Time series cross-correlation between home range and number of
infected people using human mobility data
: Toward walkable city for post-pandemic era

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The background of this study is the COVID-19 pandemic. As the infection is characterized by droplet transmission, non-medical interventions were considered to be one of the most important countermeasures. Measures to control the movement of people were considered necessary to represent such non-medical interventions. However, even if the number of infected people can be reduced, the significant social and economic impact is considered problematic. The aim of this study was to analyze the relationship between the number of new SARS-CoV-2 infections and changes in human mobility during the medium-term pandemic period from April 2020 to September 2021. This study analyses two types of human mobility; the personal-based home ranges and the area-based human mobilities.

The study concludes that the relationship between human mobility and the number of new infections during the medium-term pandemic period is weak. It suggests that the suppression of human mobility during the medium-term pandemic period is unlikely to have contributed to reducing the number of infections. The important conclusion of this study is to identify a weaker relationship for the medium-term pandemic period, given the policy context in which suppression of human mobility was emphasized as an infection prevention measure during the early-term pandemic period. The conclusions of this study are relevant as the Japanese government has decided to change the status of infections to 'category 5', the same as seasonal influenza.

The results of this study were published in the journals of the npj Urban Sustainability and the Plos One.