as early as 1997, some 24 years ago, on the advent of internet alerted that “Thirty years from now, big university campuses will be relics. Universities won’t survive. It’s as large a change as when we got the printed book”. This was prophesied to happen in 2027 but thanks God Corona Pandemic lockdown forced the universities to take up a wakeup call and rethink on universities of 21st Century that will cater for a learner centric environment to facilitative learning that matters.

The sudden and prolonged lockdown due to Corona Virus Pandemic has caused a massive disruption of academic activities in universities worldwide. But thanks to easy access and rapid adaptability of digital learning systems both by the teachers and students that the massive disruption could not damage the academic activities as much as it intended to do.

We need to take this wake-up call given by Covid-19 and start looking at transforming the university campuses as Smart Campuses integrating great technology advantage in education and research. The government of India on its part

AUH COVID 19 Mental and Physical Recovery Guide

need to focus on channelizing greater investment in improving connectivity and its bandwidth as also to put policies in place to make high quality internet affordable for educational purposes both for the educational institutions as well as for new age learners. It would also be important to have a new rural IT policy to incentivise investment in improving access to high quality IT network and services in rural India where there has been a massive disruption of educational facilities for the rural poor.

But education alone is not enough, we need to focus on capability building through skill development akin to the needs of today's technology savvy industry and society. In this respect it would be highly desirable to establish skill parks in leading universities (both in public and private universities) and also in the IITs and the NITs so that skilling gets a major boost to meet the needs of skilled and innovative manpower of the new India.

The skill universities need to be redesigned to integrate knowledge and skills including higher end skills of design, analysis and innovative new product development. And these must be conceived like the IITs of post independent India and must necessarily be established in collaboration with countries that have a great demonstrable contribution to skilling, such as South Korea, Japan, Germany, UK and Russia. The government of day may consider establishing 10 such National Skill Universities, NSUs in different strategic locations in India.

It must however be clearly understood that the high-quality higher education and research can only thrive if we have a vibrant base for quality schooling in the country. The situation of the government schools in various states of India currently does not measure to the needs of schooling for the new India of our dream. We cannot ignore the fact that the private schooling is overly expensive and beyond the reach of millions of children from poor and middle-class families who otherwise have highly talented children.

Even though improving school education has been the priority of successive governments, the success has been only marginal. One way out could be to multiply the goodness that is time tested. Like the Kendriya Vidhyalayas over the years have proved their focus on quality education. It would be desirable to multiply the Kendriya Vidhyalayas by at least 10 times in numbers than that of today. Likewise, the Saraswathi Shishu Mandirs could be promoted in great numbers as Gurukuls of the new India and named as '*Gurukul Siksha Mandirs*' of the new age and hundreds of these should be established around the country to provide the most modern

AUH COVID 19 Mental and Physical Recovery Guide

education with integration to India's ancient culture and spiritual civilization. This along side with focussed attention on improving the existing government schools through Public Private Partnership and modernizing their educational facilities will go a long way to strengthen the school education for the new India.

After all the investment in education is the investment for creating a bright future, and thus it would prove greatly beneficial for creating India of our dream.

The New India of Our Dream and a New World

The New India of our dream is an India free from poverty, unemployment, the misery of disease and air and water pollution that was the normal of the urbanisation-based models of economic development and growth during the pre-Covid times. We cannot close our eyes from the massive migration from the rural areas that was prompted by the attraction of the city-based culture of development, that under the disguise of the glittering lights of urbanisation destroyed the villages that once were the self-reliant centres of human habitats in the lap of nature.

With increased GDP growth as the indicator of national prosperity, we cultivated heaps of unemployment, poverty, unprecedented economic divide, caused massive air and water pollution together creating an unhappy life and a life style largely averse to natural human instincts. This made India as one of the most unhappy countries in the world, having been ranked 144 amongst 156 countries as per the World Happiness Index released in March 2020. As such, the New Normal needed for developing New India where there would be no one unemployed and environment is healthy, requires an ultra-radical departure to our approach to development and growth.

To draw this New Normal we need to keep the following indicators as the basis for our developmental strategy. The workers of the unorganized as well as loosely organized sectors comprising of over 90% of India's workforce, many of whom were living in Mega cities who were forced to return almost on foot carrying their children and little belongings to their villages in anguish and in pains of Covid-19 prolonged lockdown form one of the important considerations of this New Normal Development plan. Most of these workers are highly skilled and have been the pillars of industrial and economic growth for years together and have the rich experience of working in MSMEs and ultra-small enterprises.

AUH COVID 19 Mental and Physical Recovery Guide

If we can harness this rich skilled manpower and able to push India's industrialisation to a new normal of optimal rural-urban mix of new enterprise development that shall cause rapid growth of Mass Entrepreneurship of small and nano enterprises, creating millions of new jobs in rural areas that have this new opportunity of growth, now that the manpower has returned to their roots in rural areas.

However, the workers alone are not the sufficient conditions for the growth of NMSEs, they require the genius of young, inspired minds of tech-savvy youth who are currently enthused to build the new India of their dream. They need to go out in rural India and integrate their technopreneur talent and work together with the workers who have returned to their villages to cause the rapid growth of NMSEs for ushering a new agro-industrial revolution. The government on its part should support the young India with massive investment plans to cause this new upsurge of techno economic development that shall create employment in plenty and growth with equity and inclusiveness.

On top of the new normal for mass entrepreneurship based rural industrialisation, the government should move fast to attract the advanced technology intensive industries that are desirous of moving to India from countries like China and facilitate their growth in the already developed industrial states around many cities. I see such a great opportunity for UP in Noida and Greater Noida, Manesar and Sonapat in Haryana, Neemrana in Rajasthan and Sinner near Nashik in Maharashtra. This is just to indicate a few such places that can facilitate rapid relocation of industries from abroad. There is no dearth of such developed locations in India as a lot has been done in the past by the successive state and central governments to develop SEZs for industries but without much success as a lot of developed space in SEZs is currently lying vacant. But today there is this new opportunity that is knocking at India's doorstep. India should encash this great opportunity.

But then, there is a positive side of the Corona Lockdown that cannot be brushed aside. It is in respect of its positive impact on the health of the environment. It was a pleasant surprise that during nationwide lockdown in 2020 India returned to a blue sky and with air quality indices like PM_{2.5} coming down to 20 µg/m³. This was in total contrast to the preCovid-19 times India had the history of touching the highest levels of AQI of 999µg/m³ or even higher many a times during the year.

AUH COVID 19 Mental and Physical Recovery Guide

Likewise, the holy rivers like Ganges and Yamuna which could not be depolluted by the best of our efforts during the last one decade had reported to be flowing with the cleanest water ever during the nationwide Corona virus lockdown. What more, almost one death every two minutes, amounting to 750 deaths per day that were taking place due to rash driving and road accidents in India have also been averted, saving some 30000 deaths during the 39days of nationwide lockdown due to little or no mobility on roads and highways of India.

The billion dollar question therefore is whether we the people of India and our government of the day can take some tough, even unpleasant decisions, such as implementing zero tolerance policy towards polluting industries, polluting power plants, polluting heavy vehicles, dusty mines and construction sites and energize and engage municipal corporation, MCDs and civic services to effectively implement efficient waste management measures and maintain a clean and dust free environment that shall guaranty continued saving of millions of lives that were being lost due to air and water pollution and by sluggish enforcement of traffic rules and regulations.

Heavy investment for treatment of wastewater and sewage should be made in India, as we currently treat no more than 30% of sewage in our country (22963 MLD treated against the sewage generation of 61754 MLD) and allowing uncontrolled flow of dirty and toxic drains directly into our rivers and water bodies. But then it requires an iron will on part of the government and also mandates the fullest of public awakening and support to lead India and its 1.35 plus billion people to such healthy times once Covid pandemic is over.

Further, in my opinion there ere is an urgent need for the review the traffic plan in mega cities like Delhi, Gurgaon, Mumbai, Pune, Chennai, Hyderabad, and Kolkata and enforce strict traffic discipline on roads and highways of India as the road accidents alone are the single largest killer in India apart from heart attacks, chronic respiratory diseases, and cancers, much of these deaths are also attributed to environmental pollution that kills us from head to toes.

AUH COVID 19 Mental and Physical Recovery Guide

Concluding Remarks

In concluding, let me reinstate my firm faith in the ingenuity of man in tackling the worst of the problems and meet mega challenges such as Covid-19 pandemic. But then we all need to pledge ourselves to creating a world free from the miseries of pollution, deep economic divide and over exploitation of the natural resources. This would necessitate “Going Green, Going Rural with a High-tech Mind and with Scientific Solutions” to create new layers of rural economy where prosperity and happiness in abundance would be created together allowing the humankind to live a blissful and purposeful life full of enlightenment and divine bliss that our Vedic Seers and Sages have ordained assuring a perfect harmony with nature. *Jivesu Sarada Satam*, that is to live a healthy life of 100 years would then be within the reach of every human being.

We all should work consciously to create such an India of our dream and the New World in which we wish to live with bliss and happiness.

AUH COVID 19 Mental and Physical Recovery Guide

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AUH COVID 19 Mental and Physical Recovery Guide

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AUH COVID 19 Mental and Physical Recovery Guide

Possible Support from Amity University Counselling Service

One may want to contact Amity University Counselling Service. Talking to a counsellor, psychologist can help us find your way through the painful and otherwise lonely process of grieving and help us to make sense of our feelings.



Please see the website <https://www.amity.edu/gurugram/> for current tele-counselling services, and to make an appointment for tele-counselling.

Please refer details at:

<https://www.amity.edu/gurugram/pdf/covid19psychologicaltelecounsellingsupportfromauh.pdf>

Acknowledgements

The authors acknowledge that the ideas expressed in this Guide have been expressed by many people throughout the world. However, the objective of the Guide is to provide readers with current knowledge related to the disease and easy to follow practices/techniques/methods/protocols that can keep us and the people around us safe. Most of the illustrations/photos are directly taken from the Internet. The authors have assumed that using these to author a guide that is useful to the public would be satisfying to those who have posted these on the Internet.

As an example, the front page photos are from:

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