Kaggle Task Analysis: Risk Factors

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**Introduction**

As COVID-19 continues to spread globally, much research has been done about the virus. The unprecedented global pandemic has affected the lives of individuals worldwide, directly or indirectly whether it be through health, the economy, travel and tourism, businesses, education, among others. Transmission of the virus has been seen with apparent results, with the virus now being carried by about 3.4 million individuals. But what are the factors that lead to the spread of the virus? What factors contribute to its severity? The following analysis examines three Kaggle notebooks that have answered the task, “What do we know about COVID-19 risk factors?” The three Kaggle notebooks simply cited various articles to perform this task, thus each had overlapping information. This analysis will look through the common risk factors presented by the notebooks.

**Smoking**

Individuals with a history of smoking are stated to have higher risk for COVID-19. According to the user r.sy, long term smoking “could elevate the expression of ACE2” which would result with the increase of COVID-19 infection. COVID-19 cases have been found in patients such elderly males with long histories of smoking combined with other diseases (r.sy, 2020). This could be so as smoking leads to irreversible and severe lung diseases. COVID-19 symptoms could amplify those diseases, making these individuals more at risk.

**Gender**

According to Mezzetti’s article analyses, after sampling 140 hospitalized patients with COVID-19, there was a 1:1 ratio between male and female. However, males had higher mortality rates (8.8%) than females (2.7%). In his analysis, he also stated that females that are positive with COVID-19 have a mortality rate that is 29% lower than male cases. (Mezzetti, 2020). Another Kaggle submission from a different task presumed that this is so as “males are more subjected to moving out of homes even in quarantine zones” (Kumar, 2020).

**Pregnancy**

Pregnancy is not necessarily a factor that leads to COVID-19, however women who are pregnant may have complications with their pregnancies once they get infected, especially with the inherent symptoms. However, according to Ken Miller’s analyses, “pregnant women could be more susceptible to co vid - 19 infection than the general population.” This is so due to the SARS COV-2 history. (Miller, 2020). Lesser information is known about babies born from COVID-19 positive women. However, on February 6, 2020 a neonate born tested positive for SARS-CoV-2 infection. This baby was birthed by a mother who had COVID-19 pneumonia (r.sy, 2020).

**Heart and Cardiovascular Disease**

All three Kaggle notebooks noted that cardiovascular disease is among the significant factors that affect COVID-19. In his notebook, he stated that “the most prevalent comorbidity were hypertension (17 ± 7, 95% CI 14-22%) and diabetes ( 8 ± 6, 95% CI 6-11% ), followed by cardiovascular diseases ( 5 ± 4, 95% CI 4-7% ) and respiratory system disease( 2 ± 0, 95% CI 1-3% ).” This means that individuals who have more than one chronic disease, they are more susceptible to COVID-19 infection. Many COVID-19 related deaths involved patients with cardiovascular diseases (Mezzetti, 2020).

**Chronic Obstructive Pulmonary Disease**

According to Miller, the COVID-19 virus increases the severity of complications of individuals who have chronic obstructive pulmonary disease of (COPD). He then cited that studies showed a higher mortality rate (60%) for COPD patients (Miller, 2020).

**Respiratory Diseases**

Miller noted that COVID-19 will increase chest distress and respiratory symptoms of people with respiratory diseases (Miller, 2020). Such patients, paired with smoking histories, who are infected with COVID-19 have increased “acute respiratory distress syndrome ( ARDS ) and length of hospital stay” (r.sy, 2020). This difficulty in breathing requires such patients to have more medical attention.

**Discussion/Conclusion**

COVID-19 has been observed and regarded as an unprecedented pandemic. However, various individuals are much more susceptible than others. Risk factors such as smoking, pregnancy, cardiovascular diseases, age, and even gender, have different likelihoods of being infected by the coronavirus, some higher than others. It could even be possible that someone is infected by the virus, but are asymptomatic, and can simply recover by social isolation. Some, however, require hospitalization and more immediate medical attention, especially those with multiple chronic diseases and older age. Thus, it is imperative for the general population to strictly follow lockdown procedures and maintain proper hygiene. With high transmission rates and various risk factors, we must simply do our parts to prevent the spread of this virus.

**References**

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