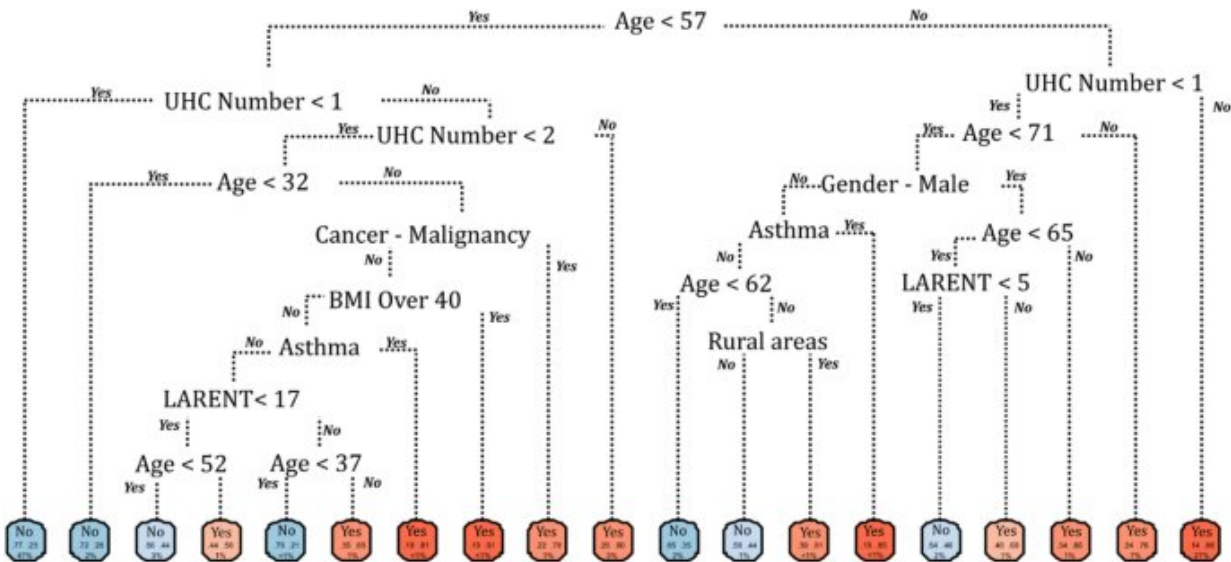


Study reveals first Irish picture of the socioeconomic impact of the pandemic

September 21 2021



Recursive partitioning and regression tree (rtree) model for hospitalization among symptomatic COVID-19 cases in the Republic of Ireland, February to November 2020. Credit: DOI: 10.1038/s41598-021-98008-6

Rural dwellers in Ireland and those living in public housing, were among the hardest hit by the COVID-19 pandemic, with residents in those areas across Ireland experiencing higher rates of hospitalisations, a University College Cork (UCC) and Technological University Dublin (TUDublin) study finds.

The study published in *Nature Scientific Reports* examined the age, gender, regional socio-[economic status](#) and urban/rural classification of symptomatic COVID-19 patients in Ireland through to hospitalization, intensive care and death. Close to 50,000 cases of COVID-19 in Ireland's first two waves of the pandemic were analyzed, with the study creating the first socio-economic picture of who, and where in Ireland were the most impacted during the pandemic.

The urban rural impact of the pandemic

The pioneering analysis shows that from a socio-geographic/economic perspective, patients living in categorically rural areas and in regions characterized by higher rates of local authority (i.e., publicly-supported) housing were also at increased risk of hospitalization. While residents in categorically [rural areas](#) was associated with a higher likelihood of hospitalization, the opposite was true for admission to ICU, whereby urban dwellers were approximately 1.5 times more likely to require critical care.

Urban living may be indicative of multiple individual or interacting factors including higher levels of deprivation, higher viral exposures (i.e., close contacts) due to increased household and/or local population density or compounded respiratory illnesses due to lower air quality in urban areas, the study noted.

Males most likely to be hospitalized, admitted to ICU, or die

The research showed how both men and women in Ireland were impacted by COVID-19, with men approximately 1.5 times more likely to be hospitalized, admitted to ICU, or die, than women.

The analysis highlighted that a review of the sex- and gender-related differences associated with COVID-19 outcomes in Europe proposes numerous potential reasons for this relationship, including gender-specific lifestyle, health behaviors, psychological stress, and socioeconomic conditions, in addition to several sex-specific biological mechanisms modulating the course of disease, including hormone-regulated gene expression, innate and adaptive immune responses, and immune-aging.

The study outlined how there is a strong evidence base to suggest that upon infection with SARS-CoV-2, females may be better equipped to initially respond, and reduce viral invasion and pathogenicity compared to males.

Robust evidence base for development of increasingly targeted public-health recommendations

The study was funded by Science Foundation Ireland (SFI), and the researchers highlight how the findings will help provide robust evidence for development of increasingly targeted public-health recommendations.

"Monitoring the clinical outcomes of patients diagnosed with COVID-19 is vital to understand the epidemiological and healthcare burden of SARSCoV-2, to help prioritize high-risk cases in the short term, and perhaps more importantly, provide a robust evidence-base for future public health emergency planning" states Dr. Jean Dwyer, environmental scientist in the School of Biological, Earth and Environmental Sciences at University College Cork who is Co-Principal Investigator of the study along with Dr. Paul Hynds (TUDublin).

More information: M. Boudou et al, Modelling COVID-19 severity in

the Republic of Ireland using patient co-morbidities, socioeconomic profile and geographic location, February to November 2020, *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-98008-6](https://doi.org/10.1038/s41598-021-98008-6)

Provided by University College Cork

Citation: Study reveals first Irish picture of the socioeconomic impact of the pandemic (2021, September 21) retrieved 4 May 2024 from <https://medicalxpress.com/news/2021-09-reveals-irish-picture-socioeconomic-impact.html>

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