

# MENTAL AND BEHAVIORAL CHANGES DURING COVID 19 PANDEMIC AND HOW TO DEAL WITH IT

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## Abstract

The pandemic COVID-19 represents a massive global health crisis. Since the epidemic involves a large-scale shift in behaviour and imposes major psychological pressures on people, insights from the social and psychological sciences can be used to better match the human behavior with various epidemiologists and public health experts' recommendations. The disease prevention is best practiced by informing about the illness, the symptoms experienced by individual, the virus and its route of transmission. The best way to prevent COVID-19 disease is by hand washing or using an alcohol-based preparation for hand rubbing and avoiding touching the face, particularly the nose. The current COVID-19 pandemic is a global threat that has resulted in significant morbidity and mortality world wide. It also impacted the economy and social integrity. There is growing concern about the general population's mental health challenges, patients infected with COVID-19, close contacts, the elderly, children and health professionals. The article aims at increasing consciousness and emphasizing on various mental health issues experienced by various individuals during the COVID-19 pandemic.

**Keywords---** COVID-19, health challenges, health professionals

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## INTRODUCTION

Coronavirus disease (COVID-19), a new strain of the coronavirus family that includes Severe Acute Respiratory Syndrome (SARS)-CoV and Middle East Respiratory Syndrome (MERS)-CoV, was first identified by Chinese scientists in Wuhan, Hubei province, China, in January 2020 [1]. The outbreak hit Wuhan in late December 2019, when unknown aetiology presented a large number of patients with pneumonia and acute respiratory syndrome [1].

This novel virus affects the respiratory system and the symptoms range from mild clinical manifestations such as dry cough, shortness of breath, sore throat and fever to multiple fatal complications such as moderate to severe bilateral pneumonia, acute respiratory distress syndrome (ARDS), septic shock, and may ultimately lead to multi-organ failure [2] (Fig 1).

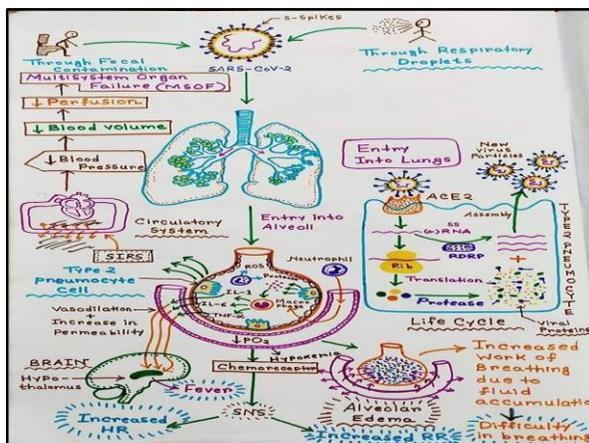


Figure 1. Summary of etiopathogenesis of coronavirus in human body

This pandemic has caused global mayhem, reaching 89 countries and has impacted all continents except Antarctica. The virus had spread to more than 118,000 cases in three months and caused 4,291 deaths in 114 countries, causing the World Health Organization to declare it as a global pandemic [3]. The pandemic has contributed to a major global public health initiative aimed at preventing the spread of the virus by raising hand washing, minimizing face contact, wearing masks in public and physical distance [3] (Fig 2).

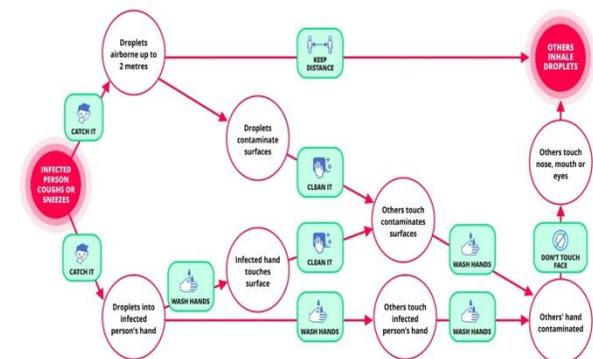


Figure 2. Flow chart showing means of spread of coronavirus and ways to prevent

There is currently a major health crisis going on around the world. A newly evolving zoonotic viral infection known as the novel coronavirus disease (COVID-19) affects humans, taking the form of a pandemic worldwide [4]. Because of this pandemic there has been a significant increase in mortality and morbidity over the past few months. Since this disease spreads quickly, most affected countries are not in a position to meet the requirements of personal protective equipment (PPE) and infrastructure requirements [4].

At the present stage, the main objectives laid down by the WHO are the prevention of human-to - human transmission, the restriction of the spread of infection to close contacts and medical professionals, the prevention of complications in infected persons, the provision of isolation and quarantine facilities, the availability of diagnostic and laboratory facilities, research aimed at producing specific treatments and vaccines and minimisation [5].

Over the past few months, it has been found that there are growing mental health issues among the general population, the elderly, infants, migrant workers and healthcare professionals other than patients with COVID-19 infection during this outbreak of COVID-19 infection [6]. During this COVID-19 pandemic, there are no specific recommendations from international bodies to address the mental health issues[6].

**IMPACT OF COVID-19 IN SOCIETY**

COVID-19's global effect has been severe, and as a result the danger to public health has been the most significant since the influenza pandemic of 1918 [7].COVID-19's overall case fatality rate was 2.3 per cent in China and could vary in various countries [1,3].A nationwide study conducted in China has shown that comorbidities exist in around one-fourth of COVID-19 patients and predispose to worse clinical outcomes [3].

The disease's effect goes beyond death, and morbidity has become evident since the pandemic outbreak. A vast population worldwide is likely to have a significant psychological effect as indicated by a preliminary study from China, where more than half of the respondents classified the psychological impact as moderate to serious and about one-third reported moderate to extreme anxiety among the 1210 respondents Post-SARS or post-Ebola pandemic, studies indicate that the impact with this pandemic could be the individuals suffering from social and psychological problems, even after physical recovery from the disease [8]. Data indicates that disadvantaged individuals that during a pandemic are restricted to their homes may have negative health outcomes.

In particular , children become less active physically and have much longer screen time, irregular sleep patterns and less favorable diets, resulting in weight gain and cardiorespiratory fitness loss [9].

The closure of schools also has other direct and indirect implications, such as unintended childcare obligations, which are particularly large in healthcare occupations [8,9]. This may be attributed to the current condition not only in child care but also in adult and geriatric populations in most countries around the world.COVID-19 is a shock to supply and demand [10].

Both of these things would impact the aggregate trade flow. It has direct as well as indirect economic consequences [10]. This interrupts stocks and the distribution of physical and financial assets. An increase in the health budget and a reduction in the overall GDP will surely affect the world as a whole [10,11]. Another area of impact would be the tourism and travel. In the current scenario travel has been virtually stopped by any citizen of any country.

Also, even after the pandemic is over, it's almost certain to take a long time before travellers become confident, Stigma and fear are further aspects of a pandemic outbreak [12]. It can present major barriers to healthcare seeking, social marginalization, distrust of health authorities and distortion of public perceptions of risk, leading to mass panic among citizens and disproportionate allocation of healthcare resources by politicians and health professionals [12].

Impact can't be ignored on the sports and other mass gatherings around the world. Within weeks of the emergence of this pandemic in China, misinformation, misleading rumours and conspiracy theories about the origin were circulating, paired with fear of mongering, racism and compulsive purchasing and storing of goods and face masks [13].

This can be attributed to the impact it has created on social media [13].In all areas of the present world, starting from health, society and economy, the pandemic would have an impact on the future policy making at global , regional and national level.

**EMERGING MENTAL HEALTH ISSUES IN COVID-19 PANDEMIC**

The COVID-19 pandemic is a global emergency situation while the diagnosis of specific disorders requires a specific period of time which is a major constraint in quantifying mental health problems [6,14].In addition, many of the survivors could develop mentally Coping with mental health challenges Long after the event, during COVID-19 disorders [6].

Consequently, multiple and complex confounding variables are going to make the situation hazy. Fortunately, studies evaluating the mental health issue have been gradually coming out which certainly require more time to obtain replicable findings [6]. (Fig.3a, 3b).



Figure 3a. Signs of stress summary

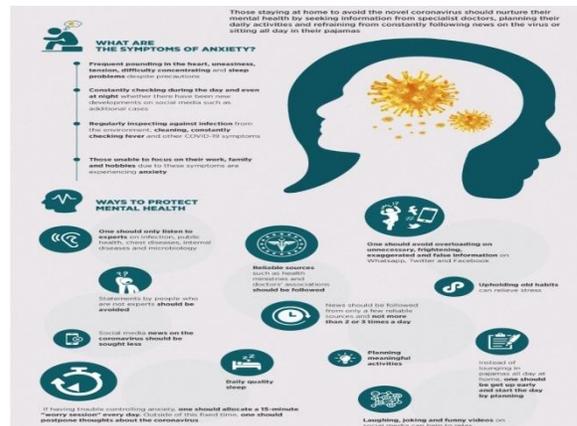


Figure 3b. Signs of anxiety and how to deal with it summary

**Among General Population**

Since the COVID-19 pandemic has spread quickly across the globe, the primary mental health problem has increased the level of stress or anxiety reflected in terms of general mental wellbeing [15]. Insufficient information about the virus' incubation time, the route of transmission, care, and safety

measures is causing fear and anxiety [8]. The locked-down state obliges residents to become homebound resulting in negative mental health outcomes such as states of anxiety and future insecurity [6, 8]. Under the locked-down state, the citizens also feel monotony, disappointment and irritability.

One study identified serious and large impacts of the pandemic on mental health [8]. The event can precipitate new mental disorders and exacerbate the disorders already present. The general public will feel fear and anxiety of being ill or dying, impotence, blame the already affected individuals and precipitate mental breakdown [8].

There are a wide variety of mental conditions, such as depressive disorders, anxiety disorders, panic disorder, somatic symptoms, self-blame, shame, post-traumatic stress disorder (PTSD), delirium, depression and even suicide [6, 8].

#### **Among Covid-19 Cases the Suspected and/or Confirmed**

COVID - 19 people are primarily afraid of the high degree of contagion and fatality [17]. The people in quarantine experience boredom, isolation, frustration, depression, anxiety, denial, fear, insomnia, use of harmful drugs, self-harm and suicidality [6, 17]. The survivors are the individuals at high risk for having a wide variety of psychiatric illnesses such as depression, anxiety and PTSD [6].

Patients can develop obsessive-compulsive disorder (OCD) as a continuation of the safety behaviours. In addition, physical COVID-19 symptoms such as fever, hypoxia, and cough along with the adverse effects of prescription drugs (corticosteroids) can cause more anxiety and mental distress [6, 17].

A recent study of 1210 participants from 194 cities in China revealed that 53.8% had a mild to extreme psychological effect, 31.3% had some kind of depression, 36.4% had some kind of anxiety and 32.4% had some kind of stress [3]. Bad or very bad self-rated health status was significantly correlated with COVID-19 having a greater psychological impact.

#### **Among Family Members and Close Contacts**

Together with the persons with COVID-19, family members and close contacts face psychological problems as traced, isolated or quarantined, making people anxious and guilty about the aftermath of the contagion, quarantine and stigma on family members and friends [6, 18]. The survivors of the family who lose their loved ones because of the pandemic contribute to rage and bitterness.

In addition, they also feel shame, guilt or stigma for the sick and/or quarantined family members, and some studies have reported PTSD and depression among family members and close contacts [18].

On the other hand, children who have been isolated or quarantined during the pandemic are more likely to develop acute stress disorder, disorder of adjustment and grief [9, 15, 19]. Among 30 percent of children, PTSD has been reported and early loss or separation from parents during childhood also has long-term adverse effects on mental health, including increased chances of developing mood disorders, psychosis and suicidality [9, 15, 19].

#### **Among Healthcare Workers**

As pandemics are the biggest mental health epidemic, demand for healthcare services is steeply growing [20]. In addition, many countries lack enough manpower and infrastructure to cope with COVID-19. Therefore, with the risk of being compromised, health care providers face an elevated workload.

When they contact COVID-19-confirmed persons, they were frequently quarantined [9, 19]. There is a common increase in workload, isolation, and discrimination resulting in physical exhaustion, fear, emotional disturbance, and sleep disorders [19, 20]. A new research involving 1563 health professionals found that over half (50.7%) of participants reported depressive symptoms, 44.7% anxiety, and 36.1% sleep disorder. In addition, there are not adequate services to provide anxiety, depression and suicidality counselling and psychiatric screening services for physicians who have been dealing with infected persons [9, 15, 19].

Postulating that many doctors experience PTSD, depression, anxiety and burnout after the pandemic ends is also important [9, 15, 19]. The frontline health care providers (FHCP) along with the doctors will develop mental illnesses such as depression, anxiety, and PTSD.

Previous articles reported that FHCP (paramedics, ambulance staff, and healthcare workers) also exhibited increased stress and emotional disturbances, and increased levels of depression and anxiety [6, 21].

This is calculated because the chances of getting infected are much higher with the risk of exposure causing a fear of transmission to their loved ones and kids. In addition, the professionalism of conflicts and personal fear for oneself are causing burnouts and physical and mental symptoms.

#### **Among Special Population (Old Age and Co-Morbidities)**

As this pandemic has spread rapidly across the world, it brings with it a significant degree of uncertainty, anxiety and anxiety among certain specific groups in older adults and people with existing comorbid disorders [6, 21].

This has a potential effect on chronic diseases, and the individuals affected can contribute to psychological problems that may have to do with mental illness and immunity interplay. Symptoms can also intensify cognitive dysfunction and anxiety in people who previously have low mental abilities [6].

Patients with pre-existing serious mental illness (SMI) undoubtedly suffered from the pandemic [6, 21]. In-patients pose a high risk of cluster contagion, particularly those requiring long-term hospitalization in closed wards.

Due to road restrictions and exclusion measures, serious mental illness (SMI) outpatients face challenges in obtaining maintenance care and can often end up with psychiatric illness and uncontrollable circumstances [6, 21]. Patients with chronic physical disability (e.g., chronic renal failure, diabetes mellitus, and cardio-cerebrovascular disease) may require daily follow-up in hospitals that are troublesome and increase the risk of deterioration [21].

#### **COPING WITH MENTAL HEALTH ISSUES DURING COVID-19 PANDEMIC**

While the healthcare sector and government officials from around the world focus on controlling the pandemic by adopting various preventive strategies, little attention is given to the mental health status of the isolated, panicked, and house arrested individuals [6, 22].

Its emotional well-being will be affected by the lack of regular social activities and staying at home for a longer time. Research has also shown that sudden outbreaks can worsen those with pre-existing mental health conditions [8]. In order to prevent a distressing situation, individuals should not become too vulnerable to media coverage, maintain a healthy relationship, interact frequently with friends and family members using social media and start thinking positively [8, 15] (Fig.4).

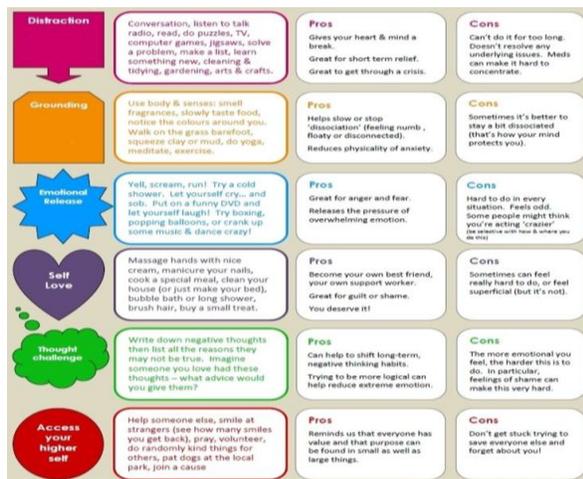


Figure 4a. Coping with mental health issues summary

If coronavirus anxiety occurs, seek to express worries with others that will calm them down, and also try to improve self-awareness by having enough sleep, regularly exercising, and using various calming techniques [23]. As recommended in this technological era, healthcare services can introduce online psychological support services for those individuals who have lost their close relatives as a result of COVID-19 [24]. Healthcare organizations should adopt reduced working hours, daily breaks and rotating shifts to improve the productivity and mental health of frontline healthcare workers [23, 24]. People can cope with mental health challenges by taking different measures relating to lifestyle (Figs. 4a and 4b).

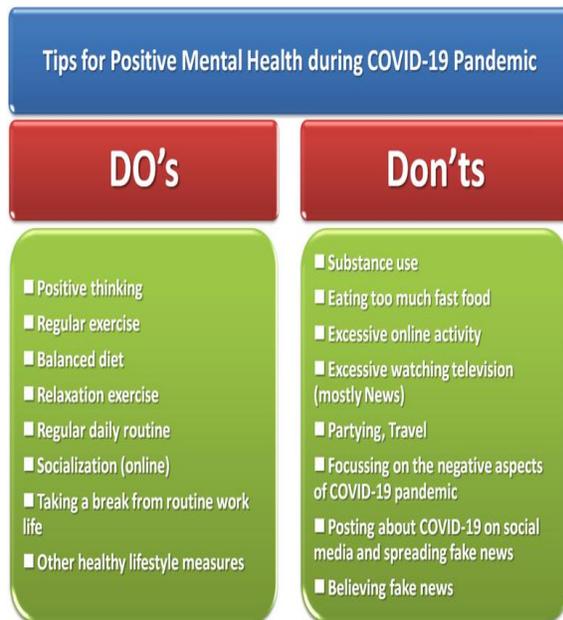


Figure 4b. Tips for positive mental health during COVID-19 pandemic

**MYTHS AND FACTS ABOUT COVID-19 (FIG.5A, 5B)**

During a new outbreak of infectious disease, much uncertainty remains from the pattern of transferring, involving risk factors, and prevention and treatment [25]. Rumours cause more fear in the general population because they are malevolent in nature and can change the sightings of people about the disease. With the emergence and spread of 2019 novel coronavirus the world is witnessing the same for the new public health crises [25].

Once the disease originated in China's Wuhan area, it was declared a second-class infectious disease, but most areas of the world implemented the first level of response measure to control, and the steps taken have no empirical basis and no successful results have been reported since the Chinese government applied those steps [26]. Cold and snow cannot kill the virus, and it can be transmitted in areas with hot and humid climate. Population of all age groups are vulnerable to COVID-19 infection [27].

The elderly are more vulnerable to underlying health conditions such as diabetes, heart disease and asthma [3, 27]. Although there are no significant number of paediatric cases so far, children are vulnerable to the infection, and there is no evidence of this infection being transmitted vertically to date [9, 19].

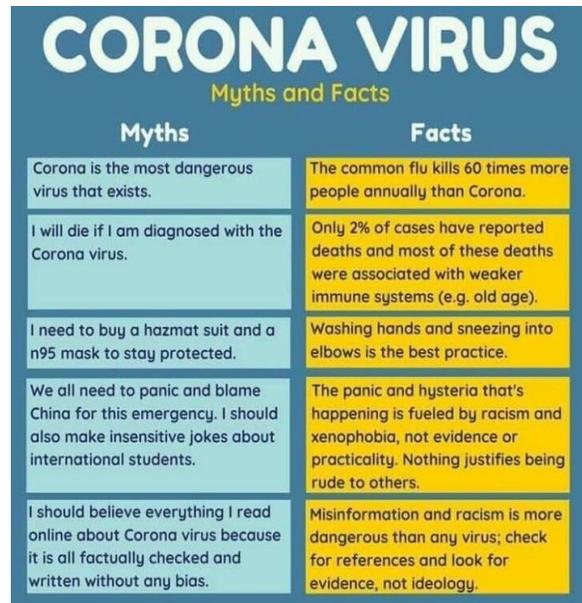


Figure 5a. Myths and facts about coronavirus summary

Several national and international newspapers, tabloids, and media channels around the world report that smokers are prone to catch infection with coronavirus due to weakened lungs, and will put smokers at risk [6].

A recent systematic review finding however revealed that there is no significant association between active smoking and COVID 19 severity [28].

There are reports of oseltamivir, lopinavir / ritonavir, prednisone, antibiotics and traditional Chinese medicine being used in treating COVID-19 patients [6, 26].

Again, there is no scientific evidence to support that they will be effective against COVID-19 apart from scrupulous personal care such as the use of precautionary personal protection to reduce the risk of transmission, early diagnosis, isolation and supportive treatment for the patients affected [6, 26].

There's also some misconception among the general people that people will not get infected with the infection by taking hot baths or spraying alcohol or chlorine throughout the body can kill the infection [6, 29].

Proper information on public health should be provided to general people on the basis of scientific research to reduce stress and anxiety otherwise control measures will be difficult to implement [6, 29].



Figure 5b. Tips to spot fake news and information about COVID-19

**PRECAUTIONARY MEASURES AND RECOMMENDATIONS [30, 31]**

There is no definitive cure for the COVID-19 infection at present [30]. The best approach to counter the COVID-19 pandemic is prevention. Prevention is not a challenging task as is commonly thought [30].

In order to effectively avoid COVID-19, two forms of precautionary steps must be taken broadly, as mentioned below:

1. General precautionary measures (Table 1): It is meant for everybody in the community.
  - a) Adequate handwash hygiene;
  - b) Adequate respiratory hygiene;
  - c) Following social distancing;
  - d) Avoid travelling;

Table 1. General precautionary measures to be taken during COVID-19 pandemic

Adequate hand hygiene	Adequate respiratory hygiene	Follow social distancing	Avoid travelling
Frequent handwash with soap/ handwash (at least 20 seconds);	Use handkerchief/ tissue paper to cover face during sneezing or coughing;	Avoid close contact with people (particularly with those who are sick);	Stay at home;
Avoid touching face;	Avoid spitting openly;	Adequate physical distancing;	All international and domestic travels should be avoided;
Avoid touching contaminated surfaces;		Avoid gatherings/ crowds;	
Avoid shaking hands;			

2. Specific precautionary measures (Table 2): It is meant for persons who are sick, close contacts of COVID-19, travellers and healthcare workers. Broadly, there are three groups of population as mentioned below:

- (a) General population;
- (b) COVID-19 cases and close contacts;
- (c) Healthcare workers;

Table 2. Specific precautionary measures to be taken during COVID-19 pandemic

Sick individuals	Close contacts	Healthcare professionals
COVID-19 positive: hospital-based care (strict isolation);	Use test for COVID-19	Personal protective equipments: - Gloves - Masks - Gowns - Other protective measures;
Recovered COVID-19: - Home based care; - Periodic monitoring;	Periodic monitoring of symptoms;	Adhering to the protocols of hygiene and sanitization;
Medically ill: Seriously ill: may need hospital care; Mild symptoms: home based care;	Avoid travel;	Online consultation, whenever possible;
If develop → Fever, dry cough, breathing difficulty, fatigue: Testing to be done for COVID-19;	Avoid social contact;	Limiting the duration of contact with patients;
	Self quarantine/ isolation whenever necessary;	Prophylactic Hydroxychloroquine;

The precautions and recommendations are targeted to address the needs of the above three groups of the population [31]. Prevailing myths and unawareness about precautionary measures may cause distress among people. There is a need to follow certain recommendations for effective coping with mental health challenges [32] (Table 3).

Table 3. Recommendations for effective coping with mental health challenges

S.No	Recommendations for effective coping with mental health challenges
1.	Adequate awareness about the COVID-19 and regular updates (as understanding about COVID-19 changing day by day) about appropriate precautionary measures.
2.	Developing preparedness to meet the challenges like scarcity of resources
3.	Ignoring fake news and social media posts that spreads panic
4.	Regular scheduling of the daily activities
5.	Inclusion of indoor recreational activities and relaxation exercises to daily practice

6.	Approaching (rather than avoiding) healthcare system, if any symptoms develop
7.	Positive thinking and installation of hope

Individuals suffering psychological distress will disclose their problems, or warn them, rather than conceal them. Individuals experiencing persistent distress Coping with Mental Health Challenges During COVID-19 may seek assistance from mental health professionals through available support lines or in emergency situations in hospitals [16, 32]. Figures 6a summarize the recommendations according the risk severity. Figures 7b and 7c summarizes the management approach to mental health difficulties during COVID-19 pandemic, respectively.

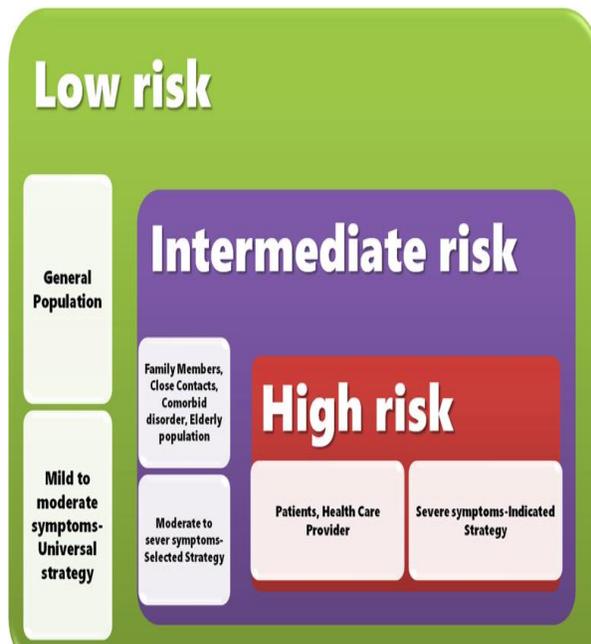


Figure 6a. Summary of recommendations according to the COVID-19 risk severity

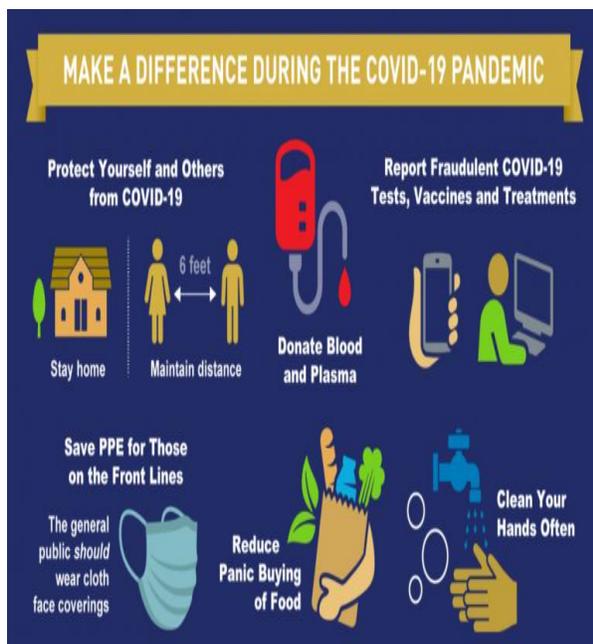


Figure 6b

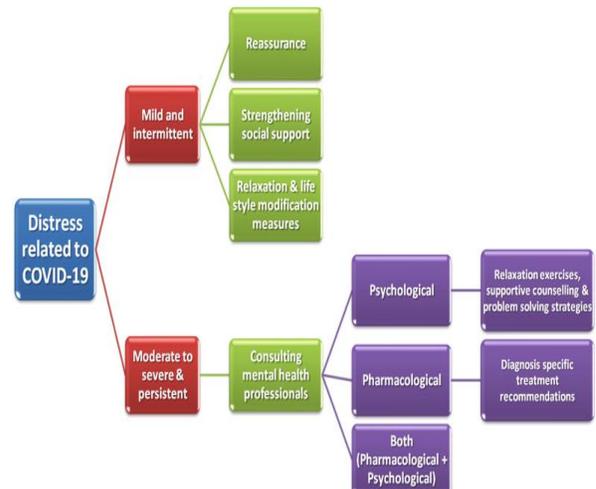


Figure 6c

Figure 6b and 6c. Summarizes the management approach to mental health difficulties during COVID-19 pandemic

**CONCLUSIONS**

COVID-19 poses significant threats to mental health. Since the COVID-19 pandemic there is a shortage of work on the mental health issues. While the mortality and morbidity rates hit new heights every day, loneliness and lockout systems are prolonging, leisure options are dwindling for people and the financial crisis is growing in, mental health problems are likely to develop exponentially. The mental perspectives of COVID-19 and possible measures to cope with the pandemic have to be understood for their effective management.

**FUTURE PERSPECTIVES**

The mental health issues linked to the COVID-19 pandemic may be either immediate (short-term) or distant (long-term) [14, 33]. Existing research only addresses the specific questions around mental health. It is important to look at the sequels of COVID-19 infection for long-term mental health. Earlier evidence suggests that maternal exposure to influenza infection during an influenza epidemic in Europe increased the risk of offspring schizophrenia, possibly by altering the neuro developmental process.

Similarly, exposure to measles in the childhood may result in subacute sclerosing panencephalitis (SSPE) developing later. Nothing is known about the after-effects of the novel coronavirus infection. Thus, thorough work is required in terms of its impact on specific population groups (pregnant, young children, adults and other vulnerable populations)[27](Fig 7a, 7b).



Figure 7a



**Figure 7b**  
**Figure 7a and 7b.** Summary of various risk groups

Likewise, the mental health needs of COVID-19 patients, close friends, health practitioners who work with COVID-19 patients and the general public need to be identified [15, 34, 35]. Potential work should also examine the efficacy and effectiveness of various online psychotherapeutic approaches during the COVID-19 pandemic, with an emphasis on the low- and middle-income countries (LMICs) globally. Provided that there is concern about finding infection during direct interaction with patients, online consultation may be a possible mode of therapy delivery.

**EXECUTIVE SUMMARY (FIGURE 9)**



**Figure 9.** Ways to stay calm about coronavirus

- During the COVID19 pandemic, the mental health problems differ among different populations.
- It is expected that disadvantaged groups such as COVID-19 participants, close relatives, the elderly, children and health professionals may have greater coping difficulties.
- Psychological distress can be minimized by effective precautionary measures;
- COVID-19 based misconceptions can also contribute to anxiety and improper lifestyle interventions.
- People with depression should take different safe coping steps and, if possible, the mental health services should provide assistance.

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