



In the COVID-19 Era, Nutritional Habits and Recommendations

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Abstract

SARS-CoV-2, which causes Coronavirus Disease-2019, is the most recent coronavirus outbreak (COVID-19). The World Health Organization issued a global alert on this new outbreak, which began in the Chinese city of Wuhan, on January 30, 2020. On February 24, 2020, the World Health Organization (WHO) acknowledged that SARS-CoV-2 had the potential to spread globally and, as a result, may become a pandemic. Since then, countless studies have been published in the academic community with the primary goal of not only understanding how to cure the disease but also investigating how to avoid it. It has been claimed that those who are hungry and have a weakened immune system are more susceptible to infection and have more severe symptoms.

Keywords: *Virus; Pandemic; Covid-19*

Introduction

2019 SARS-CoV-2, which causes Coronavirus Disease-2019, is the most recent coronavirus outbreak (COVID-19). The World Health Organization issued a global alert on January 30, 2020, in response to a new outbreak that began in Wuhan, China. On February 24, 2020, the World Health Organization (WHO) announced that SARS-CoV-2 has the potential to spread globally and become a pandemic. Since then, academics have published a slew of research aimed at understanding not just how to treat the disease, but also how to avoid it. It has been proposed that those who are malnourished and have a weakened immune system are more prone to become infected and have more severe symptoms. Lockdowns and protracted periods of uncertainty have also had an impact on eating patterns. In a recent issue of *Nutrients*, researchers looked at changes in dietary habits and practises, as well as physical activity, during the COVID-19 pandemic in three European countries: Poland, Austria, and the United Kingdom, and compared them to those before the commencement of lockdowns [1]. The key findings of this cross-sectional study are notable because they point to changes in nutritional status and health indices, which could compromise the immune system's function and ability to respond effectively to

exogenous pathogen invasions like SARS-CoV-2. The findings of this study, in particular, suggested that changes in job and general working circumstances, as well as unemployment, could have contributed to an increase in alcohol use. Physical activity levels were also observed to be much lower, which could have had a negative impact on body mass. Furthermore, while there was an increase in interest in online grocery shopping, there was also a drop in shopping frequency. It was also noted that the participants were more likely to eat self-prepared meals rather than obtaining ready-made meals from restaurants or caterers. The lockdown, on the other hand, reduced restaurant attendance and eating out frequency in all three countries analyzed. Furthermore, an increase in snacking and the frequency of purchasing frozen items and food with a long shelf life was noticed, as well as an increase in daily consumption of food products such as dairy, grains, fats, veggies, and sweets. Finally, eating 4–5 meals per day, purchasing ready-made meals at restaurants, and increasing sweets, fruits, and alcohol use enhanced the chances of gaining weight. The above-mentioned findings from Poland, Austria, and the United Kingdom are consistent with those from another study by Ismail and colleagues, who looked at eating habits and lifestyle behaviors among people of the Middle East and North Africa during the 2020 shutdown [2]. The percentage of participants eating five or more meals per day increased during the pandemic, 48.8% and 32.5 percent of participants did not consume fruits and vegetables on a daily basis, 44.1 percent of participants consumed sweets or desserts at least once a day, 32.9 percent consumed salty snacks (chips, crackers, and nuts) daily, and 22.5 percent consumed sweetened drinks at least once a day, according to this study. These eating habits point to a pattern that could lead to weight gain and an increase in obesity rates. Ten of the research discussed in a recent review found that participants increased their snacking during lockdown, and six of the studies found that participants increased their number of meals during lockdown [3]. Interestingly, eleven studies found that changing one's eating habits was helpful, with an increase in fresh produce and home cooking and a decrease in comfort food and alcohol intake. Nine studies reported a decrease in fresh produce, while another six found an increase in comfort foods such as chocolates, fried meals, snack foods, and processed foods. Alcohol consumption was found to be on the rise in two investigations. In eight of the trials, there was an increase in body weight and a decrease in physical activity in seven of them. As a result, the study by Skotnicka and colleagues, which was published in *Nutrients*, adds to our understanding of the changes in eating habits in the COVID-19 era, which may raise the risk of obesity and reduce immune system function. Higher meal frequency and snacking; increased ordering of ready-made meals; increased consumption of sweets, alcohol, processed food, and sweetened drinks; and decreased physical activity are among the alterations observed in this and other studies. Considering that COVID-19 and the methods to prevent and cure it have been present for two years, changes in eating habits and physical activity may be long-term and have a negative impact on a variety of health indices. On the other hand, it's worth noting that the study found certain good food-related behaviours emerged during self-isolation, notably those connected to food quality and preparation methods. Changes in food patterns are seen in children and adolescents as well as adults. The majority of the studies included in a recent systematic review conducted by our group revealed increasing intake of fats and fast foods, as well as processed food, sweet and salty snacks, and sugar-sweetened beverages [4]. Furthermore, all of the research included in this systematic review showed a significant decrease in physical activity, as well as an increase in sedentary and screen time. According to Qiu and colleagues [5], 28.1 percent of children with normal BMI before the lockdown became overweight or obese, 42.4 percent of overweight children became obese, and 46.6 percent of children who started the study as normotensives experienced an increase in blood pressure at the end

of the quarantine. Changes in dietary habits and food consumption as a result of the pandemic from 2020 to today will have an impact on nutrient intake. Boredom, which is a natural result of quarantine, has been linked to greater nutritional energy, fat, carbohydrate, and protein intakes, according to Muscogiuri et al. [6] in a fascinating review. Furthermore, frequent negative media coverage of the epidemic will heighten stress and could lead to people overeating, particularly sugary "comfort foods." Carbohydrate cravings are known to promote serotonin production, which has a positive influence on mood. This bad eating habit could raise the chance of obesity, which is a major risk factor for cardiovascular disease, diabetes, and respiratory disorders, all of which have been linked to an increased risk of catastrophic COVID-19 consequences. Increased consumption of fat, carbs, and protein has been linked to micronutrient shortages, which can affect immune system performance. Increased consumption of fruits and vegetables, which are rich in various key micronutrients, has been shown to increase the number of T-cell subsets, improve lymphocyte response to mitogen, increase interleukin-2 production, and improve natural killer cell activity. Finally, vitamin D has been shown to improve the function of the respiratory tract by protecting tight junctions, killing encapsulated viruses, and reducing the generation of proinflammatory cytokines by the innate immune system, lowering the likelihood of a cytokine storm leading to pneumonia. The question therefore becomes whether a healthy diet is sufficient or whether several nutrients must be supplemented. Louca et al. recruited 445,850 users to an app designed to promote self-reported information about SARS-CoV-2 infection in order to contribute to this scientific problem. There were 372,720 subscribers in the United Kingdom, 45,757 in the United States, and 27,373 in Sweden. 175,652 of the participants in the UK used supplements, whereas 197,068 did not. After correcting for potential confounders, individuals who took probiotics, omega-3 fatty acids, multivitamins, or vitamin D had a 14 percent, 12 percent, 13 percent, and 9 percent lower risk of SARS-CoV-2 infection, respectively. Supplementing with vitamin C, zinc, or garlic had no influence on the likelihood of SARS-CoV-2 infection. Surprisingly, the favourable effects of probiotics, omega-3 fatty acids, multivitamins, and vitamin D were only shown in women who took them. In both the US and Swedish cohorts, the same overall pattern of correlation was seen. As a result, recommending vitamin and mineral supplements does not always imply that positive consequences are expected.

Conclusion

Finally, a recent review outlined nutritional standards to support dietitians' and other health-care providers' dietary counselling. The majority of the guidelines advocated eating fruits, vegetables, and whole grain diets, according to this research. Thirty-one percent of the recommendations emphasised the importance of minerals and vitamins such zinc and vitamins C, A, and D in maintaining immune system function. On the other side, it was also mentioned that nutritional supplementation was not linked to the prevention of COVID-19. Supplementation with vitamins C and D, as well as zinc and selenium, was also suggested as having some protective effects, but only in patients with or at risk of respiratory virus infections, or in individuals with a nutrient shortage. It's also worth noting that, while some vitamins and minerals may help the immune system work better, they shouldn't be consumed in excess. Megadoses can be hazardous, cause a variety of side effects, and even interact negatively with pharmacological treatment. SB protocols can now be used on a small or big scale, with additional adjustments based on local needs and innovations. As a result, the SB methods may be steadily improved and integrated with modern breeding methodologies to fully realise their potential for

discovering and transmitting essential genes for crop resilience and adaptation. Collaborative international partnerships with multidisciplinary teams are essential to promote the integration of SB systems in basic and applied research, particularly in developing countries.

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