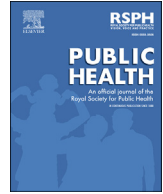




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Letter to the Editor

Re: Can the summer temperature reduce COVID-19 cases?



We are very happy to see that Mandal and Panwar¹ raised a speculation about temperature and COVID-19 spread. They obtained a meaningful conclusion that there may be a negative correlation between the environmental temperature of a country and COVID-19 cases. Indeed, temperature can influence the immune system and virus activity to a certain extent. Low temperature environments can suppress the immune response, and people in low temperatures are more susceptible to being infected. Warm and moist environments can suppress the spread in early stage, but there are too many susceptible populations;² the pandemic will not decrease in summer, and the warm temperature cannot stop the spread of the virus. The government regulation and cooperation of public can be a more important role in a modern society.

In countries where government control is laxer, the cooperation of the public is the key point. In Japan and America, for example, the latitude of Tokyo and New York is similar and Tokyo has even higher population density. However, from Tokyo official website, the number of daily new cases of COVID-19 significantly decreased after May 6th. Between May 6th and June 23rd, the number of new cases was below 50 per day. But for New York, the number of new cases reached a maximum in April and then gradually decreased but was still over 500 per day in June. The difference may be explained by different attitudes toward the epidemic situation and cultures of two countries. The Japanese seem to be more cautious in reducing unnecessary going out and wearing masks. According to a report, during the golden week of 2020, a noticeable decrease was found in the year-over-year of the average number of passenger flow of Japan Railway (JR) Line. Compared to previous year, the average number of passenger flow of JR Line declined substantially (95%), as the number of JR East Japan's "Narita Express" (99%). Reducing travel can be an effective way to control the outbreak.³ In addition, the Japanese have a 'Cough etiquette', that people who get a cold should wear mask lest infect others. Besides, Takata Suzuki, a professor of Aichi Medical University found that about 94% Japanese wore masks regularly or at all times this year.

However, in America the culture is totally different, a survey of Longwoods International found that 86% of Americans want to travel within America once social isolation and other measures are relieved. Although the situation in America is still worse, more young people do not want to stay at home anymore. Data from the American CDC show that the average age of COVID-19 infection in the United States was significantly reduced. In Arizona, the average age reduced from 48 years in March to 39 years in June,

and in Florida, the average age is only 34 years. Moreover, Axios reported only 50% of Americans wore masks. As Dr. Fauci said, one-third of the Americans are unwilling to get a COVID-19 vaccine. The virus may still be out of control even when a vaccine has been developed.

Except for Japan, COVID-19 in some other Asian countries with different temperatures, such as Singapore, South Korea and China, in these countries, the government regulation is much more powerful, the pandemic is almost under control, which showed environmental temperature may not be a vital factor for virus transmission. In summary, we believe environmental temperature may affect viral activity (the source of infection), but government regulation and cooperation of the public play a more important role in blocking the route of transmission and protecting susceptible population.⁴

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