Perspective: Mind and Body during COVID-19

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“What is this life if, full of care, We have no time to stand and stare” these are the lines from a famous poem, Leisure by William H. Davies published in 1911 and was extremely relevant in our lives until the COVID-19 pandemic brought our lives almost to a standstill.

Recently, the outbreak of COVID-19, an infectious disease caused by the newly discovered coronavirus was declared a pandemic by WHO and is affecting countries globally. The virus causes moderate respiratory illness and most patients recover without requiring special treatment. Anyone can get infected but older adults and people who have severe underlying medical conditions seem to be at higher risk for developing more serious complications from COVID-19 illness. According to the CDC, preliminary findings suggest that persons with underlying health conditions like diabetes mellitus, chronic lung disease, and cardiovascular disease appear to be at a higher risk for severe disease from COVID-19 than are persons without these conditions.¹

COVID-19 and Lifestyle disorders

In the past weeks the media is constantly bombarding us with numbers stating the Coronavirus cases and deaths. A recent article puts in perspective deaths attributed to COVID-19 with the total number of daily deaths; with cardiovascular disease emerging as the major cause (Figure 1).² Though the COVID-19 crisis might seem overwhelming, the larger picture highlights the prominence of noncommunicable diseases (NCDs) such as heart disease, stroke, cancer and diabetes in total deaths worldwide; yet seemingly neglected by people and the media. According to a joint report by the World Health Organization (WHO) and the World Economic Forum, unhealthy diet, overnutrition, physical inactivity and tobacco use are the major risk factors for noncommunicable diseases. NCDs not only impact the quality of life of affected individuals and their families, but also the country’s socio-economic structure.³

A hectic, stressful and largely sedentary work life of urban Indians has lead to an increase in lifestyle disorders like asthma, depression, sleep disorders, diabetes, hypertension, compromised diet, excessive alcohol consumption all of which are shown to severely compromise our immune system. According to a report by ICMR in 2017, the contribution of non-communicable diseases; which included cardiovascular diseases, diabetes, chronic respiratory diseases, mental health and neurological disorders, cancers, musculoskeletal disorders, and chronic kidney disease; showed an increase from 30% of the total disease burden in 1990 to 55% in 2016.
The report also stated that in 2016, the top two causes of non-communicable diseases in India were ischemic heart disease and chronic obstructive pulmonary disease. 25% of the disease burden was caused by risks such as unhealthy diet, high blood pressure, high blood sugar, high cholesterol, and obesity, which mainly contribute to heart diseases and diabetes. These findings highlight the importance to control these risk factors to reduce the disability weight and improve overall health. These underlying factors are now known to increase susceptibility to COVID-19 infection and increase the fatality rates in patients. We might encounter other viruses in the future and must be prepared to combat them. We should focus on maintaining a healthy lifestyle to reduce the risk of NCDs.

**COVID-19 and Nutrition**

Nutritional requirements, immunity and the risk of infection varies over age and providing necessary micronutrients like Vitamin C, D, Iron etc. in the diet has been linked to lower the risk of lifestyle diseases by boosting the immune system. The Ministry of Ayush also recommends intake of immunity boosting foods to fight the COVID-19 crisis. Micronutrients like vitamins, folate, iron, zinc, copper are known to stimulate antibody production, protect from oxidative damage and reduce inflammation. In turn, the immune response is
compromised when nutrition is poor, predisposing individuals to infections. An individual’s nutritional status affects the clinical course and outcome of certain infections and inflammation; and resistance may be enhanced by adding the deficient nutrient back into the diet to restore immune function.\(^8\)

A recent report by the World Bank has highlighted a global shift in food consumption pattern whereby people are consuming more energy-dense foods (high in sugars and fats) but are engaging in significantly reduced physical activity leading to obesity. Obesity increases the risk of stroke, kidney disease, asthma, depression and a reduced life expectancy.\(^9\)

Overnutrition caused by overeating is linked to obesity and insulin resistance, which are predisposing factors for cardiovascular disease, hypertension and diabetes all of which are linked to enhanced susceptibility to COVID-19 fatalities.\(^10\)

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**Figure 2: Factors influencing the susceptibility to COVID-19 infection. Green indicates protective factors, Red-risk factors and Yellow-can be protective or harmful.**

### Understanding and managing stress

The national lockdown due to COVID-19 has forced people to work from and at home, has grounded children, and has prevented physical contact with other family members, friends and colleagues. Such lifestyle changes and the fear of contracting the virus have been challenging for everyone and especially stressful for some.

Chronic stress induces the production of a stress-hormone, cortisol. Under normal conditions, cortisol is necessary to maintain homeostasis, but when chronically up regulated, it can lead to harmful effects. Elevated levels of
cortisol can increase the risk of insulin resistance, cardiovascular diseases, obesity and suppress the immune system.\textsuperscript{11,12} Long-term stress is shown to suppress both the innate and the adaptive immune responses and induce chronic inflammation, and suppress the function of immunoprotective cells.\textsuperscript{13} Thus stress can lower our quality of life and increase the risk for infections.

**COVID-19 and Exercise**

Regular physical activity benefits both the body and mind. Several studies have demonstrated the protective effects of physical exercise on the risk of cardiovascular disease and diabetes. Exercise also increases respiratory efficiency, cardiac output, bone density, muscle mass and helps reduce depression and anxiety.\textsuperscript{14–16} The WHO recommends all adults to perform at least 150 minutes of moderate-intensity physical activity throughout the week during the COVID-19 crisis.\textsuperscript{17} Exercise reverses the effect of overnutrition, decreases insulin resistance, obesity and controls inflammation.\textsuperscript{18} Thus regular physical activity can reduce hypertension, obesity, risk of heart disease, type-2 diabetes, and various cancers - conditions that can increase susceptibility to COVID-19 infection and mortality. Physical activity enhances the immune system, reduces risk of NCDs and thus improves the overall quality of life.

**Personalized Medicine to tackle COVID-19**

Currently there are no specific vaccines or treatments for COVID-19. The current prescribed medicines are based on broad population averages. Just as we buy clothes that fit our own size and not the average size of a population, we need access to personal medicine, which is tailor-made for our needs and not one that fits a population average. The Human genome was successfully sequenced in early 2003 and since then it has become possible to get one’s genome sequenced in under 1000 $ by providing a simple saliva sample. This data can provide insights on the risks for hereditary diseases including but not limited to cancer, cardiovascular diseases and immune disorders. This in turn can predict how our genetic makeup can influence response to medications, their effectiveness and potential adverse effects.\textsuperscript{19} However, these efforts have not yet proved successful in combatting the COVID-19 pandemic.

A healthy lifestyle is important for boosting the immune system. Exercise and good nutrition are known to enhance immunity and can also help reduce stress and chronic health problems like obesity, heart disease and diabetes among others. Like the governments across the globe are preparing to tackle the COVID-19 crisis, we as individuals can prepare ourselves to combat the disease at a personal level. So until a cure is found, we can prepare ourselves to fight not just COVID-19 but any probable diseases by incorporating a nutritious diet, physical exercise and a healthy lifestyle. STAY SAFE!
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