New study shows impact of international travel on death rates during COVID first wave

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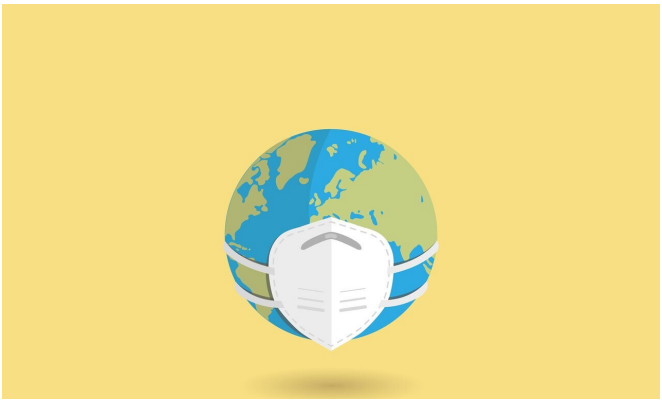

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A new study comparing countries most severely hit by COVID-19 during the first wave of the pandemic has found that international travel showed the biggest impact on increases in death rates.

A research team from the University of Aberdeen, which has published findings in in *BMJ Open*, examined a range of factors including country-level international arrivals, population density, the percentage of people living in urban areas, age, average body mass index and smoking prevalence.

They then compared these to mortality rates across the 37 countries most severely affected by the first wave of the pandemic.

They found that once adjustments were made for these factors, as well as for the impact of socioeconomic and environmental conditions and healthcare systems, the biggest increase in death rates was associated with international arrivals.

Their work focused on the early stages of the pandemic, using international travel data for 2018 as a proxy for 2020 data before international travel restrictions were imposed. They found that an increase of a million international arrivals was associated with a 3.4% increase in the mean daily increase in COVID-19 deaths during the first wave of the pandemic.

The research was conducted by a team of medical student researchers from the University of Aberdeen supervised by Professor Phyo Myint and Dr. Sohinee Bhattacharya.

First author of the study Tiberiu Pana, a final year medical student, said: "A year on since the first cases of COVID-19 were reported in China, this pandemic has unfortunately spread across the globe. Nevertheless, the initial spread of the virus in early 2020 appeared to affect different countries unequally, with the United Kingdom and other western European countries being especially affected.

"We were interested to understand the country-level factors that influence the spread of the pandemic and our team of medical students with research experience collected a wide range of publicly available data on country-level demographic, economic, environmental, population health and health system factors for the most affected countries during the first wave."

The authors analyzed the relationship between these factors and the mean increase in daily deaths recorded in each country during this time frame.

Tiberiu added: "We found that international travel was the strongest predictor of mortality increase.

"Another factor which appeared to play an important role was country-level BCG vaccination

coverage, increases in which may be associated with decreases in death rates. Nevertheless, these associations were weaker and further work looking at individual patients is required to clarify these potential relationships.

"Our assessment of available data indicates that very early restrictions on international travel might have made a difference in the spread of pandemic in western Europe, including the UK.

"These findings are particularly important as the world looks to control future waves and strains of the COVID-19 pandemic and prevent related deaths."

Professor Phyo Myint, the lead author and the Director of the Aberdeen Clinical Academic Training Scheme said: "This is important research led by University of Aberdeen Medical Students who have demonstrated robust use of publicly available data to inform future policies in preventing spread of the COVID-19."

More information: Tiberiu A Pana et al. Country-level determinants of the severity of the first global wave of the COVID-19 pandemic: an ecological study, *BMJ Open* (2021). DOI: 10.1136/bmjopen-2020-042034