



Press Release

Covid and wearing masks outdoors: How culture and evolution shape our behavior

University of Tübingen-led international team demonstrates influence of a society's experiences on how people deal with infection risk to themselves and others

Christfried Dornis
Director

Janna Eberhardt
Research reporter

Phone +49 7071 29-77853
janna.eberhardt[at]uni-tuebingen.de

presse[at]uni-tuebingen.de
www.uni-tuebingen.de/aktuell

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An international research team led by Christoph Randler, Professor of Biology Education at the University of Tübingen, has found that during the Covid-19 pandemic, people from collectivist societies such as Japan showed a greater willingness to wear masks outdoors than those from individualistic countries such as the USA. An increased willingness to wear masks outdoors was also observed in regions that have been particularly affected by pathogens for thousands of years. Professor Randler and his team arrived at these conclusions after assessing an online survey conducted in 53 countries. The study was recently published in the journal *Social Science Research*.

Masks covering the nose and mouth were intended to protect against coronavirus infection during the Covid-19 pandemic. How effective they were in which situations was not always clear. Irrespective of this, Randler and his team were interested in how willing people from different nations and cultures were to wear a mask to protect themselves and, above all, to reduce the risk of infection for others.

Self-reporting via online survey

During the pandemic from December 2020 to April 2021, the research team asked birdwatchers from 53 countries for information on wearing masks outdoors. "We focused on outdoor leisure activities, as there were fewer government regulations, or at least less government control, than in indoor spaces such as schools or on public transport. This meant that behavior was more at people's own discretion," explains Randler. More than 4,000 participants completed the questionnaire. Randler says the survey is not representative of the population as a whole, its limitations being that women are underrepresented in the group of people who birdwatch in their free time and this group's average age is higher. The information provided by the respondents was supplemented by data on population

density, the country's economic situation, the official requirements for mask-wearing, and the historical burden of pathogens in the respective country.

The results showed that the respective government requirements for anti-Covid measures played a role in the decision to wear a mask, says Randler. "However, the two factors of collectivist versus individualistic society, and the historical burden of disease in the region were particularly important," says Randler. "Interestingly, the severity of government anti-Covid measures could also be predicted by the history of the spread of pathogens in the respective country." Governments were stricter where countries had heavier burdens from pathogens and previous epidemics. Randler points out the astonishing degree to which our evolutionary past still influences our behavior today – right up to political decisions on mandatory mask-wearing.

According to Randler, the study also confirmed some known trends: older people and women were more likely to wear masks than younger people and men. With this comprehensive study on the use of masks, incorporating evolutionary and biological traits with cultural and sociological ones, the research team aimed to contribute to a scientific appraisal surrounding the events of the Covid-19 pandemic.



The willingness to wear a mask outdoors during the Covid-19 pandemic depended on various factors. Photo: Rebecca Hahn/University of Tübingen

Publication:

Christoph Randler, Jukka Jokimäki, Nadine Kalb, Maria de Salvo, Renan de Almeida Barbosa, Marja-Liisa Kaisanlahti-Jokimäki, Jo-Szu Tsai, Raúl Ortiz-Pulido, Piotr Tryjanowski: COVID-19 facial covering during outdoor recreation reflects historical disease prevalence and culture above and beyond governmental measures – A study in 53 countries. *Social Science Research*, <https://doi.org/10.1016/j.ssresearch.2025.103145>

Contact:

Professor Dr. Christoph Randler
University of Tübingen
Didactics of Biology
Phone +49 7071 29-74611
christoph.randler[at]uni-tuebingen.de