Corona Prevention and Control- A Preview

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ABSTRACT

Coronaviruses are enveloped non-segmented positive-sense RNA viruses belonging to the family Coronaviridae. The human coronavirus infections are mild, the epidemics of the two β-coronaviruses, severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) have caused more than ten thousand cumulative cases in the past two decades. There is a new public health crises threatening the world with the emergence and spread of 2019 novel coronavirus (2019-nCoV). The virus originated in bats and was transmitted to humans through yet unknown intermediary animals in Wuhan, Hubei province in China during the month of December 2019.[1]

Keywords: COVID-19; (MERS-CoV); 2019-nCoV; Corona Prevention; Control.

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Crossref Doi: https://doi.org/10.36437/irmhs.2021.4.1.B

Introduction

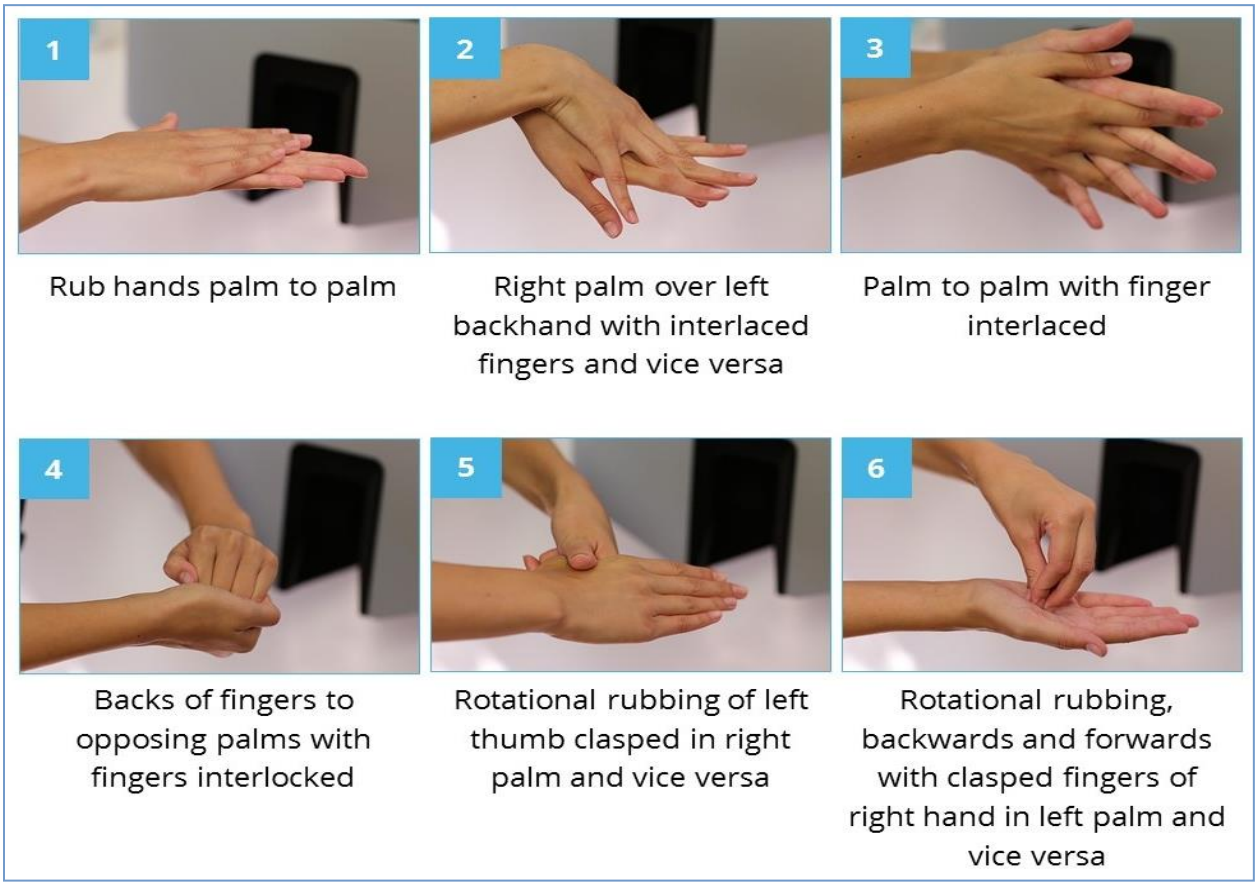
The Coronavirus disease (COVID-19) pandemic is creating a havoc in the world shattering health systems and crashing economies and this is going to leave deep scars in every sector. It is the biggest global health crisis of our time and the greatest challenge we have faced since World War Two. Till date (04/11/2020), the coronavirus disease has spread to 210 countries with over 1.7 million cases and over 106,000 deaths worldwide. There is no vaccine and no definite treatment. The best way to prevent illness is to avoid being exposed to this virus.

So prevention is better than cure.

1. Importance of Hand Hygiene: Pay attention to personal hygiene. Hand hygiene is the very best weapon in any fight between human and contagious disease. There are a lot of things we don't know about this virus, but we do know it spreads through respiratory droplets produced when an infected person coughs or sneezes. Other individuals may be infected when they touch a surface that has virus particles on it and then touch their own mouth, nose, or eyes. Global Handwashing Day (GHD) is an international handwashing promotion campaign to motivate and mobilize people around the world to improve their handwashing habits. Washing hands at critical points during the day and washing with soap are both important. Global Handwashing Day occurs on 15 October of each year. The CDC (Centers for Disease Control and Prevention) has initiated *Life is Better with Clean Hands* campaign which encourages adults to make handwashing part of their everyday life and also encourages parents to wash their hands to set a good example for their kids.[2]

During this COVID-19 pandemic, you should clean hands specially: After you have been in a public place and touched an item or surface that may be frequently touched by other people, such as door handles, tables, gas pumps, shopping carts, or electronic cashier registers/screens, etc.
Before touching your eyes, nose, or mouth because that's how germs enter our bodies. Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing. To time handwashing to 20 seconds, you can sing the Happy Birthday song twice. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.

Who Guidelines on Hand Hygiene



Washing hands with soap and water is the best way to get rid of germs in most situations.

If soap and water are not readily available, you can use an alcohol-based hand sanitizer that contains at least 60% alcohol (Look at the product label to know the alcohol content).

Sanitizers can quickly reduce the number of germs on hands in many situations. However, Sanitizers do not get rid of all types of germs.

Hand sanitizers may not be as effective when hands are visibly dirty or greasy.

Hand sanitizers might not remove harmful chemicals from hands like pesticides and heavy metals.

Avoid touching your eyes, nose, and mouth with unwashed hands, Our hands touch many surfaces and can pick up viruses.

Once contaminated, hands can transfer the virus to your eyes, nose or mouth.

From there, the virus can enter your body and can make you sick.

This is a lot harder than it sounds and requires conscious effort.

The average person touches their face 23 times an hour, and about half of the time, they're touching their mouth, eyes, or nose — the mucosal surfaces that COVID-19 infects.

2. Practice respiratory hygiene: Make sure you, and the people around you, follow good respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue immediately.

Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.

Droplets spread virus. By following good respiratory hygiene you protect the people around you from viruses such as cold, flu and COVID-19. Stay home if you are feeling sick, and seek appropriate medical guidance.

3. Social Distancing: The CDC recommends that people should stay at least six feet apart (1.83 meters). Respiratory droplets from a cough or sneeze can travel up to six feet and be inhaled into the lungs of people within range. Protect yourself by staying out of range.

Researchers say that the coronavirus rapid spread is likely due to the movements of people with no or very mild symptoms namely, those who are unaware that they even have the virus. That is why social distancing is such an important containment measure and the only way to break the chain of contagion. Social distancing is exactly what it sounds like: keeping your distance from other people.

It's often used to describe public health measures imposed by local governments- measures like quarantining the sick, closing schools, workplaces, restricting travel and canceling public gatherings. And, when it's done early enough during a pandemic illness, it's been shown to save lives. But you don't have to wait for the government to tell you what to do; you can begin practicing social distancing right now for your own safety.

Make your meetings virtual. Or postpone meetings entirely.

Don't hug or shake hands or kiss on the cheek. If you have to meet with someone in person, find an alternative greeting that reduce the transfer of virus.

You can just say 'hello', tip your hat, wave, give a nod ,bow, high-five in the air, place hand over the heart like you're about to make a pledge or try the Vulcan salute which consists of raising one's hand, with space between the middle and ring fingers, and the index finger and the thumb.

The Vulcan salutation is a hand gesture popularized by the 1960s television series *Star Trek*.

One gesture that WHO director-general Tedros Adhanom Ghebreyesus recommends is the Hindu greeting of *Namaste,* which is accompanied by placing one's palms together, fingers pointed upwards and drawing the hands to the heart.

From US President Donald Trump to French President Emmanuel Macron to Prince Charles to Irish Prime Minister Leo Varadkar, all have resorted to greet with namaste during this period of pandemic.

Make a conscious effort to avoid crowds. For example, with warmer weather upon us, think about walking or riding a bike to campus instead of taking the subway or a bus.
This recommendation relates both to keeping your distance and avoiding contaminated surfaces.

4. Keep surfaces clean: Among the things we don't know about COVID-19 is how long the virus can survive outside of a human host. But we do know that -The virus is susceptible to disinfectants. Here's some cleaning tips.

Use the right product: According to the CDC, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, chlorine-containing disinfectant, hydrogen peroxide disinfectant, chloroform and other lipid solvents can effectively inactivate the virus.

Use the product right: First, clean dirt off of the surface. Then wipe the surface with disinfectant. Leave the surface wet with disinfectant for as many minutes as the product instructions require. This is a vital step that people often miss. It's not enough to just wipe the surface and go.

Clean the right surfaces: High-touch areas such as door handles, phones, remote controls, light switches, and bathroom fixtures.

Horizontal surfaces such as countertops, kitchen tables, desktops and other places where respiratory droplets could land.

AND your mobile phone! It's filthy. Did you wash your hands and then touch that phone? Just like that, you're re-contaminated.

Do not reuse disinfectant wipes on multiple surfaces. This can transfer germs from the used wipe to other surfaces. Use one wipe for each surface and then throw it out.

Do not dry surfaces after wiping them down. Surfaces you are disinfecting need to stay wet for the amount of time listed on the label. The contact time with the disinfectant is what actually kills the germs.

There are many types of masks:

- The paper mask
- Cotton mask
- Activated carbon mask
- Sponge mask
- Surgical mask
- N95 respirator


3M
8210V
NIOSH
TC-84A-5410
N95
WARNING
This respirator helps protect against
certain particles. Misuse may result in
sickness or death. For proper use, see
supervisor or box or call 3M 1-800-247-3941.

Surgical Masks: Surgical masks are disposable, loose-fitting face masks that cover your nose, mouth, and chin.

They're typically used to: Protect the wearer from sprays, splashes, and large-particle droplets.
Prevent the spread of potentially infectious respiratory secretions from the wearer to others.

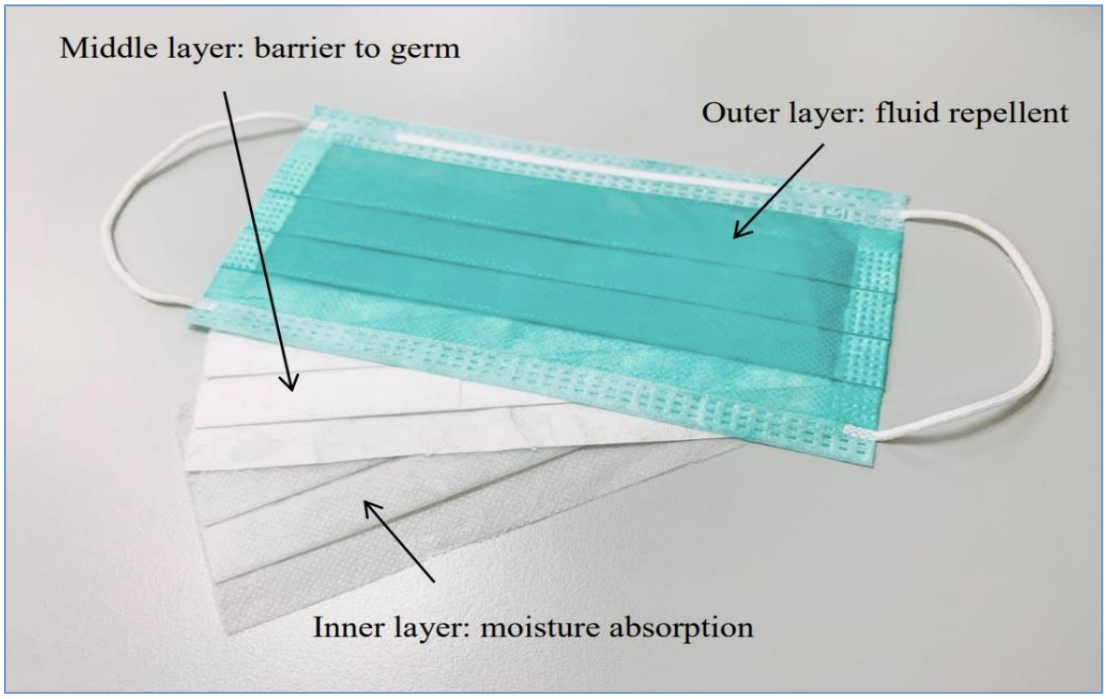
They are not designed to protect the wearer from inhaling airborne bacteria or virus particles and are less effective than respirators, such as N95 masks, which provide better protection due to their material, shape and tight seal.

Remember that while surgical masks don't protect against COVID-19 infection, they can help trap infectious respiratory secretions. This can be a vital tool in helping prevent the spread of the virus to others in your surroundings.

Usually, the masks are three-ply (three layers).

The outer layer is water proof to prevent the droplets from entering the mask. The middle layer is provided with a filtration layer, that filters microbes. The inner layer is used for moisture absorption.

Most surgical masks feature pleats or folds. Three pleats are used to allow the user to expand the mask such that it covers the area from the nose to the chin.



Wear a facemask if you are sick and if you are coughing or sneezing.

If you are healthy, you do not need to wear a facemask unless you are caring for someone who is sick.

If you are sick: You should wear a facemask when you are around other people (e.g., sharing a room or vehicle) and before you enter a healthcare provider's office.

If you are not sick: If you are healthy, you only need to wear a mask if you are taking care of a person with suspected COVID-19 infection. Facemasks may be in short supply and they should be saved for caregivers.

Masks are effective only when used in combination with frequent hand-cleaning with alcohol-based hand rub or soap and water.

Clean your hands, either by washing with soap and water or by using an alcohol-based hand sanitizer.

Before putting the mask on, inspect it for any tears or holes.
Locate the metal strip in the mask. This is the top of the mask.
Orient the mask so that the colored side faces outward, or away from you.
Place the top part of the mask on the bridge of your nose, molding the metal strip to the shape of your nose.
Carefully loop the elastic bands behind your ears or tie the long, straight ties behind your head.

Pull the bottom of the mask down, ensuring that it covers your nose, mouth, and chin.

Try to avoid touching the mask while you're wearing it. If you must touch or adjust your mask, be sure to clean your hands immediately afterward.

To take off the mask, unloop the bands from behind your ears or undo the ties from behind your head. Avoid touching the front of the mask, which may be contaminated.

Promptly dispose of the mask in a closed garbage bin, thoroughly cleaning your hands afterward.
Replace the mask with a new one as soon as it is damp and do not re-use single-use masks.

An N95 respirator is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles.

The edges of the respirator are designed to form a seal around the nose and mouth.

The 'N95' designation means that when subjected to careful testing, the respirator blocks at least 95 percent of very small (0.3 micron) test particles.

If properly fitted, the filtration capabilities of N95 respirators exceed those of face masks.

However, even a properly fitted N95 respirator does not completely eliminate the risk of illness or death.

People with chronic respiratory, cardiac, or other medical conditions that make breathing difficult should check with their health care provider before using an N95 respirator because the N95 respirator can make it more difficult for the wearer to breathe.

Some models have exhalation valves that can make breathing out easier and help reduce heat build-up.

All FDA-cleared N95 respirators are labeled as "single-use," disposable devices.

If you have fever, cough and difficulty breathing, seek medical care early.
If your respirator is damaged or soiled, or if breathing becomes difficult, you should remove the respirator, discard it properly, and replace it with a new one. To safely discard your N95 respirator, place it in a plastic bag and put it in the trash. Wash your hands after handling the used respirator.

Stay home if you feel unwell. If you have a fever, cough and difficulty breathing, seek medical attention and call in advance. Follow the directions of your local health authority.

If novel coronavirus is suspected, it may be necessary to go to the local designated medical institutions on time for screening, diagnosis and treatment.

It should be noted that surgical masks should be worn throughout the treatment to protect yourself and others.

Stay home from work, school and public areas, except to get medical care.
Avoid taking public transportation if possible.
Isolate yourself as much as possible from others in your home.
Use a separate bedroom and bathroom if possible.
Avoid sharing dishes, glasses, bedding and other household items.[3-6]

Four cornerstones for health: Sports and physical exercise, Reasonable diet, Psychological balance, Quitting smoking and alcohol.

Sports and physical exercise

Reasonable diet

Psychological balance

Quitting smoking and alcohol

Balanced Diet: One of the best ways to stay healthy is to eat a nutritious diet. That's because our immune system relies on a steady supply of nutrients to do its job.

Beta carotene: Beta carotene gets converted to vitamin A, which is essential for a strong immune system. It works by helping antibodies respond to toxins and foreign substances. Good sources of beta carot.

Vitamin C: Vitamin C increases blood levels of antibodies and helps to differentiate lymphocytes. Research has suggested that higher levels of vitamin C (at least 200 milligrams) may slightly reduce the duration of cold symptoms. Vitamin C rich diet include oranges, grapefruit, kiwi, strawberries, Brussels sprouts, red and green peppers, broccoli, cooked cabbage and cauliflower. It include sweet potatoes, carrots, mangoes, apricots, spinach, kale, broccoli, squash and cantaloupe. It is important to truthfully give a detail about your travel history, the contact history of pneumonia patients or suspected patients, and the contact history of animals.

Vitamin D: Vitamin D is an immunomodulator. Winter-associated vitamin D deficiency from a lack of sun-induced vitamin D production can weaken the immune system, increasing the risk of developing viral infections that cause upper respiratory tract infections. Inversely, research suggests that vitamin D supplements may help to protect against acute respiratory tract infections. Good food sources of vitamin D include fatty fish, including canned fish like salmon and sardines; eggs, fortified milk and plant milk products; cheese, fortified juice, tofu and mushrooms.

Zinc: Zinc is known to play a central role in the immune system, and zinc-deficient persons experience increased susceptibility to a variety of pathogens. Zinc is crucial for normal development, differentiation and function of cells mediating immunity such as neutrophils, macrophages, natural killer cells and antibodies. One meta-analysis revealed that zinc supplements may shorten the duration of symptoms of the common cold. Sources of zinc include beans, chickpeas, lentils, tofu, fortified cereals, nuts, seeds, wheat germ, oysters, crab, lobster, beef, pork chop, dark meat poultry and yogurt.

Protein: Protein is a key building block for immune cells and antibodies and plays a crucial role in helping our immune system do its job. Protein comes from both animal and plant-based sources and includes fish, poultry, beef, milk, yogurt, eggs and cottage cheese, as well as nuts, seeds, beans and lentils.

Probiotics and prebiotics: Probiotics and prebiotics help boost the immune system by increasing population of beneficial microbes in the intestines. Probiotics are live beneficial bacteria whereas prebiotics are specialized plant fibers which act like fertilizers that stimulate the growth of healthy bacteria in the gut. Prebiotics reach the colon undigested and are fermented by the beneficial bacteria in the colon. Sources of probiotics include fermented dairy foods such as yogurt and kefir -a milk drink that has been fermented using kefir grains and contains lactobacilli and bifidobacteria in high doses. Other sources include aged cheeses, as well as fermented foods such as kimchi, sauerkraut, miso, tempeh and sourdough bread. Sources of prebiotics include whole grains, bananas, onions, garlic, leeks, asparagus, artichokes and beans.

Stay hydrated: Mild dehydration can be a physical stressor to the body. Our body depends on water to survive. Every cell, tissue, and organ in our body needs water to work properly. Water is needed for overall good health. Drink 8, 8-ounce glasses of water each day. Eat more fruits and vegetables with high water content like cucumbers, tomatoes, spinach, mushrooms, watermelon, broccoli, brussels sprouts, oranges, apples, lettuce etc.

Healthy eating habits during this corona pandemic:

- Do not eat diseased animals and their products.
- To buy poultry from hygienic areas.
- Wash your hands thoroughly with soap and water for at least 20 seconds before preparing any food.
- Cook thoroughly when consuming meat, eggs and milk.
- Separate cutting boards and knives for handling raw and cooked food.
- Wash your hands thoroughly after handling raw food.
- Even in areas with outbreaks, meat is safe to eat if it is thoroughly cooked and properly handled during food preparation.
- Cooking and eating together is a great way to create healthy routines, strengthen family bonds and have fun.
- Keep perishable items refrigerated or frozen, and pay attention to product expiry dates.
- Aim to recycle or dispose of food waste and packaging in an appropriate and sanitary manner, avoiding build-up of refuse which could attract pests.
- Wash your hands with soap and water for at least 20 seconds before eating and make sure your children do the same.
- Always use clean utensils and plates.

Physical exercise: Engaging in regular physical activity is a great way to help manage stress and strengthen your immune system. In fact, research shows those who partake in regular physical activity have a lower incidence of infection compared to inactive and sedentary individuals.
Being physically active may help reduce the risk of chronic diseases that could further weaken your immune system, including cardiovascular disease, diabetes and obesity.

Exercise also reduces levels of the body's stress hormones, such as adrenaline and cortisol, Lower levels of stress hormones may protect against illness.

Exercise also stimulates the production of endorphins-chemicals in the brain that are the body's natural painkillers and mood elevators.

For an at-home cardio workout, you can do jumping jacks, high knees, butt kicks, burpees and switch jumps.
Also you can use resistance bands for back, bicep, triceps, shoulders and leg work.

And don't forget about the joy of dancing!
If you are looking for something a bit more structured, there are plenty of online options to choose from YouTube.

Quit alcohol and smoking: Studies have shown that drinking too much alcohol can

suppress the immune system and make people more vulnerable to infection.

A weakened immune system not only means a heightened risk for becoming infected with the coronavirus, but also may intensify the severity of the coronavirus disease, COVID-19.

As social distancing sets in, loneliness and depression might also increase, raising the specter of wider alcohol use.

People with depression, anxiety, and substance abuse are also at higher risk when stressed.

As the coronavirus is new, many people around the globe are experimenting with home remedies, including drinking alcohol, in attempts to ward off an infection.

The World Health Organization (WHO) put out a statement on social media dispelling the myth that drinking alcohol prevents coronavirus.

Over 44 people have died from alcohol poisoning in Iran in attempts to prevent coronavirus contagion, according to Iranian news agencies.

A child in Iran went into coma and lost his vision after being given alcohol by his family as a supposed protective measure.

Smokers are likely to be more vulnerable to COVID-19 as the act of smoking means that fingers are in contact with lips which increases the possibility of transmission of virus from hand to mouth. Sharing contaminated cigarettes also can increase transfer risk.

Smokers may also already have lung disease or reduced lung capacity which would greatly increase risk of serious illness.

Smoking products such as water pipes often involve the sharing of mouth pieces and hoses, which could facilitate the transmission of COVID-19 in communal and social settings.

Conditions that increase oxygen needs or reduce the ability of the body to use it properly will put patients at higher risk of serious lung conditions such as pneumonia.

The outbreak of coronavirus disease COVID-19 may be stressful for people.

Fear and anxiety about a disease can be overwhelming and cause strong emotions in adults and children.

Coping with stress will make you, the people you care about, and your community stronger.

Take breaks from watching, reading, or listening to news stories, including social media. Hearing about the pandemic repeatedly can be upsetting.

Much of the reporting around the coronavirus is poor quality and factually inaccurate, feeding feelings of mass hysteria and paranoia.

Stay connected with people. Stay in touch with friends on social media but try not to sensationalize things. Fake news circulates like a wildfire. If you are sharing content, use

this from trusted and credible sources, and remember that your friends might be worried too.

You can try reading books or watching movies, have an exercise routine, try new relaxation techniques, or find new knowledge about your interest on the internet.

Embracing hobbies and areas of interest daily can relax the mind. Listen to songs and spend time practicing a musical instrument you always wanted to play.

There are still plenty of activities you can engage with at home, including crafts, painting, cooking and baking.

Take care of your body and your emotions. Be optimistic and positive.
Take deep breaths, stretch, or meditate. Get plenty of sleep.
Learn to absolve and control anger, which seriously affects immune function.

Good relationships boost immunity, health and longevity.
Those who are feeling anxious, isolated and disappointed, know this: you are not alone.

Psychological balance can improve our immunity in fighting this COVID-19 pandemic.[7-9]

Conclusion: This decade has started with one of the largest pandemics. The current situation is surrounded by many uncertainties, but one thing is sure: The world needs to stand in solidarity to build strong and resilient health systems. First, the global health community needs to evaluate its current metrics for health systems based on the lessons we have learned, and are still learning during this pandemic. Doing so will help more reliably assess the world's preparedness, and ultimately prevent future pandemics from having a disastrous effect similar to COVID-19's, and contain them as close as possible to their source. Second, a new model of development assistance for health, one that is focused on stronger and more resilient health systems, should be the world's top priority. For this, a serious effort is needed to identify a universal framework for resilient health systems, one that helps countries take a defined approach to strengthening their health systems.[10-12]

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How to cite this Article: Johnson M, Chetty K; Corona Prevention and Control- A Preview; Int. Res. Med. Health Sci., 2021; (4-1): 8-22; doi: https://doi.org/10.36437/irmhs.2021.4.1.B
Source of Support: Nil,
Conflict of Interest: None declared.
Received: 17-12-2020; **Revision:** 4-2-2021; **Accepted:** 4-2-2021