

A Critical Analysis of COVID-19 with Special Emphasis to Air Quality and its Consequences

T. Khan¹, A. Lawrence^{2*}

¹Integral University, Lucknow, India, ²Isabella Thoburn College, Lucknow, India

SARS-CoV-2, also known as COVID-19 has taken over the world. The deadly virus causes serious respiratory infections in humans. A number of researches are ongoing to contain the spread of the virus. The aim of this review is to assess the impact of air pollution and environmental factors which may influence the transmission of the disease. This study is aimed to review and analyse various dimensions related to SARS-CoV-2, including its origination, structural features, mode of spread, clinical symptoms and the effect of air pollution in relation to the spread of the virus and the status of in air quality during the lockdown. Air pollutants induce oxidative stress in the airways initiating an inflammatory response and facilitating release of inflammatory cells and mediators (cytokines, chemokines, having a negative effect on the respiratory system. Transmission of the SARS-CoV-2 may be facilitated by the airborne particulate matter. The air quality in cities like New Delhi and Wuhan has been constantly degrading. During the SARS outbreak in China affected patients were more likely to succumb if they belonged to areas of high air pollution. Evidences have suggested that the spike in air pollution may exacerbate the number of infections and the improved air quality during the lockdown period may somewhat influence the faster recovery rate. Positive effect of lockdown on the overall air quality has also been analyzed. Diverse environmental factors like temperature, humidity and air pollution have also acted as contributing factors for the facilitated spread of the infection, or at least in making people more vulnerable to it which makes it an issue of considerable attention in developing countries like India, due to the high air pollution levels in megacities. In developing countries like India, the spread of the virus may be influenced by ambient air pollution, because pollution has been proven to accelerate respiratory illnesses including COVID-19.